Is Cash Still King?
Exploring How Township Retailers Navigate Physical and Digital Money

A Dissertation

presented to

The Master of Philosophy (MPhil)

Graduate School of Business
University of Cape Town

In fulfilment
of the requirements for the Degree of
Master of Philosophy in Inclusive Innovation

by

Tshwanelo Modise

MDSTSH036

November 2024

Supervisor: Dr Graunt Kruger

Plagiarism Declaration

COMPULSORY DECLARATION:

1. I certify that I have read and understand the Commerce Faculty Ethics in Research Policy. http://www.commerce.uct.ac.za/Pages/ComFac-Downloads
2. I certify that I have read the General Rules and Policies Handbook (Handbook 3) regarding Student Rules of Academic Conduct: RCS1.1 to RCS3.2 and Rules Relating to examinations G20.1 to G22.2.
3. I certify that I have read and understand the document, "Avoiding Plagiarism: A Guide for students".
4. This work has not been previously submitted in whole, or in part, for the award of any degree in this or any other university. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works of other people has been attributed, and has been cited and referenced.

   I authorise the University of Cape Town to reproduce for the purpose of research either the whole or any portion of contents in any manner whatsoever.

Student number	MDSTSH036
Student name	Tshwanelo Modise
Signature of Student	Signed by candidate
Date:	13/11/2024

Acknowledgements

I extend my gratitude to the business owners in Tlhabane for generously sharing their stories. To Dr Graunt Kruger, your guidance has enriched this work beyond measure. Lastly, I am deeply thankful for my mother's prayers and the unwavering support of my loved ones.

Abstract

Despite the rise of digital payments, cash remains integral to township economic tapestry, valued for its relational and adaptable qualities that digital alternatives have yet to fully emulate. This study challenges the conventional 'cash versus digital payments' dichotomy by presenting township retailers as informal financial intermediaries who navigate the sophistication of digital payments alongside the deeply ingrained social and economic functions of cash.

Guided by Orlikowski's (1992) Structurational Model of Technology, this research reveals how socio-technical dynamics shape payment behaviours. It asserts that although digital payments are promoted as tools of financial inclusion, cash reflects social interactions and relational norms that digital methods have yet to fully replicate. Township businesses creatively navigate this dual payments system with situational adaptability, demonstrated through unique practices like ‘sweets-for-change,’ which restructure the role of cash in the township business landscape.

Through an evaluative lens, this research examines whether digital payments fulfil their promise of financial inclusion in cash-based economies, and advocates for financial solutions that recognise and leverage the symbiotic relationship between cash and digital payments. This research concludes that while cash may not undisputedly be king, it remains a vital component of the economic fabric in townships, coexisting with digital payments in a way that reflects the adaptability and resilience of these communities.

Keywords: *socio-informatics, financial inclusion, township economy, South Africa, digital payments.*

Table of Contents

CHAPTER 1: INTRODUCTION

1.1 Introduction

In the early morning rush in South African townships, people hurry to work and children bustle to school, each pausing at the nearest spaza shop to grab a quick bite to kickstart their day. In this vibrant environment, cash flows seamlessly between community members and spaza shop owners. Amidst this vibrant scene, digital payments struggle to displace cash. Despite the widespread access to digital payments, cash remains sticky. This paradox, where cutting-edge financial technologies coexist with age-old financial habits, underscores a critical inquiry: Is cash still king?

This research examines the intricate relationship between cash and digital payments within South African township economies. It focuses on how township retailers adapt to and integrate these payment methods into their business practices. The study problematises the assumption that digital payments will seamlessly replace cash in township settings, arguing that a nuanced understanding is needed to explain why cash persists alongside emerging financial technologies. Furthermore, the research adopts an exploratory approach, drawing on qualitative methodologies such as in-depth interviews and ethnographic observations to uncover the socio-technical dynamics (Latour, 1990; Bijker, 1997; Pinch & Bijker, 1984) that shape payment preferences and behaviours among township business owners. By applying the Structurational Model of Technology (Orlikowski, 1992), the study provides a theoretical lens to examine how cash and digital payments are co-constructed within these communities, revealing the social and cultural factors that underpin financial decision-making processes.

The significance of this research lies in its contribution to academic and practical discourses on financial inclusion and socio-technical theory. For academics, this study offers a deeper understanding of how digital payment systems interact with existing financial structures in informal economies, challenging the binary view of 'cash versus digital payments.' For practitioners and policymakers, it provides actionable insights into designing hybrid payment systems that reflect the realities of township businesses and support their role as integral economic stakeholders. Understanding this duality is crucial for crafting strategies that enhance financial inclusion while respecting the socio-cultural fabric of township communities, ensuring that digital payment solutions are not only accessible but also contextually relevant and trusted.

In summary, this study addresses a pressing question in the financial inclusion landscape. It highlights the resilience and adaptability of township businesses as they navigate a complex and evolving payment ecosystem. By uncovering the factors that sustain the coexistence of cash and digital payments, this

research contributes valuable knowledge to inform future financial inclusion strategies and deepen our theoretical understanding of socio-technical interactions in emerging market contexts.

1.2 Context

This study examines the intricate dynamics of payment systems within South African township economies, where cash remains a sticky issue despite the growing availability of digital payment solutions. Historically marginalised by apartheid-era policies, South African townships have developed as predominantly informal economies, with cash deeply embedded as the primary medium of exchange (FinMark Trust, 2023; Seekings, 2022). The persistent use of cash is driven by its trustworthiness, immediacy, and the practical need to operate in environments where formal financial services are often inaccessible or viewed as overly burdensome (Charman & Petersen, 2015; Kibuuka & Tustin, 2019).

Despite the push towards digital payment solutions, financial inclusion in South Africa is often framed within the context of adopting these technologies, underpinned by the assumption that the displacement of cash by digital payments will automatically lead to greater financial inclusion (FinMark Trust, 2023). This narrative is central to the South African Reserve Bank's Vision 2025 strategy, which aims to reduce cash dependency and foster greater financial inclusion by promoting digital payment platforms like PayShap (South African Reserve Bank, 2024). The strategy assumes that as more businesses and consumers adopt digital payment methods, financial services will become more inclusive, accessible, and efficient.

However, the reality in South African townships tells a different story. While many businesses are becoming increasingly tech-enabled, with high mobile phone penetration rates (Chigada & Hirschfelder, 2017), cash persists. 66% of township micro, small, and medium enterprises (MSMEs) operate informally and rely primarily on cash transactions despite the availability of digital payment options (FinMark Trust, 2023). This persistence of cash usage underscores the complex socio-economic factors at play, where various challenges, including transaction costs, mistrust of formal financial systems, and the ingrained habits of cash usage, influence the adoption of digital payments. This complexity is a key aspect of the research as we strive to comprehensively understand the issue (Charman & Petersen, 2015).

This study, therefore, situates its analysis within this context, exploring how township business owners navigate the dual realities of cash and digital payments. It examines the assumption that digital payment adoption alone will drive financial inclusion, arguing instead for a more nuanced understanding that considers the socio-economic realities of township businesses. By applying Orlikowski’s (1992)

Structurational Model of Technology, this study aims to explore how these payment methods mediate economic behaviour and interact with the broader structures within township settings, thereby contributing to the ongoing discourse on financial inclusion and economic development in South Africa (Giddens, 1986; Orlikowski, 1992).

1.3 Problem Statement

Is cash still king?

Despite advances in digital payment technologies, cash remains a vital component of economic transactions, particularly in emerging markets. FirstRand's study on the scale of the cash economy in South Africa (Rumney, 2021) highlighted the complexities of providing banking services to cash-only businesses in South African townships, underscoring the challenges and persistent reliance on cash. As Rumney (2021) stated, *"FirstRand has found offering banking to cash-only businesses in South African townships trickier than expected."*

In a study about money and sociality, Neves and Du Toit (2012) argue that attitudes towards money are shaped by culture and ultimately influence economic outcomes. The persistence of cash payments is also attributed to the reluctance of township businesses to formalise, as doing so would require them to navigate complex paperwork and absorb bank charges that could erode their already thin profit margins (Kibuuka & Tustin, 2019).

The discourse in economic literature often presents the choice between cash and digital payments as binary (Achord et al., 2017; Bátiz-Lazo et al., 2018); however, this simplifies the complex dynamics at play, which include a multifaceted relationship between different forms of money. For instance, Ashworth and Goodhart (2020) noted that cash circulation in major economies, such as those in Europe, Japan, the United Kingdom, and the United States has increased since the 1990s, influenced by factors including low interest rates and the growth of the informal economy. A study by Bech et al. (2018) for the Bank for International Settlements examined cash demand in 20 emerging markets and found an increase from 7% to 9% of GDP between 2000 and 2016. The study also noted that more extensive denomination notes are increasingly used as a store of value rather than for transactions (Bech et al., 2018). Srouji (2020) argues that while there is evidence of increased physical cash usage in emerging markets and among unbanked populations, the underlying reasons for this trend still need to be sufficiently understood. Furthermore, the rise in mobile money solutions that facilitate cash transactions suggests a more integrated role for cash in the digital economy rather than a straightforward displacement by digital methods.

1.3.1 Significance of the Research Question

Understanding the coexistence and interaction between cash and digital payments can inform the design of more effective and inclusive financial products and services. For instance, the study could reveal opportunities for hybrid payment solutions that leverage the strengths of both cash and digital systems, thereby enhancing their utility and appeal in township settings.

I. **Financial inclusion:** The South African Reserve Bank and other financial institutions actively promote digital payment systems to achieve broader financial inclusion. However, the continued persistence of cash in township economies challenges the assumption that digital payments alone can drive financial inclusion. By examining why cash remains prevalent, this research offers insights into how financial inclusion strategies can be adapted to serve these communities better (FinMark Trust, 2023; South African Reserve Bank, 2024).

II. **Policy implications:** The findings of this research have direct implications for policymakers who are tasked with crafting regulations and policies that encourage the adoption of digital payment systems while also acknowledging the continued importance of cash. If the realities of township economies are not fully understood, policies may inadvertently exclude or disadvantage the very communities they are intended to help (Kibuuka & Tustin, 2019).

III. **Global relevance:** The dynamics observed in South African townships are not unique to this context but reflect broader trends in many emerging markets worldwide. As such, the findings from this research could provide valuable insights for other regions facing similar challenges, contributing to the global discourse on financial inclusion and the digital economy (Ashworth & Goodhart, 2020; Bech et al., 2018).

The relationship between cash and digital payments is complex and non-linear. Emerging trends indicate that both forms of payment can coexist and even enhance one another's utility in various economic contexts. This research examines these interactions, particularly in the township business landscape, to gain a deeper understanding of the enduring role of cash and its implications for financial behaviour. By studying this problem, we can develop better insights about the barriers and facilitators to financial inclusion in marginalised communities, inform more effective policy and innovation strategies, and contribute to a more inclusive and equitable economic system.

1.4 Knowledge Gap

As digital payment systems are increasingly promoted as tools for financial inclusion, a significant gap remains in understanding how township retailers—who often operate within informal economies—navigate this evolving landscape. Addressing the following research gaps will allow the research to explore how township retailers enact, adapt to, and are constrained by physical cash and digital payment systems. By focusing on the agency of these retailers, their flexible payment practices, and the regulatory context in which they operate, this research aims to provide a nuanced understanding of the dynamics at play.

I. **The agency of township retailers**: This dynamic plays a critical role in the ongoing discourse around the digitisation of money. Porteous et al. (2005) highlight that the full realisation of a digitised monetary system remains elusive, particularly within the township context. The research underscores the importance of examining the agency of these retailers, which is defined as their capacity to act purposefully, make informed choices, and exert influence over their actions and the surrounding social structures (Giddens, 1986; Orlikowski, 1992). This focus on agency is essential for understanding how township retailers navigate and interact with the broader financial landscape. While much of the existing research has concentrated on consumer behaviours, there must be a significant gap in exploring the active decisions and interpretations of business owners as they adopt, resist, or adapt to digital payment methods. According to Charman and Petersen (2015), the socio-economic structures within townships, often shaped by historical and regulatory contexts, influence how these businesses operate and make strategic choices. These decisions are not merely reactions to external pressures but strategic actions that reflect the complex interplay between individual agencies and the socio-economic structures in which these retailers operate (Kibuuka & Tustin, 2019). A thorough examination of this dynamic is necessary to fully grasp how digital payment systems are integrated into, or resisted by, township businesses and what this means for the broader goal of financial inclusion (Charman & Petersen, 2015; Holmes, 2014). Understanding these interactions will provide deeper insights into the adaptability and resilience of township businesses within the evolving financial ecosystem.

II. **Flexible payment practices:** Holmes (2014) underscores that physical cash remains the dominant payment instrument in many regions of South Africa, particularly within township economies. The persistence of cash usage highlights a critical gap in our understanding of how township retailers navigate and enact flexible payment practices, incorporating both physical and digital payment methods. As Orlikowski (1992) explains,

enactment refers to the process by which technology is adopted and actively put into practice, where human choices and actions shape its use and significance within specific contexts. This theoretical lens is crucial for exploring how township businesses not only utilise technology but also influence and are influenced by it in their daily operations.

The existing body of research primarily focuses on adopting one payment method over another, often framing the transition to digital payments as a linear or binary process. However, this perspective overlooks the nuanced ways township retailers simultaneously engage with cash and digital payments, managing their inherent tensions and synergies. Understanding how these businesses enact and integrate multiple payment systems provides deeper insights into their adaptive strategies for navigating complex socio-economic environments (Charman & Petersen, 2015; Giddens, 1986). This approach challenges the prevailing narrative that positions digital payments as a wholesale replacement for cash, instead revealing a more intricate and dynamic interplay between the two, shaped by the everyday practices and decisions of township retailers (Holmes, 2014; Porteous et al., 2005).

By examining these enactment processes (Giddens, 1986; Orlikowski, 1992), we can gain a more comprehensive understanding of how township businesses negotiate the coexistence of physical and digital payment systems. This ultimately contributes to a more nuanced view of financial inclusion and technological adoption in these communities. This understanding is essential for developing more effective and contextually relevant financial solutions that reflect the lived realities of township retailers.

III. **Context of regulations and policy:** Kibuuka and Tustin (2019) highlight that many business owners engaged in informal economic activities hesitate to formalise their practices due to stringent entry regulations. This reluctance is closely tied to the regulatory and policy context that, as Kibuuka and Tustin (2019) suggest, has not been adequately explored in terms of its impact on the adoption of digital payment methods in townships. The concept of objectification (Orlikowski, 1992) is critical in understanding how regulatory frameworks and rules become embedded in social practices, particularly within the context of digital payment systems.

Objectification refers to the process through which abstract concepts, such as regulatory norms and rules, are made tangible and concrete within everyday social practices. This concept is essential for analysing how township business owners interact with and are influenced by regulatory structures. Valenti (2008) emphasises that recognising

objectification is crucial because it helps bridge the gap between abstract regulations and the concrete actions of individuals, offering a lens to observe the dynamic interplay between societal structures and individual behaviours.

In the context of township businesses, the objectification of digital payment methods through regulatory frameworks can significantly shape how these businesses operate. For instance, strict regulatory requirements may not only discourage formalisation but also influence how business owners perceive and adopt digital payments. This underscores the importance of examining how these regulations become objectified in the daily practices of township retailers, potentially constraining or facilitating the adoption of new technologies (Orlikowski, 1992). By understanding this process, researchers play a crucial role in gaining deeper insights into the challenges and opportunities associated with digital payment systems in informal economies, as well as how broader regulatory and policy contexts shape these systems. Their work is instrumental in addressing these challenges and shaping the future of township businesses.

By addressing these research gaps, this study contributes to an enriched understanding of the barriers and opportunities associated with financial inclusion in informal economies, emphasising the need for more contextually relevant and flexible financial solutions that reflect the lived experiences of township retailers.

1.5 Purpose of Research

The purpose of this research is to explore the complex interplay between cash and digital payments in South African township businesses, examining how these two forms of payment coexist and influence the socio-economic landscape within these communities. While digital payments are often seen as a key driver of financial inclusion (South African Reserve Bank, 2024), this research challenges the binary perspective that positions cash and digital payments as mutually exclusive (Achord et al., 2017; Bátiz-Lazo et al., 2018). Instead, it seeks to understand how township businesses, which operate primarily in cash-based informal economies, navigate the pressures of adopting digital payment systems while maintaining their reliance on cash.

By applying the Structurational Model of Technology (Orlikowski, 1992), the research investigates how township businesses shape and are shaped by the technological and economic structures around them. Structuration Theory (Giddens, 1986; Orlikowski, 1992) posits that social structures—comprising rules, norms, and resources—are both the medium and the outcome of social practices. This theoretical

framework is particularly well-suited for exploring how technology, in this case, payment systems, is shaped by and, in turn, shapes social practices within township economies.

By viewing cash as a form of technology embedded within the social and economic structures of township businesses, this study investigates how these structures perpetuate the use of cash even in the face of digital alternatives. The Structurational Model of Technology (Orlikowski, 1992) helps to unpack the dual role of cash, both as a product of historical and socio-economic contexts and as an agent that influences contemporary business practices. Moreover, the study also considers how digital payment systems, while increasingly accessible, are often perceived as imposing new constraints and dependencies, such as transaction fees and the need for technological infrastructure.

This research contributes to the broader discourse on financial inclusion, questioning the assumption that digital payments will automatically displace cash and proposing a more nuanced understanding of how both payment methods can coexist and support inclusive innovation within underserved communities (Bech et al., 2018; Srouji, 2020). The findings aim to inform policymakers, payment service providers, and business owners about the realities of financial practices in township economies, guiding the development of more effective and inclusive financial solutions (Ashworth & Goodhart, 2020; Bvuma & Marnewick, 2020).

1.6 Research Questions

Is cash still king? Exploring how township businesses navigate physical and digital money.

When I framed this research question, it stemmed from my repeated interactions with township businesses. Despite having access to digital payment devices, they frequently opted for cash. As a product designer specialising in designing financial products for the banking industry, I found this phenomenon intriguing. It led me to question the relevance of widely available digital payment products to the daily operations of township businesses. This curiosity revolves around understanding how cash, a traditional payment method, maintains its stronghold in an increasingly digital era.

1.6.1 Research Questions

Based on the study's focus on cash payments being a sticky issue in South African township businesses and the application of Structuration Theory (Giddens, 1986; Orlikowski, 1992) to investigate this phenomenon, several research questions emerge:

I. **What factors contribute to the continued reliance on cash in South African township businesses despite the increasing availability of digital payment systems?**

This question aims to identify the socio-economic, cultural, and technological factors that sustain the use of cash in townships, offering insights into the specific needs and challenges these businesses encounter (Charman & Petersen, 2015; Holmes, 2014).

II. **How do township business owners perceive the advantages and disadvantages of cash compared to digital payment methods?**

This question explores business owners' subjective experiences and preferences, providing a deeper understanding of the motivations behind their choice of payment methods (Kibuuka & Tustin, 2019; Porteous et al., 2005).

III. **How do existing social and economic structures within townships influence the adoption of digital payment technologies?**

This question investigates the structural barriers and enablers that influence the adoption of digital payments, taking into account factors such as regulatory frameworks, infrastructure limitations, and community norms (Giddens, 1984; Orlikowski, 1992).

IV. **How does the interplay between human agency and social structures shape the persistence of cash in township economies?**

Drawing on Structuration Theory, this question examines how the actions of individuals and groups, in interaction with broader social structures, contribute to the ongoing use of cash (Giddens, 1984; Orlikowski, 1992).

V. **What role does trust play in the preference for cash transactions in township businesses, and how might this trust be transferred to digital payment systems?**

This question explores the concept of trust as a crucial factor in financial transactions, investigating how it influences the decision between cash and digital payments and what might be required to establish trust in digital alternatives (Chigada & Hirschfelder, 2017; Holmes, 2014).

VI. **How do the design and implementation of digital payment systems align with the practical needs and constraints of township business owners?**

This question addresses the gap between the technological design of digital payment systems and the everyday realities of their users, seeking to identify how these systems can be improved to better meet the needs of township businesses (Charman & Petersen, 2015).

VII. **What implications do the persistent use of cash and the gradual adoption of digital payments have for financial inclusion initiatives in South Africa?**
This question considers the broader impact of the study's findings on policy and practice, particularly in relation to efforts to promote financial inclusion and economic development in underserved communities (FinMark Trust, 2023; South African Reserve Bank, 2024).

These research questions are designed to guide further investigation into the complex dynamics of payment systems in township economies. They offer a framework for understanding the sticky nature of cash and the challenges and opportunities associated with digital payments.

In the field of inclusive innovation, this research contributes to understanding payment solutions in township contexts and how we can design financial products that leverage technological advancements while also resonating with users' daily realities. Ultimately, this research aims to drive the creation of more effective, accessible, and inclusive financial systems that empower township businesses and foster broader economic participation.

1.7 Conclusion

This study addresses the central problem statement: *Is cash still king?* in the context of South African townships. The persistence of cash raises significant questions about the factors sustaining cash usage and the potential for digital payment adoption. The importance of this research lies in its potential to provide policymakers, financial service providers, and community stakeholders with valuable insights, thereby fostering inclusive financial innovation and enhancing economic participation in these areas.

The knowledge gap identified pertains to the limited understanding of the socio-economic, cultural, and technological dynamics that influence payment method preferences in township environments. This gap in the literature necessitates a comprehensive investigation into the interactions between township retailers and customers and physical and digital payment systems, making this research relevant

This research studies the interplay between cash and digital payments in township settings. It explores the underlying norms, rules, and practices that sustain cash usage and identifies the barriers and enablers of digital payment adoption. To achieve these goals, the research is guided by understanding payment practices, which include the daily transactions and financial interactions of township residents, the actions of township businesses, such as their acceptance of digital payments and their influence on customer preferences, and the social structures in which they exist, which include the informal networks and community relationships that shape payment behaviours.

In conclusion, this research aims to bridge the knowledge gap by examining the persistence of cash usage and the potential for digital payment integration in South African townships. Addressing the research questions will provide a nuanced understanding of the socio-technical dynamics, which include the influence of social structures on payment practices, the role of technology in shaping payment behaviours, and the impact of these dynamics on financial inclusion and economic development. This understanding will inform strategies to promote financial inclusion and economic development in these communities.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The financial landscape in South African townships presents a compelling paradox: the enduring reliance on cash alongside the rise of digital payments. This literature review investigates this phenomenon through the lens of Structuration Theory (Giddens, 1986; Orlikowski, 1992), aiming to study the intricate interplay between technology, social practices, and financial transactions.

This literature review investigates the dynamic interplay between cash and digital payments in South African townships, framed through the lens of Structuration Theory (Giddens, 1986; Orlikowski, 1992). The financial landscape in these townships presents a unique paradox: despite the growing prevalence of digital payment methods, cash remains a prominent medium of exchange. Understanding this phenomenon requires exploring how technological advancements and social practices intersect within these communities.

To establish a solid theoretical foundation, this review begins by examining socio-technical theories, which offer insights into the relationship between technology and society. Socio-technical theory is pivotal in this analysis, as it emphasises the interdependence of social and technical systems (Orlikowski, 2007). According to Klein and Kleinman (2002), socio-technical theory explores how technology and social practices co-evolve, suggesting that digital payment systems are not merely technological innovations but are deeply embedded within social contexts. The theoretical exploration extends to technological determinism and social constructivism. Technological determinism posits that technological advancements drive societal changes toward digital payments, while social constructivism argues that social factors, including cultural norms and economic conditions, shape technology adoption (Giddens, 1986; Orlikowski, 1992).

The review then shifts to a contextual analysis of South African townships, focusing on contemporary studies from the 2000s that address mobile and digital banking practices. This period is significant for understanding the expansion and integration of digital payment methods into township economies. Contemporary literature highlights the socio-economic challenges and opportunities associated with digital financial services in these settings. Studies reveal that while digital payments hold the potential to enhance financial inclusion and economic empowerment, their adoption is often constrained by digital divides, economic disparities, and varying levels of financial literacy (Klein & Klein, 2007; Orlikowski, 2007).

2.1.1 Search Strategy and Selection Criteria for the Literature Review

In constructing this literature review, a two-pronged approach was used to select the foundational literature and contemporary studies that inform the research. The bifurcation of the literature review into theoretical and contextual strands was a strategic decision aimed at grounding the research in a solid theoretical understanding while ensuring its relevance to the practical realities of township economies. This approach facilitated a comprehensive understanding of the scholarly landscape surrounding socio-technical systems and digital financial inclusion. It aligned the research with the broader aim of examining the socio-economic implications of digital banking adoption in South African townships. By weaving together these two strands of literature, the literature review sets the stage for a nuanced exploration of how digital payment technologies reshape economic practices and social relations within these vibrant communities.

Firstly, to establish a sound theoretical framework, I explored the subject of socio-technology, information systems, and sociology literature. This exploration began with seminal works from the 1960s, tracing the intellectual trajectory of socio-technical theories through to the early 2000s. Central to the theoretical discourse are the concepts of technological determinism and social constructivism. Technological determinism posits that technological advancements are the primary drivers of societal changes, suggesting a linear progression towards digital payment adoption as a natural outcome of technological evolution. In contrast, social constructivism offers a counterpoint, arguing that social factors, including cultural norms, user practices, and socio-economic conditions, inherently shape the adoption and development of technology. This perspective underscores the active role of human agency in shaping technological landscapes, challenging the inevitability suggested by deterministic views. This historical review was pivotal in comprehending the evolution of critical theoretical perspectives that underpin the study of technology within social contexts. The journey through these decades of scholarship provided crucial insights into how socio-technical paradigms have expanded and adapted, reflecting the growing complexity of technological integration into societal structures and processes.

Secondly, to contextualise the research within the specific landscape of South African township economies, I turned to literature that explicitly addresses the dynamics of these socio-economic areas, particularly emphasising mobile banking practices and the penetration of digital banking solutions. The focus on literature from the 2000s onwards was intentional, given the relevance of this period to the emergence and expansion of modern digital payment methods. This contemporary literature offers valuable case studies and empirical analyses that explain the adoption patterns, challenges, and opportunities associated with digital financial services in township settings. Such studies are crucial for understanding the intersection of technology, economy, and society in contexts characterised by unique socio-economic challenges and opportunities. Contemporary literature expands on these theoretical

foundations, focusing on central themes such as financial inclusion, the intricacies of township economies, and the adoption patterns of mobile and digital banking in such contexts. The discourse on financial inclusion emphasises the potential of digital payments to enhance access to financial services for underserved populations, thereby contributing to economic empowerment and growth.

By weaving together theoretical insights and contextual understanding, this review aims to provide a comprehensive analysis of how digital payment technologies interact with traditional cash practices in South African townships. This approach clarifies the complex dynamics of financial transactions in these communities and contributes to the broader discourse on technology adoption and socio-economic development.

2.2 Theoretical Foundation

The theory in this literature review falls into the scope of socio-technical theory. The 'socio' in socio-technical theory refers to the social systems within organisations and society. It encompasses the intricate interplay between human interactions, organisational structures, cultural norms, and power dynamics. Socio-technical theory acknowledges that these social systems are integral components of technological systems and play a crucial role in shaping technological development and implementation (Orlikowski, 2007). Klein and Kleinman (2002) elaborate on this aspect of socio-technical theory by explaining that understanding and addressing social factors are essential for successful organisational innovation. By focusing on the 'socio' aspect, socio-technical theory emphasises the importance of considering human factors, social contexts, and organisational culture in technological design, implementation, and adaptation.

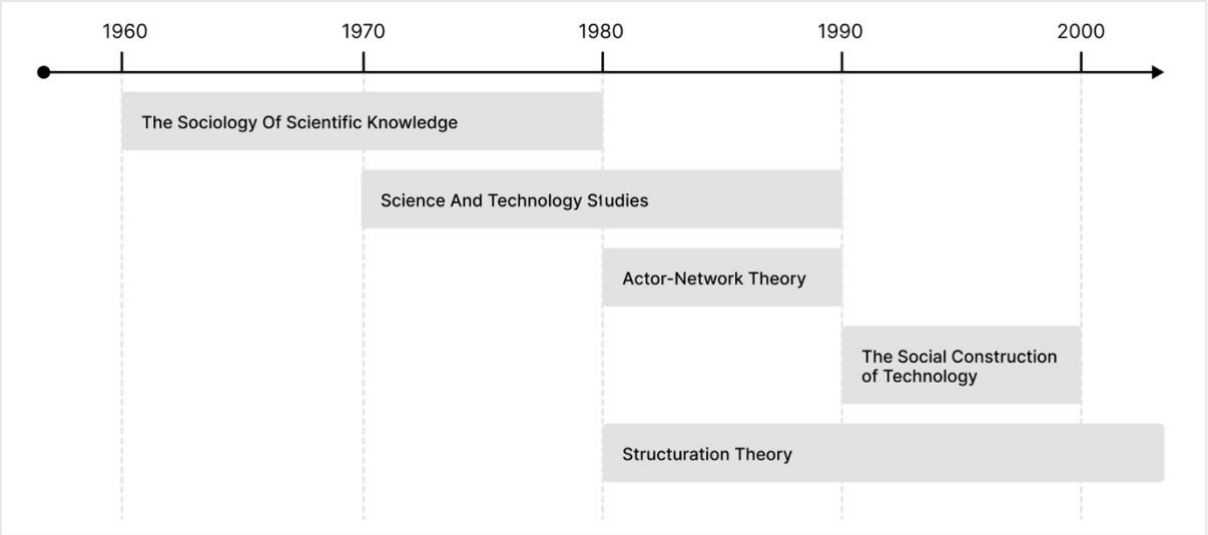
On the other hand, the 'technical' in socio-technical theory pertains to the technological systems and artefacts within organisations and society (Klein & Klein, 2007); this aspect encompasses the hardware, software, infrastructure, tools, and machinery that facilitate various functions and processes. The socio-technical theory recognises that technological systems are not isolated entities but are deeply embedded within social structures and influenced by human behaviours, organisational practices, and cultural norms (Orlikowski, 2007). Klein and Klein (2007) highlight the significance of the 'technical' component in exploring socio-technical theory, emphasising how technological advancements can shape organisational practices and enable innovation when integrated effectively with social considerations. Thus, socio-technical theory's 'technical' aspect underscores the importance of understanding and leveraging technological capabilities while recognising their interdependence with social systems for organisational success and societal progress.

2.2.1 The Development of Socio-Technical Theories

In exploring the intricate relationship between humans, technology, and knowledge creation, it is imperative to engage with theoretical perspectives that illuminate this dynamic interplay. The following discussion examines socio-technical frameworks that provide essential tools for understanding how social structures, technological advancements, and human agency interact. As shown in Figure 1, the development of socio-technical theories is structured chronologically to illustrate how theoretical frameworks have evolved, reflecting the dynamic interplay between humans, technology, and knowledge creation over time.

Figure 1

The Development of Socio-Technical Theories



Note. Author's own illustration.

I. Early 1960s – Early 1980s: The Sociology of Scientific Knowledge

The Sociology of scientific knowledge examines the social processes underpinning scientific discovery, particularly emphasising how knowledge evolves within research laboratories (Bloor, 1976; Knorr-Cetina, 1981; Latour & Woolgar, 2013). During early investigations of knowledge in laboratories, Bloor (1976) argued that scientific knowledge is not purely objective but is influenced by the social contexts in which it is produced. This perspective, which challenged the traditional view of scientific knowledge, paved the way for subsequent studies into the nature of scientific knowledge.

In the 1980s, Knorr-Cetina (1981) made significant contributions to the field, focusing on laboratory studies. Her work, which utilised participant observation and discourse analysis, revealed how scientific knowledge is generated through social interactions and the use of material resources within laboratories. The research of Callon (1984), Latour (1984) and Law (1992) underscored the complex, constructed nature of scientific knowledge, demonstrating that scientific facts are products of intricate social processes rather than mere discoveries. As the field progressed, Latour (1983) studied the societal impact of laboratory practices, particularly focusing on Pasteur's laboratory. His analysis emphasised the reciprocal relationship between scientific work and societal influence, illustrating how broader social contexts can shape laboratory findings. In the mid-80s, Callon (1984) introduced the concept of translation in his study of the scallop industry, highlighting the role of both human and non-human factors in the construction of scientific knowledge. Callon's (1984) work underscored the significance of non-human elements, including instruments and documentation, in shaping laboratory findings.

In the late 1980s, Knorr-Cetina (1981) and Collins (1985) contributed to the discourse by exploring how alterations in scientific claims lead to varying interpretations. Their research supported the view that scientific knowledge is not a straightforward process of discovery but involves ongoing negotiation and interpretation within the laboratory's social context.

II. Late 1970s – Late 1980s: From Science and Technology Studies to Actor-Network Theory

Science and Technology Studies (STS) investigates the influence of social factors on scientific and technological developments. In the 1970s, research by Latour and Woolgar (1986) and Knorr-Cetina (1981) utilised participant observation and discourse analysis to examine the operations within research laboratories. Their seminal work, Laboratory Life, demonstrated that scientific facts are not merely discovered but are constructed through intricate social interactions and negotiations within laboratories. This early research established the foundational understanding that science is a socially embedded process, challenging the notion of science as an isolated pursuit of objective truth.

Scholars began incorporating more complex perspectives as the field progressed into the 1980s. Callon (1984) introduced the concept of translation, which emphasised the significant role of non-human factors—such as instruments and data—in shaping scientific knowledge. This approach marked a departure from the purely human-centric focus and laid the groundwork for Actor-Network Theory, known as ANT (Callon, 1984; Latour, 1984; Law, 1992), broadening the scope of analysis to include both human and non-human

actors. ANT (Callon, 1984; Latour, 1984; Law, 1992) suggests that scientific knowledge production results from interactions among a network of diverse elements, highlighting that both material and social components are integral to understanding how knowledge is constructed and maintained.

By incorporating non-human factors into the analysis, ANT (Callon, 1984; Latour, 1984; Law, 1992) provides a nuanced understanding of the interactions between technology, society, and scientific practice. This shift highlights the multifaceted nature of knowledge generation, reflecting a nuanced understanding of the dynamic interplay between various elements within the scientific and technological landscape.

III. The 1990s – 2000s: The Social Construction of Technology

Science and Technology Studies traditionally held that technology is a deterministic force driving societal change. This perspective suggests that technological advancements propel societal progress with almost inevitable momentum. Pinch and Bijker (1984) challenged this deterministic view by introducing the Social Construction of Technology, which argues that technology is not a neutral entity but is shaped by the interpretations and interactions of social groups.

The Social Construction of Technology, referred to as SCOT (Pinch & Bijker, 1984), emerged as a response to the limitations of technological determinism. It highlights how societal factors, including cultural norms and social interactions, play a crucial role in shaping technological advancements. This perspective shifts the focus from technology as an isolated force to technology as a product of collective human actions and interpretations (Pinch & Bijker, 1984). By emphasising the active role of social groups in defining and altering technology, the SCOT (Pinch & Bijker, 1984) offers a more nuanced understanding of technological development. As SCOT (Pinch & Bijker, 1984) gained prominence, scholars like Orlikowski and Baroudi (1991) applied this framework to organisational contexts, revealing that many organisations adhered to deterministic views, treating technology as a neutral force with predictable outcomes. These contributions have reinforced the relevance and applicability of SCOT (Pinch & Bijker, 1984) in understanding the dynamic interplay between technology and society.

IV. The 2000s: Structuration Theory

Structuration Theory (Giddens, 1986) stands as a significant framework in the enduring debate among social theorists about the influence of individual agency versus social structures on human behaviour. It uniquely addresses this dichotomy by highlighting the

interconnectedness of these elements. At its core, Structuration Theory (Giddens, 1986) revolves around the duality of structure, which posits that social structures such as norms and institutions both enable and constrain human actions.

Building on Giddens' (1984) foundational work, scholars have applied Structuration Theory (Giddens, 1986) to various contexts. Orlikowski (1992) adapted the theory to examine technology use within organisations, demonstrating how individual actions and organisational structures continuously influence each other. Orlikowski's (1992) research reveals that employees' resistance to new technologies, like software programs, can reflect existing organisational norms and structures. Conversely, integrating new technologies can modify these structures, illustrating the theory's principle that human agency and social structures are dynamically interrelated (Orlikowski, 1992). Orlikowski (1992) further studied the concept of the duality of technology, challenging the traditional view of technology as merely an external force impacting organisations and arguing that technology is shaped by and shapes organisational practices.

In conclusion, the theoretical perspectives offer essential frameworks for critically understanding the dynamic interplay between humans, technology, and knowledge creation. By examining how these theories conceptualise the reciprocal influences between social structures, technological advancements, and human agency, we gain insights into how technology shapes and is shaped by societal contexts. These perspectives enhance the understanding of the mechanisms through which knowledge is constructed and highlight the nuanced ways in which technological and social elements interact. As technology evolves, applying these theories will remain crucial for analysing and interpreting the complex and often transformative effects of technological integration on societal practices and knowledge systems.

2.3 Contextual Foundation on the Township Socio-Economic Landscape

Discussing the socio-economic landscape of South African townships, the dynamics between cash and digital payments, and their implications for financial inclusion are essential in the literature review. Understanding the unique context of townships is crucial for situating the study within the financial behaviours of these communities (Charman & Petersen, 2015).

I. Township socio-economic landscape

South African townships, historically designated areas for marginalised populations during apartheid, continue to be home to a significant portion of the country's population.

According to Statistics South Africa (2016), townships house approximately half of the nation's 52.5 million residents. These areas are characterised by high levels of poverty, unemployment, and a predominance of informal economic activities. The socio-economic landscape of townships is marked by limited access to formal financial services, a legacy of the systemic economic exclusion faced by these communities during apartheid (Charman & Petersen, 2015).

Township economies are sustained mainly by informal businesses such as spaza shops, street vendors, and small-scale services that cater to the local population (Rogerson, 2018). These businesses operate within a complex socio-economic environment where formalisation is often seen as burdensome due to stringent regulatory requirements, as highlighted by Kibuuka and Tustin (2019). The informal nature of these businesses makes them highly dependent on cash transactions, which are seen as more accessible and reliable within the constraints of their operational environment.

The socio-cultural fabric of townships also plays a critical role in shaping economic behaviours. Traditional practices and community norms often favour cash transactions, which are deeply embedded in the daily lives of township residents (Neves & Du Toit, 2012). This reliance on cash is further reinforced by the limited digital infrastructure and financial literacy challenges that persist in these communities, creating a significant barrier to the adoption of modern financial technologies.

II. Cash and digital payments in the township

Despite the global shift towards digital payments, cash remains the predominant medium of exchange in South African townships. Holmes (2014) emphasises that physical cash remains the dominant payment instrument in many parts of South Africa, particularly in township economies. The persistence of cash usage is attributed to various factors, including the immediacy and trust associated with cash transactions, as well as the perceived complexities and costs of digital payment methods (Kibuuka & Tustin, 2019).

Research by Porteous et al. (2005) suggests that the promise of a fully digitised monetary system is yet to be realised, especially in township settings where socio-economic constraints limit the adoption of digital payment systems. The continued reliance on cash is not merely a matter of preference but a reflection of the socio-economic realities faced by township businesses, including issues such as limited access to banking services, high transaction fees, and the absence of adequate digital infrastructure (Chigada & Hirschfelder, 2017).

However, there is a growing interest in integrating digital payments into the township economy to enhance financial inclusion and economic growth (FinMark Trust, 2023; South African Reserve Bank, 2024). Digital payment systems, although still in their nascent stages in many townships, offer the potential for greater efficiency and security in transactions, as well as increased access to broader markets (Charman & Petersen, 2015). Yet the adoption of these technologies is hindered by the complex interplay between existing social practices and the new technological tools, as explained by Orlikowski (1992).

III. Financial inclusion

Financial inclusion is a critical objective in South Africa's broader economic development strategy, as it aims to provide all individuals and businesses with access to affordable and effective financial services (FinMark Trust, 2023; South African Reserve Bank, 2024). The South African Treasury emphasises the importance of financial inclusion as a driver of economic growth and societal progress, particularly in underserved areas such as townships (Park & Mercado, 2015).

Despite efforts to promote digital financial services, the reality in townships reveals a significant gap between the availability of digital payment systems and their actual use. The concept of financial inclusion often centres on the adoption of digital payments, with the assumption that this transition will automatically result in greater economic participation and growth (South African Reserve Bank, 2024). However, this view oversimplifies the challenges faced by township businesses, which continue to rely heavily on cash due to the socio-economic and cultural factors that shape their financial practices (Neves & Du Toit, 2012).

Research by Gwamanda (2019) highlights the complexities of achieving financial inclusion in the informal sector, where cash remains deeply entrenched. This underscores the need for financial inclusion strategies that are not only technologically innovative but also contextually relevant to the unique socio-economic conditions of townships. The persistent use of cash in these areas points to a broader issue of financial exclusion, where digital payment systems are either inaccessible or not fully trusted by the local population (Porteous et al., 2005).

Integrating socio-technical theory into the discussion of financial inclusion provides a more holistic understanding of the barriers and opportunities within township economies. This

perspective allows for the consideration of both technological and social dimensions, recognising that financial inclusion is as much about addressing systemic socio-economic challenges as it is about introducing new technologies (Orlikowski, 1992).

The literature pertaining to South Africa's socio-economic landscape reveals a complex and multifaceted socio-economic landscape where cash remains the dominant medium of exchange despite the increasing availability of digital payment systems. Financial inclusion efforts must, therefore, be tailored to the unique needs and challenges of township businesses, considering the socio-cultural and economic factors that influence their financial practices. By applying a socio-technical lens, researchers and policymakers can gain a better understanding of the dynamics at play and develop more effective strategies to promote financial inclusion in these underserved communities.

2.4 Discussion

The literature review revealed a dynamic and evolving understanding of the interplay between technology, society, and knowledge creation. Key findings indicate that socio-technical theories have progressed from deterministic perspectives, which view technology as an independent force driving societal change, to more nuanced approaches that consider the reciprocal relationship between technology and social structures. Foundational works by Giddens (1986) on Structuration Theory and Latour and Woolgar (1986) on Actor-Network Theory (ANT) highlight how social practices and technological advancements co-evolve. This shift emphasises the importance of viewing technology as influenced by and influencing societal contexts rather than as a standalone force (Giddens, 1986; Latour & Woolgar, 1986).

I. Identifying patterns and relationships

A significant pattern across the literature is the move from deterministic views to social constructivist frameworks. Early research, such as that by Latour and Woolgar (1986), demonstrated that scientific knowledge is constructed through social interactions within research labs. This insight laid the groundwork for the development of ANT (Latour & Woolgar, 1986), which integrates both human and non-human actors in understanding knowledge production (Callon, 1984; Latour & Woolgar, 1986). However, critiques of deterministic views, notably by Orlikowski and Baroudi (1991), highlight the need to consider how technological and social elements interact dynamically rather than viewing technology as an external force with fixed effects. This reflects a broader trend towards acknowledging the complexity of socio-technical systems (Orlikowski & Baroudi, 1991).

II. Critique of the literature

While the reviewed literature offers a robust theoretical framework for understanding socio-technical systems, notable strengths and weaknesses are evident. Theoretical frameworks such as Structuration Theory and ANT (Latour & Woolgar, 1986) offer comprehensive views of how technology and social practices influence each other (Giddens, 1986; Latour & Woolgar, 1986) However, methodological limitations, such as the focus on specific contexts or case studies, can restrict the generalisability of findings. For instance, while ANT (Latour & Woolgar, 1986) provides a broad analysis of actor networks, it may not fully account for the diversity of contexts in which technology and social structures interact. Additionally, while Structuration Theory (Giddens, 1986) emphasises the duality of structure, it may underrepresent the role of non-human factors, as later critiques and developments have shown (Giddens, 1984).

III. Gaps in the literature

Several gaps in the literature warrant further exploration. While significant advances have been made in understanding the interplay between technology and society, less attention has been given to how emerging payment technologies further complicate these dynamics. Additionally, there is a need for more empirical research that integrates diverse contexts and technological innovations to test and refine existing theories. The literature also reveals a need for more nuanced analyses of power dynamics and non-human factors, as highlighted by critiques of the SCOT (Pinch & Bijker, 1984) and ANT (Callon, 1984) frameworks.

IV. Discussion of implications

The implications of these findings are substantial for both theoretical and practical applications. The shift towards acknowledging the reciprocal relationship between technology and social structures enhances our understanding of how societal contexts shape technological advancements (Orlikowski & Gash, 1994). This perspective is crucial for developing policies and practices that account for the complex interactions between technology and social systems. For practitioners, recognising the dual role of technology as both an influencer and a product of social contexts can lead to more effective technology adoption and integration strategies (Latour & Woolgar, 1986; Orlikowski & Baroudi, 1991).

V. Relation to research questions and objectives

The literature review has addressed the research questions by providing a comprehensive view of how socio-technical theories conceptualise the relationship between technology

and society. It has highlighted the evolution of these theories and their relevance to understanding contemporary technological and social dynamics. This analysis has clarified how theoretical frameworks can be applied to address current challenges and opportunities in the field (Giddens, 1986; Latour & Woolgar, 1986).

VI. Proposal for future research

Future research should focus on expanding the application of socio-technical theories to emerging technologies and new contexts. Research should also explore empirical studies that integrate diverse contexts to test and refine theoretical frameworks. Additionally, investigating the role of power dynamics and non-human factors in socio-technical systems can provide deeper insights into the complexities of knowledge production and technology integration (Callon, 1984; Latour & Woolgar, 1986).

In summary, the literature review highlights the significance of socio-technical theories in comprehending the intricate relationship between technology, society, and knowledge creation. By integrating perspectives from Structuration Theory (Giddens, 1986; Orlikowski, 1992), Actor-Network Theory (Callon, 1984), and critiques of deterministic views, the review provides a comprehensive framework for analysing how technological and social elements interact. The discussion draws attention to the need for continued research into emerging technologies and diverse contexts, ensuring that theoretical frameworks remain relevant and robust in explaining the evolving dynamics of socio-technical systems (Giddens, 1986; Latour & Woolgar, 1986; Orlikowski & Baroudi, 1991).

2.5 Conclusion

This literature review has explored the evolution of socio-technical theories and their application in understanding the dynamic interplay between technology, society, and knowledge creation. The reviewed literature has examined the shift from early deterministic views of technology as an external driver of change to more contemporary perspectives that recognise the co-constitution of technology and social structures. Through this lens, the review connects the theoretical foundations of socio-technical theories to the research question: *Is cash still king? Exploring how township businesses navigate physical and digital money.* The literature review establishes a link between the research problem, theoretical underpinnings, and methodological choices, thus providing a foundation for the research design and data collection strategies employed in this study, as summarised in Table 1 below.

Table 1

Linking Theory, Research Problem, and Research Design

Theoretical Foundation			
Theory	**Research Problem**	**Research Design**	**Support for Research Design Elements**
Socio-Technical Theory (Bijker, 1997; MacKenzie & Wajcman, 1999)	How do social factors influence the adoption of technology in township economies?	Qualitative case study with interviews and observations.	Interviews: Questions about community norms, technological access, and user experiences.
			Observations: Field notes on the interactions between technology and social practices in the community.
Actor-Network Theory (Latour, 1987; Callon, 1984)	How do human and non-human actors interact in shaping the adoption of digital payments?	Mixed methods approach: surveys and qualitative interviews.	Questionnaires: Items assessing perceptions of various actors (e.g., banks, users, technologies) in the payment process.
			Interviews: Open-ended questions exploring how different actors influence each other.
Social Construction of Technology (Pinch & Bijker, 1984; Hughes, 1987)	What societal factors shape the perception and usage of digital payment systems?	Qualitative research using focus groups and thematic analysis.	Focus Groups: Discussions on community perceptions of technology and its implications.
			Interviews: Questions about personal experiences and societal influences on technology adoption.
Structuration Theory (Giddens, 1984; Orlikowski, 1992)	How do individuals and structures interact in the use of cash and digital payments in townships?	Qualitative case study with participatory observations and interviews.	Interviews: Questions focusing on individual behaviours that reinforce or reshape existing financial practices.
			Observations: Notes on how daily transactions occur and how they reflect social structures.
Contextual Foundation			
Theory	**Research Problem**	**Research Design**	**Support for Research Design Elements**
Township Socio-Economic Landscape (Charman & Petersen, 2015; Kibuuka & Tustin, 2019; Ligthelm, 2012)	How do socio-economic factors in townships influence financial behaviours?	Qualitative case study with interviews and observations.	Interviews: Semi-structured questions about economic conditions, income sources, and spending habits.
			Observations: Field notes on community interactions and behaviours related to financial transactions.
Cash and Digital Payments in the Township (Mbiti, 1990; Holmes, 2015; Chigada & Hirschfelder, 2017)	What are the attitudes and behaviours toward cash and digital payment systems among township residents?	Mixed methods approach: surveys and qualitative interviews.	Questionnaires: Closed-ended questions assessing perceived benefits and drawbacks of digital payments.
			Interviews: Open-ended questions exploring personal experiences with cash and digital payments.
Financial Inclusion (Porteous, 2005; Beck & Demirgüç-Kunt, 2006; World Bank, 2018)	What barriers do township residents face in accessing digital financial services?	Quantitative surveys and qualitative focus groups.	Surveys: Questions focused on access to technology, financial literacy, and perceived barriers to using digital services.
			Focus Groups: Discussions that allow participants to share personal challenges and insights regarding financial inclusion and service accessibility.

This table illustrates the direct connections between the theories, research problems, and the design elements used in the research, highlighting how each component supports the overall study.

The review identified several critical gaps in the existing literature, particularly the need for empirical studies that examine the interaction between emerging digital platforms and traditional cash-based systems in underserved markets. While previous research predominantly focuses on the potential of digital payments to promote financial inclusion, it often neglects the deeply rooted social and cultural factors that sustain the use of cash in township economies (Kibuuka & Tustin, 2019; Charman & Petersen, 2015). This gap necessitates an exploration of how these factors influence payment choices and how the duality of technology manifests in these specific contexts.

The insights gathered from this literature review not only establish a theoretical basis for this research but also provide direction for the empirical investigation that follows. The theoretical frameworks discussed inform the development of the research design, specifically the qualitative methodologies used to capture the lived experiences of township retailers. The Structurational Model of Technology (Orlikowski, 1992) serves as the guiding framework for analysing interview and observational data, allowing the study to explore how township business owners navigate between physical and digital payment methods and how these choices are influenced by broader socio-economic structures.

The linkage between theory and methodology is further demonstrated through a structured approach to data collection and analysis, which incorporates the insights from the literature review. The design of the interview and observation protocols was informed by the theoretical concepts of agency, duality, and socio-materiality, ensuring that the data gathered would effectively address the research questions and hypotheses. These theoretical constructs provide the analytical lens through which the research problem is examined, making it possible to investigate not only the persistence of cash in township businesses but also how digital payments are integrated—or resisted—in these complex socio-economic landscapes.

In conclusion, this literature review establishes a clear link between the research question, problem, and the research design elements, thereby supporting the overall coherence and rigour of the study. The theoretical perspectives reviewed form the backbone of the research approach, contributing to a nuanced grasp of the socio-technical dynamics that shape payment practices in township businesses. As the study progresses, these theoretical insights will continue to inform the analysis and interpretation of data, guiding the development of practical recommendations that bridge the gap between technological innovation and financial inclusion in township economies. This structured alignment between theory and practice not only strengthens the research design but also enhances the potential impact of the study on both academic discourse and policy development.

CHAPTER 3: METHODS

3.1 Introduction

The financial landscape of South African townships embodies a paradox: The increasing adoption of mobile money coexists with the persistent use of cash in everyday transactions. This research aims to explore the complex interplay between physical and digital money within township economies, with a particular focus on on the lived experiences of township retailers.

This research adopts an interpretive approach to examine the socio-economic, cultural, and technological factors that influence financial practices in townships. Rather than merely describing these practices, the research seeks to understand the broader social dynamics that shape financial choices. While existing literature highlights the potential of digital payments to enhance financial inclusion (Dass & Pal, 2011; Gwamanda, 2019; Shaikh & Karjaluoto, 2015), it often underestimates the role of social structures in shaping technology adoption and use. This study addresses this gap by applying Structuration Theory (Giddens, 1984), which provides a framework for understanding the reciprocal relationship between technology and social structures. Additionally, the study considers the co-construction of knowledge through the interactions between researchers and participants (Bygstad & Munkvold, 2011), recognising the active role both parties play in shaping the research outcomes.

The methods chapter will detail the research methodology, including the design, participant selection, data collection methods, and analytical strategies employed in this study. It will also address the ethical considerations integral to conducting research that is respectful, responsible, and reflective of the community's values.

I. Methodology overview

The study concentrates on Tlhabane, a township in the North West Province, because of its entrenched use of cash alongside emerging digital payment practices. This location provides a comprehensive context for examining the transitions and continuities in financial behaviours among township businesses.

In the context of township commerce, payment methods significantly influence the operational strategies of local businesses and the purchasing behaviours of their customers. The study utilises the Structurational Model of Technology (Orlikowski, 1992) to unravel these dynamics as a guiding framework. This model facilitates an exploration of how

technology is both shaped by and shapes social practices, offering a nuanced understanding of the persistent use of cash and the gradual adoption of digital payments.

This chapter outlines a methodological approach that intertwines theoretical insights with practical observations. By employing a qualitative interpretive approach that is both structured and adaptable, the research is poised to provide rich, contextually relevant insights into the financial decision-making processes of township retailers in South Africa. These findings are not only expected to contribute significantly to academic discourse but also offer practical applications for enhancing financial inclusion and the effective integration of digital payment systems in township economies.

3.2 Philosophical Assumptions

This research is grounded within an interpretive philosophical paradigm, drawing on the Structurational Model of Technology (Orlikowski, 1992). This approach emphasises the significance of social practices, cultural norms, and individual agency in shaping the use of technology in the township payments landscape. This research deliberately employs Orlikowski's (1992) original duality of technology model. The original framework (Orlikowski, 1992) explicitly emphasises the interplay between technology and organisational structure through a clear duality lens, which is especially valuable for examining socio-technical interactions within informal, cash-based township economies. Later adaptations, such as the practice lens (Orlikowski, 2000) and the sociomaterial entanglement perspective (Orlikowski, 2007; Orlikowski & Scott, 2008), while insightful, primarily focus on the emergent, performative nature of technology-in-practice and the inseparability of the social and material. These perspectives are often grounded in studies of highly digitised or institutionalised environments, making them less directly applicable to this research context.

Anchoring research within a well-defined philosophical framework ensures coherence between the research objectives and methodological choices, as suggested by Blaxter et al. (2006) in 'How to Research'. They suggest that to achieve this coherence, researchers must clarify their ontological and epistemological positions—their understanding of reality and the nature of knowledge—before selecting research methods. This research adopts a constructivist ontology and an interpretivist epistemology, which align with the belief that reality is co-constructed through language, shared meanings, and socio-technical interactions (Orlikowski, 1992; Orlikowski & Baroudi, 1991). This perspective challenges the dominance of positivist approaches, which are often prevalent in information systems studies but may struggle to address the complexities of these systems within their social contexts (Orlikowski & Baroudi, 1991).

From a constructivist perspective, cash and digital payment systems are not merely functional tools but are deeply embedded within broader socio-economic and cultural structures, reflecting the interplay of human agency and societal norms (Orlikowski, 1992; Orlikowski & Baroudi, 1991). This perspective directly challenges the predominance of positivist approaches in Information Systems research, as critiqued by Orlikowski and Baroudi (1991), which often reduce socio-technical interactions to quantitative metrics or deterministic models. Such approaches fail to capture the nuanced, co-constructed realities of technology use within specific contexts (Blaxter et al., 2006). By foregrounding these socio-cultural dynamics, this study demonstrates how payment systems are both shaped by and shape the social and economic environments they inhabit. This constructivist approach contributes a deeper understanding of the socio-technical dynamics that underpin financial inclusion, particularly in South African townships, where cash and digital payments coexist in a complex and adaptive ecosystem.

Through a social constructivist lens, this research posits that reality is co-created through the meanings people assign to their world and their interactions within it (Orlikowski, 1992; Orlikowski & Baroudi, 1991). As interpretive researchers, the goal is to delve into the realities and meanings crafted by individuals and society, particularly concerning the use and impact of cash versus digital payment methods in township businesses. This approach facilitates an exploration of the nuanced interplay between technology, societal norms, and individual agency, providing a comprehensive understanding of how payment practices are both shaped by and shape the social and economic structures within which they operate. Through a social constructivist lens, this research examines how township businesses co-create meanings and practices surrounding cash and digital payments. The interplay between technology, societal norms, and human agency reveals how payment practices shape and are shaped by social and economic structures.

The application of Structuration Theory provides a nuanced framework for understanding how cash and digital payment systems are adopted, resisted, or transformed in unique contexts. This theory emphasises the duality of structure, where technology both shapes and is shaped by users. In South African townships, this duality manifests in the coexistence of cash and digital payments. The findings demonstrate how socio-technical systems operate in underserved economies, offering contextually rich insights into financial inclusion strategies that respect local realities (Blaxter et al., 2006; Giddens, 1986; Orlikowski, 1992).

By rejecting the simplistic dichotomy of cash versus digital payments, this research presents an analysis of how township businesses navigate and integrate payment technologies. It considers socio-economic needs and cultural practices, moving beyond deterministic or reductionist models. The findings

contribute to Information Systems scholarship by presenting the importance of understanding local contexts in the design of financial inclusion strategies, particularly in underserved economies.

3.3 Research Design

This study adopts a qualitative research design to investigate the dynamic interplay between cash and digital payments within South African township businesses. The qualitative approach was selected to capture the nuanced social, cultural, and economic factors that influence financial behaviours in these unique contexts. Rooted in interpretivism, this design acknowledges that knowledge is co-constructed through interactions and shared meanings (Orlikowski & Baroudi, 1991), offering a deeper understanding of how payment systems are embedded in the socio-economic realities of township economies.

The decision to employ qualitative methodologies emerges from an assessment of research paradigms. Positivist approaches, often dominant in Information Systems research, tend to focus on quantitative metrics or deterministic models, overlooking the complexities of socio-technical interactions (Orlikowski & Baroudi, 1991). In contrast, this study leverages qualitative methods to study the experiences and adaptive strategies of township business owners. This approach aligns with the Structurational Model of Technology, which examines how technology both shapes and is shaped by human agency and institutional structures (Orlikowski, 1992).

The research design also reflects the researcher's professional background in digital banking product design, offering an informed yet reflexive lens on technology adoption challenges. While this background introduces potential biases, it also enriches the study by providing insights into the practical and theoretical dimensions of financial inclusion.

Through in-depth interviews and observations, this study explores how cash and digital payments are co-constructed within the broader socio-economic frameworks of township businesses (Orlikowski & Iacono, 2001). The interpretive approach aims to reveal the nuanced interplay between technology, social norms, and individual agency, contributing to the development of inclusive financial solutions tailored to underserved communities. By situating the research within its socio-technical context, this design offers a comprehensive framework for understanding the hybrid financial practices that characterise township economies.

3.3.1 Data Collection Methods

This chapter outlines the data collection methods employed in this study, providing a detailed account of the strategies used to gather, document, and manage data. The choice of methods is closely aligned with the research objectives, which seek to understand the socio-economic dynamics of township businesses through an interpretive, qualitative lens. The chapter also addresses reliability, validity, and ethical considerations, ensuring the research process is rigorous and ethically sound.

3.3.2 Research Setting

In South Africa, townships represent a vital segment of the urban landscape, housing over half of the urban population (FinMark Trust, 2023; South African Reserve Bank, 2024). The research was conducted in the township of Tlhabane, located in the North West Province of South Africa. Tlhabane was selected due to its typical characteristics of South African townships, such as a predominance of informal businesses and a reliance on cash transactions despite the availability of digital payment systems. This setting provides a rich context for exploring the interactions between cash and digital payments, allowing for an in-depth understanding of the socio-economic factors influencing financial behaviours.

I. Tlhabane as the research community

The research population comprises township-based businesses in Tlhabane, South Africa. Tlhabane holds personal significance, as it is where I was born and raised before pursuing higher education. This intimate connection to the community provided unique insights and a nuanced understanding of its socio-economic challenges, many of which are deeply rooted in its apartheid history (Mbiti, 1990; Ligthelm, 2012). Despite its vibrancy, Tlhabane continues to grapple with systemic inequalities and infrastructural deficits, making it an ideal context for exploring the coexistence of cash and digital payment systems (Worthington, 2008).

This research reflects a commitment to addressing the real-world complexities of financial inclusion in underserved communities. Tlhabane offers a microcosm of the broader township economy in South Africa, where hybrid financial systems are not just functional but integral to daily life. My familiarity with the community enriched the study by fostering trust with participants and enabling a deeper exploration of the socio-technical dynamics that underpin payment practices (Orlikowski, 1992; Giddens, 1986).

The findings from this research aim to contribute to the design of socio-technical systems that integrate cash and digital payments, tailored to the unique needs of township businesses in Tlhabane and similar contexts. This work aspires to empower these communities by informing inclusive financial solutions grounded in local realities (Orlikowski & Iacono, 2001; Masuku et al., 2021).

II. Gaining access to Tlhabane

Growing up in Tlhabane provided a foundational familiarity with the community, its socio-economic landscape, and its key businesses. However, an extended absence from the area necessitated a deliberate process of reconnecting with the local community. This began by engaging with childhood friends and former neighbours, whose deep-rooted knowledge of the area and its economic actors proved invaluable in identifying longstanding businesses that had likely continued operating over the years (Mbiti, 1990; Worthington, 2008).

Equipped with this information, initial visits to Tlhabane involved conducting meet-and-greets with potential participants. As a former customer of several businesses, approaching shops and service providers with pre-existing connections helped establish trust and create an environment of openness that encouraged participation in the research. The importance of trust in facilitating qualitative research, particularly in socio-economically sensitive contexts, aligns with findings by Wiles et al. (2008), who emphasise the role of pre-existing connections in building rapport with participants.

During these exploratory interactions, formal interviews were scheduled based on the preferences of business owners, many of whom chose early morning time slots to accommodate their schedules before the customer rush began. Initially, there were concerns that conducting interviews during this period might limit opportunities for observing customer interactions. However, these time slots provided valuable insights, as a steady stream of customers frequented the businesses on their way to work, leveraging the proximity of these establishments to public transportation hubs. This highlights the role of location in shaping township businesses' customer flows and economic activities (Ligthelm, 2012). An unexpected yet significant outcome of the interview scheduling process was the recommendation by participants to include neighbouring businesses. This finding aligns with research emphasising the social cohesion inherent in township economies, where business owners often form close-knit networks (Masuku et al., 2021). These referrals streamlined the recruitment process and underscored the relational dynamics that underpin township business practices. This interconnectivity among business

owners further reinforces the importance of community-driven approaches in financial inclusion strategies (Orlikowski & Iacono, 2001).

The process of gaining access to Tlhabane highlights the interplay of personal history, community trust, and social networks in facilitating research within township settings. These factors significantly enhanced participant engagement and enriched the study's exploration of payment practices in township businesses.

This research community provides an ideal context for examining the coexistence of cash and digital payment methods, offering valuable insights into the socio-economic and cultural factors shaping financial behaviours. By situating the study in Tlhabane, the research captures the nuanced interplay between traditional and emerging financial practices within a township economy, contributing to a deeper understanding of how socio-technical systems adapt in underserved and dynamic environments (Ligthelm, 2012; Worthington, 2008).

3.3.3 Data Collection Methods

This chapter outlines the data collection methods employed in this study, providing a detailed account of the strategies used to gather, document, and manage data. The choice of methods is closely aligned with the research objectives, which seek to understand the socio-economic dynamics of township businesses through an interpretive, qualitative lens. The chapter also addresses issues of reliability, validity, and ethical considerations, ensuring that the research process is both rigorous and ethically sound.

I. Data collection process

The data collection process was designed to ensure a reflexive engagement with participants and their socio-economic context. Each interview session was preceded by journaling, categorising reflections into 'what is known' and 'what is unknown/desired to know.' This practice aimed to enhance reflexivity by making the researcher consciously aware of potential biases, ensuring these biases did not overshadow the insights shared by participants. Reflexivity is a cornerstone of qualitative research, enabling transparency and depth in the analysis and contextual interpretation of findings (Finlay, 2002; Creswell & Poth, 2018). By critically examining their own assumptions, biases, and positionalities, researchers can gain better insight into how these factors influence the research process and outcomes (Guba & Lincoln, 1989). Reflexivity fosters a deeper engagement with the data and ensures that the findings authentically represent the participants' lived experiences

while acknowledging the researcher's role in shaping interpretations (Orlikowski & Baroudi, 1991).

Upon arriving at the research site, participant engagement began with an introduction, establishing trust through shared history. Participants were informed about the researcher's connection to Tlhabane, which was explained in terms of a personal background rooted in the community. This shared connection fostered trust, particularly among participants unfamiliar with the researcher but who identified with the local context. The study's purpose, intended use of data, and observation and questioning processes were outlined, emphasising voluntary participation. Participants provided informed consent for interviews, audio recordings, and photography, with assurances of confidentiality and the right to withdraw at any time.

After each interview, journaling was revisited to document 'what is now known' and 'what remains unknown,' guiding subsequent interviews and refining the data collection process. Zuboff's (1988) *In the Age of the Smart Machine: The Future of Work and Power* brings the importance of a non-judgmental type of listening in qualitative research into focus. While tape recordings are useful for capturing comprehensive accounts of discussions, they may sometimes hinder openness, especially when sensitive information is involved. Therefore, audio recordings were balanced with detailed notetaking, elaborating on these notes shortly after each interview. This approach was particularly beneficial when dealing with non-confidential but complex data.

Furthermore, the recordings were reviewed to evaluate the effectiveness of the interviewing style. Initially, the structured and formal approach led to a rigid conversation flow, limiting participants' ability to fully share their stories. The use of academic language often required extensive clarification, which affected participants' confidence in their responses. In response, subsequent interviews adopted a more conversational and flexible style, allowing participants to guide the narrative to some extent. Casual language and local vernacular were incorporated to create a more relatable and relaxed environment, fostering genuine and insightful dialogue. As Haugen (2023) highlights, achieving the right balance in interviewing style is essential—overly controlled approaches can stifle rich interpretations, while excessive passivity may diminish participant engagement and the perceived credibility of the researcher. This iterative refinement of the interviewing approach ensured the collection of nuanced and meaningful data.

Through iterative refinement of the data collection process and a commitment to reflexivity, the research successfully gathered nuanced data reflecting the lived experiences of township business owners. This approach aligns with qualitative research principles, ensuring findings are both grounded in participants' realities and critically analysed through a reflective and structured lens.

II. Data collection instruments

The following instruments complement the primary data collection method of semi-structured interviews with research participants. Each interview, lasting between 30 and 45 minutes, was conducted in both English and Setswana, the predominant languages spoken in Tlhabane. Where necessary, the interviews were translated from Setswana to English, with transcriptions prepared for manual thematic analysis following established methodologies (Boyatzis, 1998; Braun & Clarke, 2006).

The interviews were conducted in the participants' natural settings, a respectful choice over a controlled environment, which allowed for more authentic interaction and better contextual understanding. This approach aligns with the principles of naturalistic inquiry, where data is collected in the environment in which the phenomenon naturally occurs, enhancing the ecological validity of the research (Lincoln et al., 1985).

Interviews typically took place early in the morning at a *spaza shop*, coinciding with the shop owner and staff finalising their preparations for the day. During this time, employees were engaged in tasks such as mopping the floor, dusting shelves, and restocking items while the shop owner prepared digital payment devices and sorted loose change. Concurrently, customers were mostly individuals on their way to catch taxis to work or school, purchasing small items like sweets, loose cigarettes, and snacks—common purchases for those needing smaller denominations for taxi fares. Another group of customers, who appeared more casual and sometimes dressed in pyjamas, bought essential household items such as milk and bread. These interactions were often less hurried, providing opportunities for more in-depth engagement with the shop owner.

The observational role during peak periods was particularly significant, with efforts focused on capturing the natural flow of transactions without disrupting shop operations or inconveniencing customers in a hurry. This approach enhanced the richness of the data collected, offering more profound insights into the socio-economic and cultural dynamics shaping the township business environment.

III. Supplementing semi-structured interviews

To maintain the integrity and depth of the data collection process, voice recordings were used as the primary method for capturing interview data during the semi-structured interviews with shop owners. This approach ensured full engagement in the interaction without the distraction of notetaking, which held particular significance within the cultural context of South African townships. In many African cultures, including those in Tlhabane, maintaining eye contact during conversations is a sign of respect and attentiveness (Mbiti, 1990). Direct eye contact facilitated rapport-building and demonstrated genuine interest in participants' responses, fostering an environment conducive to eliciting honest and detailed accounts (Spradley, 1979).

Immediately following each interview, a quiet space was sought to document observations and reflections. This practice aligns with the principles of reflexivity in qualitative research, highlighting the importance of recording immediate impressions and acknowledging potential biases (Finlay, 2002). Voice recordings were revisited to cross-check notes, ensuring the data accurately captured participants' perspectives and that no details were overlooked. Permission was sought from shop owners to photograph their business environments, including the shop layout, displayed products, and payment devices in use. This visual documentation provided valuable contextual data, complementing the verbal accounts obtained during interviews. To uphold the anonymity assured to participants, care was taken to avoid capturing identifying features in the photographs, such as signage or other elements that could reveal the business owner's identity (Wiles et al., 2007).

This methodical approach to data collection, rooted in cultural sensitivity and adherence to ethical research practices, ensured the richness, reliability, and contextual relevance of the data, thereby establishing a robust foundation for the subsequent analysis (Lincoln & Guba, 1985).

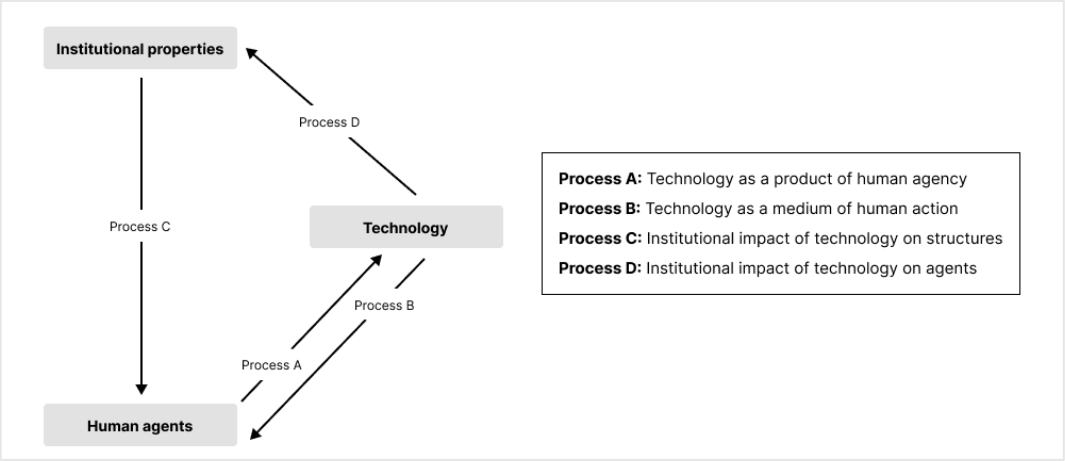
The interviews were conducted in the natural environment of the research participants, such as inside their spaza shops. This approach is supported by research suggesting that familiar surroundings can enhance participant comfort and potentially lead to richer data (Cassell & Symon, 2004). While acknowledging the limitations associated with questioning as a data collection method (Holstein & Gubrium, 1995), it proved to be the most practical approach for gathering data from the business owners in this study. Questioning can be problematic as participants misinterpret the questions, or their understanding of the question might differ from the researcher's intended meaning (Kvale & Brinkmann, 2008). However, a semi-structured interview format allowed for flexibility in exploring topics in-depth and gaining a contextual understanding of the participant's responses (Willig, 2001). This approach aimed to navigate the potential pitfalls of questioning while still acquiring valuable data.

3.3.4 Data Analysis Method

The data analysis process began with the transcription of the interviews, where segments were translated from Setswana to English, as needed, to ensure clarity and accessibility. These transcriptions served as the foundation for an analysis guided by the Structuration Model of Technology (Orlikowski, 1992), which is illustrated in Figure 2 below.

Figure 2

Structurational Model of Technology Diagram



Note. Adapted from Orlikowski (1992).

This framework was instrumental in interpreting context-specific data collected from township business owners, allowing for a nuanced understanding of the interplay between cash and digital payments within these communities. By applying the Structuration Model of Technology (Orlikowski, 1992), the experiences of township business owners were contextualised within broader theoretical constructs, thereby anchoring the findings within an academic discourse on socio-technical systems and financial behaviours.

I. **Process A: Technology as a Product of Human Action**

Orlikowski's (1992) Structurational Model of Technology suggests that technology is inherently a product of human action. This perspective aligns with social constructionism, illustrating how designers embed their social beliefs and objectives into the design of technology. In the context of township businesses, digital and physical transactions are enacted by social actors who continually interact with and attach different meanings to

these technologies. This ongoing interaction underscores the concept of interpretive flexibility in financial behaviours, where technology evolves through its sustained use and the actions of its users (Orlikowski, 1992, 2000).

II. Process B: Technology as a Medium of Human Action

Technology also acts as a medium through which human actions are expressed and influenced. Orlikowski (1992) argues that while human intentions shape technology, they simultaneously shape human practices by enabling or constraining certain behaviours. In the context of township businesses, this duality raises critical questions about how business practices differ when engaging in digital transactions compared to traditional cash transactions. The analysis reveals that while digital payments can streamline transactions and enhance efficiency, the ingrained trust and immediacy associated with cash remain significant factors in these businesses' decision-making processes (Chigada & Hirschfelder, 2017).

III. Process C: Institutional Impact of Technology on Structures

The third process in the model (Orlikowski, 1992) examines the institutional impact of technology on social structures. This process explores how the transaction methods employed within township businesses influence their socio-economic characteristics, potentially leading to structural changes. The Structuration Model of Technology (Orlikowski, 1992) highlights how financial practices within these businesses become solidified, either reinforcing existing practices or catalysing transformative change. For instance, while digital payments are often adopted due to their perceived legitimacy and modernity, their integration into daily operations is significantly influenced by the dominant social and institutional structures within these businesses (Kibuuka & Tustin, 2019; Orlikowski, 1992).

IV. Process D: Institutional Impact of Technology on Agents

Finally, the Structurational Model of Technology (Orlikowski, 1992) considers the institutional impact of technology on individual agents, specifically how external and internal institutional forces shape the construction and use of digital payment systems. While this paper focuses primarily on the first three processes, it is essential to acknowledge that the role of technology in enhancing both human and financial capabilities for promoting financial inclusion remains a critical area for future research. This gap highlights the need for further exploration of how digital payment platforms can be designed and implemented to support the financial inclusion of marginalised communities.

The Structurational Model of Technology (Orlikowski, 1992) provides a valuable framework for analysing qualitative data, particularly in understanding the interplay between physical and digital cash transactions in township businesses. This model's interpretive and social constructivist perspective allows for a deeper exploration of how technology shapes and is shaped by the social and institutional dynamics of these communities. By applying this framework, the research offers a nuanced understanding of how township businesses navigate the complex landscape of cash and digital payments, contributing to broader discussions on financial inclusion and socio-technical systems in South Africa.

3.3.5 Ethical Considerations

The foundation of credible research is the researcher's commitment to integrity and ethical conduct (Creswell, 2009). Recognising research participants as individuals with unique narratives rather than as data points, is paramount (Badenhorst, 2007). This study, mainly focusing on the financial behaviours of township businesses, demanded a heightened awareness of ethical considerations surrounding sensitive topics like money. Qualitative research literature warns of the potential for participant discomfort, stress, or embarrassment during discussions (Mason, 2017). However, participants in this study demonstrated openness, freely sharing their experiences, challenges, and insights even when addressing personal and financially sensitive matters.

I. Consent forms

Before each interview, participants were presented with detailed consent forms, as outlined in the appendices. These forms emphasise the voluntary nature of participation, the right to withdraw at any time, and how confidentiality is maintained (Punch, 2014). Explicit consent was obtained to record interviews and anonymise identities in the final report. All recordings were diligently stored with strict access controls to ensure data integrity and participant privacy.

II. Reliability and validity in qualitative studies

In qualitative research, ensuring trustworthiness is paramount. Trustworthiness encompasses reliability, as explained by Lincoln et al. (1985), which refers to the dependability and consistency of findings, and validity, which is defined as the accuracy of representing the researched phenomenon (Lincoln et al., 1985). Klein & Myers' (1999) principles for evaluating the quality of interpretive research provided a valuable framework for this study, particularly principles on how a researcher's ethical conduct, integrity and diligence in the field contribute to the validity of the research. Here, efforts were made to

uphold these principles by striving for fairness, honesty, and neutrality throughout the research process.

Several strategies were employed to enhance the validity of the research. Reflexive journaling documented the researcher's role in shaping the data and explored whether similar findings might have emerged with a different researcher present (Elliot et al., 1999). Additionally, a detailed description of the research methods, the social context, and the historical background of the research setting was provided to enhance reader understanding and allow for potential comparisons with other research (Lincoln et al., 1985). External consistency was also considered, which refers to the possibility of other researchers replicating the findings (Merriam & Tisdell, 2015). While the qualitative nature of the research may limit strict replication, the detailed description of the research process allows for potential comparisons with future studies investigating similar topics.

III. Bias

Balancing authenticity with the risks associated with self-reporting biases was a central concern in this study. Conducting interviews in both English and Setswana encouraged openness among participants; however, translating responses posed challenges in maintaining the accuracy and integrity of their narratives. The semi-structured interview approach facilitated rich, detailed accounts but also carried the risk of self-reported data and interpretive bias.

To directly address and minimise potential researcher bias stemming from my familiarity and membership within the studied community, I implemented several deliberate methodological strategies. First, I maintained a reflexive journal, regularly recording my personal assumptions, reflections, and experiences throughout the research process (Creswell & Creswell, 2018). Secondly, I ensured methodological rigour by triangulating data from multiple sources, including interviews, direct observations, and secondary documentation, thereby enhancing the credibility and reliability of my findings (Denzin & Lincoln, 2018). Thirdly, I engaged in peer debriefing sessions were held with external colleagues unfamiliar with the research context, and my analysis was reviewed by an external academic supervisor, ensuring transparency and objectivity (Lincoln & Guba, 1985; Merriam & Tisdell, 2016).

These methodological precautions collectively enhanced the integrity, trustworthiness, and scholarly rigour of the qualitative insights, acknowledging the realities and constraints inherent to qualitative research.

This approach to ethical considerations and personal safety upheld the integrity of the research, creating a space of trust and respect that encouraged participants to share their stories openly. This openness ultimately enriched the research with genuine insights into the interplay between cash and digital payments in the township economy.

3.3.6 Evaluation of Research Design

The research design of this study offers valuable insights into the dynamics of digital transactions within township businesses. However, a thorough evaluation requires acknowledging both its strengths and limitations to ensure a nuanced interpretation of the findings.

3.3.6.1 Strengths

I. **Primary data sources and direct relevance**

One of the study's core strengths lies in its reliance on primary data sources, specifically interviews with township business owners (Merriam & Tisdell, 2016). These interviews offer direct, firsthand insights from individuals deeply embedded in the township economy, providing a unique perspective on the interaction between cash and digital payments (Creswell & Creswell, 2018). This approach ensures the data's relevance, directly addressing the research question by exploring how these business owners navigate and make decisions regarding various payment methods (Yin, 2018).

II. **Richness and contextual depth**

The narratives collected during the interviews reveal the complex and multifaceted nature of payment systems within township businesses. These narratives do more than merely identify payment methods; they delve into the challenges, practices, and socio-economic and cultural contexts that shape these choices (Flick, 2014). The depth of this qualitative data allows for a richer, more comprehensive analysis of the factors influencing payment preferences within these communities, aligning with the goals of socio-technical research (Orlikowski, 1992).

III. **Ethical consideration**

The research design demonstrates strong ethical considerations, particularly in protecting participant anonymity and privacy, which is crucial for maintaining the integrity of the research process (Neuman, 2000). This ethical rigour not only safeguards the participants but also fosters trust in the research findings, ensuring that the data is collected and reported in a responsible manner.

3.3.6.2 Limitations

I. Sample representativeness and mitigation of bias

The potential bias and lack of representativeness in the sample constitute a significant limitation of the research design. The absence of detailed information regarding the diversity of the participant sample raises concerns about the generalisability of the findings (Bryman, 2016). Additionally, there needs to be more discussion of the measures taken to mitigate researcher bias during data collection, which could compromise the objectivity and credibility of the data (Guba & Lincoln, 1989). Explicitly addressing these biases and outlining strategies to minimise their impact would enhance the trustworthiness of the research.

II. Methodological diversity and triangulation

The research relies predominantly on interview data without incorporating other data collection methods that could serve as triangulation. Triangulation, or the use of multiple data sources, is essential for validating findings and increasing the study's overall reliability (Merriam & Tisdell, 2016). Integrating observational data on customer payment behaviours or analysing business transaction records could have provided additional perspectives, thus strengthening the conclusions drawn from the interviews.

III. Complementary quantitative insights

While the qualitative approach offers an in-depth exploration of the research topic, it would have benefited from the inclusion of quantitative data (Creswell & Creswell, 2018). Quantitative measures, such as statistics on digital transaction usage within townships, could have contextualised the qualitative findings and potentially uncovered broader patterns or trends that might not be evident through qualitative analysis alone.

Although the research comprehensively depicts current payment practices, its ability to predict future trends or shifts in consumer behaviour is limited (Yin, 2018). Incorporating trend analysis or exploring

factors that might drive changes in consumer behaviour could provide more robust predictions and enhance the applicability of the research to future economic developments within township contexts.

The research design offers valuable and contextually rich insights into the ongoing prevalence of cash transactions within township economies. However, recognising and addressing the identified limitations—such as enhancing sample diversity, mitigating bias, incorporating methodological triangulation, and integrating quantitative data—could significantly strengthen the study's findings. By addressing these aspects, the research would confirm the current dominance of cash and provide a more comprehensive understanding of the evolving landscape of payment methods within township businesses. This, in turn, would contribute to a more robust discussion on financial inclusion and the socio-technical dynamics at play in these communities.

3.4 Conclusion

This chapter has provided a comprehensive overview of the interpretivist philosophical foundations that informed the research approach, methods, and design. It has detailed the qualitative research methodologies employed, highlighting the research design's alignment with the study's objectives, as demonstrated in the table below.

Table 4

Linking Research Design to Research Question and Supporting Literature

Research Design Element	Relevance to Research Question	Supporting Literature
Qualitative interviews with township business owners	Captures firsthand perspectives on how township businesses navigate between cash and digital payment methods.	Creswell & Creswell (2018); Merriam & Tisdell (2016); Blaxter et al. (2010)
Participant observation	Provides insights into the real-world context of cash and digital payment usage, observing interactions and transactions.	Spradley (1979); Yin (2018); Guba & Lincoln (1989)
Thematic analysis of transcripts	Identifies recurring themes related to the perceived benefits and drawbacks of using cash vs. digital payments.	Braun & Clarke (2006); Boyatzis (1998); Mason (2018)
Use of the Structurational Model of Technology (Orlikowski, 1992)	Frames the analysis by examining the socio-technical interactions that influence payment choices in township businesses.	Orlikowski (1992); Giddens (1984); Bijker (1997)
Contextual understanding of township socio-economic landscape	Addresses how socio-economic factors such as income levels and community trust impact payment method preferences.	Charman & Petersen (2015); Kibuuka & Tustin (2019); Mbiti (1990)

Ethnographic techniques	Explores cultural and habitual influences on the continued use of cash in township economies.	Mason (2018); Spradley (1979); Lincoln & Guba (1985)

The table links specific research design elements to the relevance they hold in answering the research question, '*Is cash still king: Exploring how township businesses navigate cash and digital payments.'* Each design element is supported by relevant literature that underpins the methodological choices made in this study. Key aspects of research planning were explored, including the strategies for gaining access to the research setting and the criteria used for participant selection (Merriam & Tisdell, 2015). Additionally, the chapter addressed critical ethical considerations, ensuring the integrity of the research and adherence to principles of trustworthiness, including reliability and validity (Creswell, 2008). The discussion also covered the preparatory steps taken for fieldwork, ensuring a well-organised and ethically sound research process.

CHAPTER 4: FINDINGS

4.1 Introduction

In the evolving landscape of financial transactions, the dichotomy between traditional cash payments and modern digital methods serves as a rich vein for scholarly exploration, mainly through the prism of structuration theory. Orlikowski's seminal works, *Using Technology and Constituting Structures* (2000) and *The Duality of Technology* (1992), provide a robust theoretical framework for examining the nuanced interplay between individual preferences, cultural norms, and technological innovations in the realm of payment methods. This analysis studies personal narratives to uncover the complex factors that guide the choices of individuals between cash and digital payments, including the cultural significance of cash, perceptions of risk, and the potential convenience that digital technologies offer. By applying the concepts of technology as a product and medium of human action, and its impact on institutional structures and agents (Orlikowski, 1992), this study explores the dynamic relationship between technological adoption, societal practices, and individual agency within financial transactions.

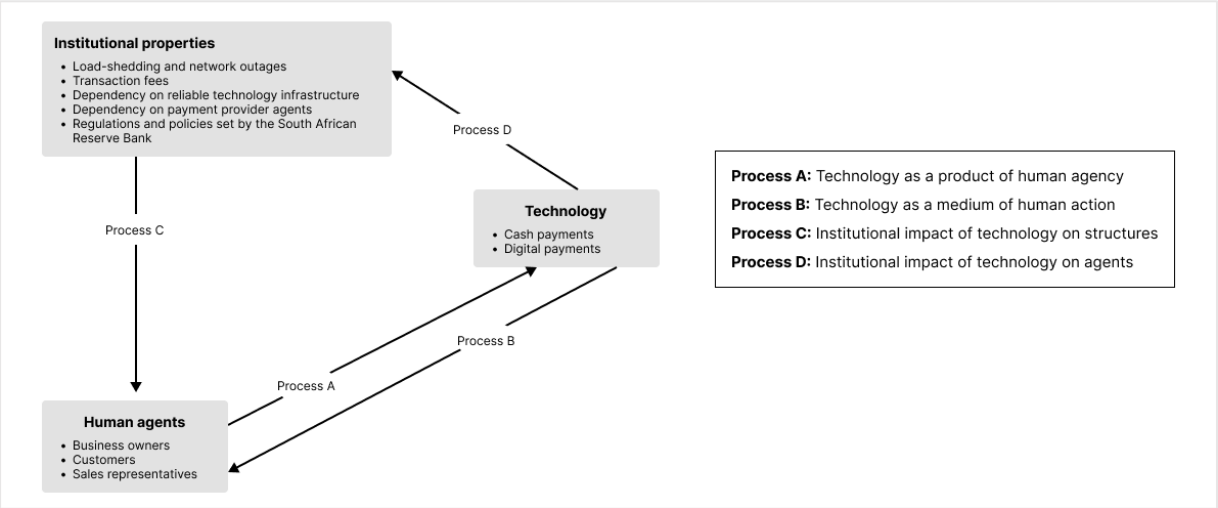
Drawing from participant interviews, this analysis highlights several key insights that underscore the deep-seated interplay between technology and social practices. First, the symbolic respect attributed to cash in specific contexts reflects Orlikowski's (2000) notion that technology (in this case, cash) is actively constituted within specific cultural and social frameworks. Additionally, the preference for digital payments for convenience and safety illustrates the duality of technology as both enabling and constraining human actions, aligning with Orlikowski's (1992) argument. This preference also points to the institutional impact of technology on structures, where the increasing adoption of digital payments signals a shift in market expectations and business practices, challenging traditional norms and potentially reshaping social and economic interactions (Orlikowski, 2000).

4.2 Method of Analysis

Structuration Theory (Orlikowski, 1992) offers a framework for analysing township businesses and the conditions under which they interact with cash and digital payments, as shown in the figure below.

Figure 3

Data Analysis Through the Structurational Model of Technology



Note. Adapted from Orlikowski (1992).

Orlikowski's (1992) Structurational Model of Technology was applied to the analysis of the interviews by dissecting the narratives, using four distinct but interrelated processes—Process A to D—each highlighting a different aspect of the interaction between technology, human action, and societal structures.

I. Process A: Technology as a Product of Human Action

Process A focuses on the active role of human decisions and actions in shaping technology (Orlikowski, 1992). The interviews examined participants' preferences for digital payments over cash or vice versa as outcomes of their individual choices, shaped by personal experiences, perceptions of convenience, and psychological comfort. This approach underscores Orlikowski's (1992) assertion that technology is not a static entity but is rather constantly produced and reproduced through human activity.

II. Process B: Technology as a Medium of Human Action

Here, technology is seen as facilitating or mediating human activities. The analysis explored how digital payment methods and cash transactions mediate everyday financial interactions, such as paying for services or managing expenditures. Examining participants' narratives through this lens highlighted how cash and digital payments mediate and

enhance social interactions and practices, consistent with the view that technology is embedded within and shapes the flow of human activities (Orlikowski, 1992).

III. **Process C: Institutional Impact of Technology on Structures**

This process examines how the adoption of technology influences organisational and societal structures (Orlikowski, 1992). The interviews revealed insights into how businesses determine acceptable payment methods and how these choices reflect broader societal trends toward digitisation. This analysis reflects Orlikowski's (1992) discussion on the constitutive role of technology in shaping and being shaped by institutional structures, highlighting the deep and reciprocal relationship between technology use and social practices.

IV. **Process D: Institutional Impact of Technology on Agents**

This process looks at how technology affects individuals within these structures (Orlikowski, 1992). Discussions with participants about their payment method choices revealed how broader societal norms, safety concerns, and the symbolic power of cash influence these decisions. This part of the analysis illuminated how individual agents navigate, resist, or embrace technological changes within their societal and institutional contexts. This resonated with Orlikowski's (1992) work on the agency within Structuration Theory (Giddens, 1986; Orlikowski, 1992).

Throughout the analysis, Orlikowski's (1992) Structurational Model of Technology provided a comprehensive lens to explore the complex dynamics between individual agency, technological choices, and societal structures. It enabled an in-depth understanding of how payment methods are chosen and used within specific cultural and institutional contexts, highlighting the ongoing negotiation between tradition and innovation in the digital age.

4.3 Research Participants

The research participant pool comprises township businesses in Tlhabane ranging from small-to medium-sized businesses, including spaza shops, salons, backroom rental services, building material suppliers, and mini supermarkets. The selection of participants is demonstrated in the table below, which summarises the various payment methods used by each of the participants.

Table 2

Overview of Participants

Participant	Payment Methods Used	Perceptions of Cash	Perceptions of Digital Payments
Participant 1: Building materials shop owner	• Cash • Point of sale machines	Cash increases costs (insurance, security), risk of theft, is cumbersome to manage, but is necessary for certain stock purchases.	Prefers digital payments for bookkeeping, convenience, and security. Digital payments reflect immediately and reduce the chances of theft or errors.
Participant 2: Fitness club owner	• Cash, • eWallet (FNB) • Electronic funds transfer.	Finds cash convenient for small daily expenses but risky for large amounts as it is easy to spend unnecessarily.	Uses digital payments for larger transactions due to safety and ease of use. Feels more disciplined with digital money.
Participant 3: Tuck shop owner	• Cash • Kazang • Shop2Shop	Prefers cash for small purchases due to ease of use. Often uses cash with suppliers.	Views digital payments as neutral, but adopts them based on customer demand. Digital payments are seen as a more modern approach but not necessary for all transactions.
Participant 4: Tuck shop owner	• Cash • Shop2Shop	Cash handling is cumbersome and adds risk. Prefers to minimise its use in daily operations.	Digital payments are seen as more secure and easier for record-keeping. Considers digital as the preferred method for most transactions.
Participant 5: Landlord and car wash owner	• Cash	Cash is convenient because customers are people who earn wages in cash, so they pay her in cash.	Views digital payments as advantageous for security, convenience, and ease of tracking finances.
Participant 6: Mini supermarket owner	• Cash • Shop2Shop	Uses cash selectively but sees it as a hassle for record-keeping.	Digital payments are more convenient and transparent, better for business operations.
Participant 7: Tuck shop owner	• Cash • Flash • CellAir	Cash can be inconvenient and difficult to manage, especially for high-value transactions.	Digital payments offer better transparency and reduced risk; prefers digital payments for larger transactions.

Participant 8: Salon co-owner	• Cash	Views cash as convenient for his customers. He is fine with his business being primarily cash-based because he does not charge a lot of money for services.	Services offered by the salon are already affordably priced, digital payments will reduce his take-home money because of incurred bank charges.

This table summarises each participant's payment methods, as well as their perceptions and attitudes towards cash and digital payments. Participants who use both cash and digital payments are central to this research, which examines the relationship between cash and digital payment methods in the South African township business landscape. To achieve a more comprehensive understanding of this relationship, the Structurational Model of Technology (Orlikowski, 1992) is used as the analytical lens through which the business practices of all participants are analysed and interpreted.

4.3.1 Participant 1: Building Materials Shop Owner

Participant 1 runs a building materials business, engaging in transactions across the value chain from suppliers to customers. His business incorporates traditional and digital payment methods to cater to a diverse customer base, including individual homeowners and construction workers. This dual approach reflects a balance between aspirational formalisation and practical necessity. While Participant 1 prefers digital payments for their efficiency, transparency, and alignment with institutional norms, cash remains indispensable for transactions with financially excluded customers. Both mediums present unique challenges—cash requires costly security measures, while digital payments depend on reliable infrastructure. Participant 1's practices highlight a gradual shift towards cashless operations, tempered by socio-economic realities that sustain cash as a necessary fallback. This dynamic showcases the co-existence and mutual shaping of cash and digital payments within his socio-technical environment.

I. Process A: Technology as a Product of Human Action

The Structurational Model of Technology (Orlikowski, 1992) emphasises the duality of structure, where technology shapes human actions. In the context of Participant 1, cash and digital payments are not just neutral tools but are deeply embedded within the socio-economic practices of his business. Participant 1, a building materials shop owner, demonstrates how cash and digital payments are produced through human action. His deliberate use of these payment methods reflects the interplay between agency and structure.

Cash, for instance, is favoured in certain transactions due to its immediacy and bargaining power. Participant 1 explains, *"When I buy stock, it is better to have cash because I can negotiate."* This illustrates how the material properties of cash enable Participant 1 to exert agency in negotiations, thereby shaping the economic interactions within his business.

Conversely, the adoption of digital payments by Participant 1 is a strategic response to the operational inefficiencies associated with cash. He notes*, "Cash in the business increases my costs...Plus I need more security guys and cameras,"* highlighting how the structural challenges of managing cash have led him to adopt digital payments to optimise operational efficiency and reduce costs.

II. Process B: Technology as a Medium of Human Action

As a medium of human action, cash and digital payments mediate the interactions between Participant 1 and his customers, shaping the practices and routines within the business. According to Structuration Theory (Giddens, 1986; Orlikowski, 1992), technologies such as cash and digital payments embody the duality of structure, where they are both shaped by and shape social practices.

Participant 1 describes how cash necessitates a heightened state of vigilance: *"When someone pays with cash, I am extra alert...I focus and double-check everything."* This reflects how the materiality of cash demands careful management, influencing the actions and routines within the shop. Therefore, cash facilitates transactions and structures the temporal and spatial organisation of work, requiring specific protocols and security measures to ensure accuracy and safety.

Digital payments, on the other hand, act as a medium that enhances trust and accountability in financial transactions. Participant 1 states, *"I am really strict with money; it is difficult to cheat someone with digital payments,"* indicating how the traceability and transparency of digital payments structure business practices by reducing the risk of fraud and improving financial management. This aligns with the concept of the duality of structure (Giddens, 1986; Orlikowski, 1992), where digital payments shape the operational efficiency and trust within the business while being shaped by the technological infrastructure and customer preferences.

III. Process C: Institutional Impact of Technology on Structures

The institutional impact of cash and digital payments on business structures posits that institutions are both the medium and outcome of the practices they recursively organise

(Orlikowski, 1992). In this context, cash and digital payments are influenced by the operational, financial, and social structures within Participant 1's business.

Participant 1 describes the implications of using cash in his operations, stating, *"Cash in the business increases my costs. My insurance goes high, and I must pay the Fidelity guys to safely take it to the bank."* In this instance, cash imposes institutional dependencies that directly affect the business structure. These dependencies reflect the allocative resources (Giddens, 1984) tied to cash, where physical handling necessitates additional infrastructure and services. This dynamic highlights how cash reinforces certain institutional norms, such as the necessity of formalised security practices for handling physical money.

In contrast, digital payments have redefined these structures by streamlining operational processes and reducing the administrative effort associated with cash handling. Participant 1 highlights the efficiency of digital transactions, stating, *"When someone pays for something, I get the money by the time my day ends."* The immediacy of payment settlement enhances economic flexibility for Participant 1's business, enabling better cash flow management by reducing the dependency on manual operations. However, the reliance on digital infrastructures also limits the flexibility of businesses when those systems fail, as Participant 1 explains, *"Sometimes the speed points we have give us small problems like when there's load-shedding and there's no network. We sometimes lose customers."* The duality of structure is evident here: businesses adopt digital payments to streamline transactions, but their reliance on institutional infrastructures also exposes them to systemic vulnerabilities. This tension highlights how digital payment technologies can simultaneously enable and constrain businesses, depending on the socio-technical environment (Orlikowski, 1992).

IV. Process D: Institutional Impact of Technology on Agents

Participant 1's aspiration to transition entirely to digital payments reflects an alignment with institutional trends toward formalised and efficient financial systems. However, Participant 1's occasional reliance on cash underscores its role as a fallback medium, driven by socio-economic conditions that prevent full digital adoption.

Participant 1's preference for digital payments is driven by the institutional push towards formalising financial practices through digital means. He states, *"Ideally, I would go completely cashless. It would make things easier for me, especially for bookkeeping and admin."* This statement reflects how institutional forces and digital technologies influence Participant 1's aspirations to transition away from cash. He further explains, *"With me, I*

don't like to even carry cash. Today, it's easy—I can just tap my phone. I don't even carry my wallet with me anymore." This quote highlights how the embedded norms and facilities (Giddens, 1984) of digital payment systems, such as contactless transactions and mobile integration, offer convenience and security, aligning with institutional trends toward cashless operations. This illustrates how digital payments not only enable Participant 1 to adapt but also foster changes in personal habits and preferences, reinforcing his shift away from physical cash.

However, the transition to an entirely cashless system is constrained by the socio-economic environment, including the prevalence of cash among specific customer demographics, as highlighted by Participant 1: *"The people who pay cash are the informal guys...a lot of these guys do not have bank accounts."* Participant 1's engagement with cash-paying customers reflects how institutional constraints, such as lack of banking access, shape practices and perpetuate cash usage.

Participant 1's resistance to cash payments reflects an alignment with formalised systems. He further explains, *"Sometimes when my staff members face problems, they ask me to pay their salary in cash. I don't like doing that."* The socio-economic conditions of staff members compel occasional reliance on cash as a fallback medium. This duality illustrates how Participant 1 navigates between institutional structures: digital systems that promote efficiency and formalisation, and socio-economic conditions that necessitate cash as an accessible and inclusive medium.

In summary, Participant 1's navigation of cash and digital payments reflects a balance between aspirational formalisation and practical necessity. While he prefers digital payments for their efficiency, transparency, and alignment with institutional norms, cash remains indispensable for transactions with financially excluded customers and in informal contexts. Both mediums present unique challenges—cash requires costly security measures, while digital payments depend on reliable infrastructure. Participant 1's practices highlight a gradual shift towards cashless operations, tempered by socio-economic realities that sustain cash as a necessary fallback. This dynamic showcases the co-existence and mutual shaping of cash and digital payments within his socio-technical environment.

4.3.2 Participant 2: Fitness Club Owner

Participant 2, a fitness club owner and health supplement distributor, operates within a value chain that extends from suppliers to customers, strategically integrating both traditional and digital payment

systems to optimise their business operations. Payments to suppliers, likely made through digital methods such as bank transfers, enable efficient procurement and inventory management, ensuring traceability and accountability. At the core of their customer-facing operations, Participant 2 demonstrates adaptability by offering a range of payment options, including cash, bank transfers, and FNB eWallet services. This flexibility caters to diverse customer preferences, enhancing convenience and fostering loyalty. Through this balanced approach, Participant 2 effectively navigates the interplay of cash and digital payments, leveraging technology while addressing gaps through human agency.

I. Process A: Technology as a Product of Human Action

For Participant 2, a fitness club owner, the use of cash and digital payment methods is influenced by the preferences and behaviours of his customers.

Participant 2 enacts cash as a preferred resource for smaller transactions due to its immediacy and relevance to operational requirements, such as petrol expenses. He notes, *"When it is amounts, like R50, I know I am going to use them for (running costs) like petrol. So normally, I will prefer the cash in my hand for the smaller amounts given to me by a small number of people."* This demonstrates how the materiality and convenience of cash influence its ongoing reproduction in specific practices. However, for geographically distant clients, Participant 2 adapts his practices to digital payment systems, explaining, *"Normally for clients that are far, there's no way I will get cash in hand, so those people will send eWallets [FNB], CashSend [Absa], and some will pay directly into my bank account."* These adaptive practices highlight how Participant 2 negotiates the duality of payment structures, using digital payments as a response to the constraints posed by physical distance.

At the same time, digital payment systems are mobilised as a rule and resource to mitigate the risks associated with large cash sums and promote structured financial behaviour. Participant 2 emphasises this dynamic, stating, *"The thing is when it comes to selling products and someone promises me money, I wait for the money to reflect before I hand over the product. So any method is fine as long as I'll get the money."* Here, the preference for digital payments embodies safety norms and provides a framework for transactional accountability. Moreover, digital payments shape his financial practices, as he explains, *"With money that's in the bank, I am less likely to use it - I even tend to forget it."* This demonstrates how the use of digital technology recursively structures his financial discipline, reinforcing digital systems as a medium for intentional economic action.

II. Process B: Technology as a Medium of Human Action

Through Participant 2's practices, cash and digital payments are mobilised as mediums that recursively shape Participant 2's transactional environment, enabling him to navigate the dual demands of local convenience and broader customer accessibility.

Cash enables immediate and informal exchanges, particularly for small, frequent transactions that align with Participant 2's operational needs. For instance, he prefers cash payments for individual fitness classes, for which he charges R50. He explains, *"When it's amounts like R50, I know I'm going to use them for [running costs] like petrol. So normally I'll prefer the cash in my hand for the smaller amounts."* This demonstrates how cash is recursively enacted in local, low-stakes transactions due to its convenience and liquidity. However, Participant 2 acknowledges that cash fosters a propensity for impulsive spending, stating, *"With physical cash, if something comes up, I can use it up easily."* This underscores how the materiality of cash mediates less disciplined financial behaviour, revealing its constraining effects on long-term planning.

Digital payments, conversely, enable Participant 2 to serve clients remotely while promoting structured and intentional financial practices. He notes, *"For clients that are far, there is no way I will get cash in hand, so those people will send eWallets, CashSend, and some will pay directly into my bank account."* The affordances of digital payment technologies—such as traceability and security—mediate his interactions with geographically dispersed customers, extending the spatial reach of his business. Moreover, the use of digital payments reflects a shift towards more structured financial behaviours, as Participant 2 associates digital money with greater financial discipline and accountability, contrasting with the more immediate and less formal nature of cash transactions.

III. Process C: Institutional Impact of Technology on Structures

Cash and digital payments also have significant institutional impacts, shaping and being shaped by the economic structures within which they operate.

Cash transactions reinforce the informal economic structures that characterise Participant 2's business. Participant 2's reliance on cash for small, immediate transactions, as demonstrated in their preference for cash, *"like R50"* for running costs such as petrol. This quote indirectly reflects how cash remains institutionalised for certain transactions, particularly in small or informal exchanges. The continued reliance on cash for these transactions reinforces its role as an enduring structure of convenience and immediacy. Institutions such as fuel vendors or small businesses may implicitly favour cash due to its

simplicity, reinforcing its structural dominance in these specific contexts. While the quote primarily reflects agency, it also shows how cash is institutionally embedded in norms around smaller, in-person transactions.

Digital systems alter financial behaviour and institutional norms. Participant 2's statement that they *"even tend to forget"* money stored in the bank illustrates how the institutional impact of digital banking shifts the perception and use of financial resources, encouraging saving but potentially reducing active financial engagement. Furthermore, the ability to transact remotely institutionalises new norms of convenience and trust in financial systems.

IV. Process D: Institutional Impact of Technology on Agents

The institutional impact of cash and digital payments on agents, such as Participant 2 and his customers, shapes their behaviours and practices.

In Participant 2's business, smaller, frequent amounts of up to R50 are paid in cash, and larger, less frequent payments of R300 or more are transferred electronically via EFT. This impact on agent behaviour is demonstrated through the institutionalised use of cash for small payments and EFT for larger ones, which explains how financial technologies influence decision-making processes. Over time, these practices have become normalised, structuring how the participant interacts with clients and manages transactions. These payment norms also affect the participant's trust and convenience thresholds, which are shaped by broader economic and cultural structures. As the participant 2 adopts digital payments, he implicitly acquires the skills to navigate electronic banking systems, which reinforces their integration into more formalised financial systems.

When transacting with cash, Participant 2 explains, *"I write it all down in a book so that I don't forget and I know exactly who paid what and when."* This quote demonstrates an impact on Participant 2's accountability: The use of a physical book highlights his effort to maintain agency within the financial structures shaped by cash and digital payments. This practice demonstrates the institutional norms of accountability impact individual behaviour. The participant's need to supplement technological systems with manual tracking underscores how institutionalised technologies, such as cash and EFT, do not fully meet all his needs. Instead, he adapts these systems with additional tools and practices to achieve greater control over their financial activities.

Participant 2 demonstrates a hybrid approach to financial transactions, shaped by the dynamic interplay between human agency, contextual needs, and institutionalised financial systems. He

effectively leverages the strengths of both cash and digital payments to optimise their business operations while supplementing these systems with manual processes to ensure accountability and control. This reflects a nuanced navigation of economic structures, balancing the benefits and limitations of informal and formal payment systems.

4.3.3 Participant 3: Tuck Shop Owner

Participant 3 operates a small tuckshop that is embedded within a local value chain, connecting with suppliers for stock procurement and catering to a diverse customer base. The tuckshop primarily engages with suppliers through cash transactions but also uses digital payment devices, such as Shop2Shop and Kazang, for specific bulk inventory purchases. These digital tools offer transactional convenience, yet their use is shaped by the economic and institutional dynamics of the township economy. Below, Participant 3 demonstrates the Shop2Shop payment device employed in the business to facilitate card-based transactions.

Figure 4

Shop2Shop Payment Device

These digital platforms, like Shop2Shop, facilitate seamless transactions, ensuring timely stock replenishment and efficient supply management. Participant 3 offers a mix of cash, Shop2Shop, and Kazang payment options to accommodate customer preferences. The integration of these payment options can be better understood by analysing Participant 3's business practices through the Structurational Model of Technology (Orlikowski, 1992).

I. Process A: Technology as a Product of Human Action

Using Orlikowski's (1992) Structurational Model of Technology as an analytical lens, we see that both cash and digital payments are products of human action, shaped by the ongoing interplay between agency and structure. Participant 3's business operations illustrate how these payment methods emerge from the interactions between individuals and the socio-economic environment in which they operate.

Cash transactions are a deeply ingrained social practice within Participant 3's shop, demonstrating how established routines shape and are shaped by human action. According to structuration theory, social structures are both the medium and the outcome of the practices they recursively organise (Giddens, 1986; Orlikowski, 1992). Participant 3 notes, *"Most people use cash,"* highlighting how cash transactions have become normalised and habitual in the community. This use of cash reflects the duality of structure (Orlikowski, 1992), where the structure of cash usage is constituted by and constitutive of the actions of Participant 3 and his customers.

Conversely, digital payments such as Shop2Shop, Flash, and Kazang represent an evolving aspect of social practices shaped by technological advancements and the demands of a changing consumer base. Participant 3's adaptation to these technologies illustrates how human action drives the adoption and integration of new structures. He mentions, *"I use Flash. The company donates it. The company benefits, I benefit,"* indicating how digital payments are not only a response to existing structures but also a means of reshaping the economic landscape of his business. Here, the concept of structural properties (Giddens, 1986; Orlikowski, 1992) is evident, where the availability and convenience of digital payments influence the agency of Participant 3, leading to their incorporation into everyday business practices.

II. Process B: Technology as a Medium of Human Action

In structuration theory, both cash and digital payments function as modalities mediating the interaction between agency and structure (Orlikowski, 1992). These payment methods are

not just tools but are embedded within the broader social and economic practices that constitute the everyday operations of Participant 3's business.

Cash is a practical and immediate medium of human action, facilitating routine transactions in Participant 3's shop. The flexibility of cash is evident when Participant 3 says, *"Another person is coming with card, sometimes it is cash. No problem,"* reflecting the embeddedness of cash in daily activities. The routine use of cash underscores its role as a medium through which the existing social structures of commerce are enacted and maintained. In this way, cash functions as a facility (Giddens, 1986) that enables Participant 3 and his customers to engage in transactions without technological mediation, reinforcing the traditional economic structures that favour cash.

Digital payments, on the other hand, represent a shift towards a more mediated form of human action. These systems introduce new modalities of interaction, where transactions are facilitated by technology rather than direct exchange. Participant 3's use of digital payment systems, despite the 3% bank charge, illustrates how these systems are becoming integrated into the fabric of his business. He notes, *"With the cigarette company, I purchase using Kazang. No cash. They will not carry cash,"* demonstrating how digital payments serve as a medium that not only facilitates transactions but also alters the dynamics of business operations by reducing the risks associated with handling large sums of cash. This shift reflects the broader structural changes that digital payments bring to the economic landscape, highlighting the disembedding effect of technology (Giddens, 1990; Orlikowski, 1992; Jones & Karsten, 2008), where transactions are increasingly separated from their traditional, localised context.

III. Process C: Institutional Impact of Technology on Structures

The institutional impact of cash and digital payments on Participant 3's business structures highlights how these payment methods influence, and are influenced by, the organisational practices within the tuckshop.

Cash remains embedded in the institutional framework of Participant 3's business, shaping relationships with suppliers and customers. This is evident in Participant 3's observation: *"The bakery? No cards,"* which underscores how cash transactions are institutionalised in certain supply chain relationships. The logistical challenges associated with cash handling, particularly small denominations, are also apparent in Participant 3's interactions, as when a bakery supplier queries, *"Do you expect me to count all these coins?"*, shown in Figure 5 below.

Figure 5

Transaction Between Participant 3 and a Supplier

His reliance on cash in this instance reinforces traditional structures, where its role as the primary medium of exchange persists due to familiarity and trust, despite the availability of digital alternatives. The enduring use of cash thus reflects its deep entrenchment in the socio-economic dynamics of the township economy.

In contrast, digital payment systems introduce new structural dynamics that transform the institutional practices within Participant 3's business. By integrating platforms like Shop2Shop and Kazang, the business adapts to new norms of transactional efficiency and security. Participant 3 notes, *"Shop2Shop, Flash, Kazang…I have all used. All of them are the same, the charges are all the same,"* demonstrating how digital payments are increasingly incorporated into everyday operations. Furthermore, the structural impact of digital payments is particularly notable in transactions that prioritise security, such as those involving high-value purchases. Participant 3 highlights this shift, stating, *"With the cigarette company, I purchase using Kazang. No cash. They will not carry cash,"* indicating how digital payments reduce risk and align with institutional imperatives for safer financial practices.

IV. Process D: Institutional Impact of Technology on Agents

The institutional impact of cash and digital payments on agents emphasises the reciprocal relationship between structure and agency. This process highlights how technological and institutional dynamics both shape and are shaped by Participant 3’s actions and decisions.

Cash, as the dominant mode of payment in Participant 3's business, continues to influence his operational practices and decision-making. His observation, *"Most people use cash,"* illustrates how cash remains a preferred method due to its familiarity and ease of use for simple, quick exchanges. This reinforces its entrenched role within the institutional and socio-economic context of township economies. However, this reliance on cash comes with challenges that impact Participant 3's agency. For example, managing small denominations creates logistical burdens, as evidenced by a bakery supplier's complaint about counting coins. Additionally, cash handling introduces significant security risks. Participant 3 highlights this vulnerability, stating, *"They removed the safety deposit box from the delivery truck,"* which underscores the operational risks agents face when navigating cash-based systems.

Digital payments, while introducing new considerations such as transaction fees, empower Participant 3 by offering more secure, efficient, and institutionally supported methods of conducting business. The 3% fee on card transactions, as Participant 3 notes, *"It is only 3% that I take on cards,"* reflects the financial trade-offs of adopting digital systems. However, these systems bring significant benefits, particularly in terms of security and reduced risk. The institutional support for digital payment devices further enhances Participant 3's ability to use them effectively. He acknowledges this support, stating, *"These machines are only given by companies. If it is broken or has any problems, the company fixes it. It is free to fix it."* This institutional backing reduces the operational burden on Participant 3, allowing him to integrate digital payments into his business with confidence.

Participant 3's tuckshop demonstrates how technology, such as Shop2Shop and Kazang, serves as both a product and a medium of human action, enabling digital transactions while being constrained by entrenched cash-based practices. His preference for cash is rooted in the socio-economic norms of the informal economy, where trust in physical currency and supplier practices dominate. At the same time, digital tools offer potential for improved efficiency and security. However, their adoption remains limited due to transaction costs, reliability concerns, and the lack of widespread acceptance among suppliers.

4.3.4 Participant 4: Tuck Shop Owner

Participant 4 runs the tuckshop that is photographed in Figure 6 below.

Figure 6

Participant 4's Tuck Shop

Participant 4's tuckshop operates within a value chain that begins with suppliers from whom they procure goods, and ends with customers who purchase these goods. His business primarily engages with suppliers through cash transactions and, to a lesser extent, uses Shop2Shop, a business-to-prepaid solution, for digital payments. This dual approach ensures a steady inventory flow by accommodating the preferred payment methods of various suppliers, enhancing supply chain efficiency.

I. Process A: Technology as a Product of Human Action

Participant 4 demonstrates that cash and digital payments are not static but continuously produced, shaped, and evolved through his actions and decisions regarding various payment options.

In the interview, Participant 4 highlights that most of his customers prefer to pay with cash: *"Here, most of the people, they pay cash. Only a few people have a card—some people are scared of tsotsis (thieves)."* In this instance, Participant 4's use of cash directly results from the social environment in which these transactions occur, where fear of theft and a lack of trust in digital systems influence behaviour. The nature of cash transactions also shapes participant 4's business practices. He limits the amount of cashback he provides due to concerns about robberies: *"I do R100, R500, R200—smaller cash. Just tell me what you want to do. If you maybe want transport money for work, then later (you pay me). I can help you."* These actions illustrate how physical cash is produced and managed in response to the risks and realities of the local environment.

Participant 4's decisions and actions also shape digital payments. Participant 4's choice to switch from the Standard Bank point-of-sale machine to the Shop2Shop reflects how he

actively shapes the technology they use based on cost and convenience*: "Before, I used to use the Standard Bank machine, but the charges is (sic) too much. So now I am using the private one. It is by a private company. Yeah, Shop2Shop."* Adopting a different payment system exemplifies how Participant 4's actions produce and shape digital payment technologies. Participant 4 evaluates the costs and benefits of the available technologies and selects the one that best meets his business needs. His experience with these machines, where he notes, *"All of the private companies charge 2.5%. They started with a small one (devices) and then they (updated). The last version is this one,"* further illustrates how digital payments evolve through continuous human intervention and adaptation.

II. Process B: Technology as a Medium of Human Action

For Participant 4, technology, particularly payment technologies like cash and digital payment systems, acts as a medium of human action by facilitating and shaping how financial transactions occur within the retail environment. Participant 4's interview demonstrates that technology serves as a medium that both enables and shapes the financial interactions between Participant 4, his customers, and his suppliers, illustrating the critical role it plays in navigating the landscape of physical and digital money within township retail settings.

Physical cash acts as a medium of human action by facilitating transactions in a tangible, immediate form. It mediates social interactions, such as trust between the buyer and seller, where cash payments are seen as simple and straightforward. The materiality of cash fosters a sense of security among customers and allows for easier informal transactions, such as small loans or credit arrangements. Digital payments, on the other hand, mediate human action by introducing an abstract layer to transactions. For instance, the Shop2Shop system allows Participant 4 to perform transactions without physical money, which is perceived as a safer and more convenient option. However, digital payments also require technical literacy and trust in the system, which may not be universally present among all customers.

The case of Participant 4's business highlights the role of mediation in how payment technologies enable and constrain actions. Cash mediates actions by simplifying exchanges, while digital payment systems, such as Shop2Shop, mediate through the automation of transactions, reducing the need for physical currency. Both forms of payment thus mediate interactions differently, with cash enabling more direct control over money and digital payments enabling convenience and safety but requiring trust in technology.

III. **Process C: Institutional Impact of Technology on Structures**

Participant 4's experiences demonstrate how institutional structures influence the adoption and use of both cash and digital payments, as well as how such practices recursively shape those structures.

He comments, "*The card ones (customers) are scared…There is nothing we can do,"* reflecting how entrenched norms and perceptions, such as fear of fraud or mistrust in digital systems, act as structural constraints (Giddens, 1984). These constraints limit the ability of agents, such as customers, to adopt digital payment systems, despite their potential for efficiency and security. However, by offering digital options alongside cash, businesses like Participant 4's contribute to the legitimation of digital payments, gradually reshaping customer attitudes and institutional norms over time (Orlikowski, 1992).

Economic considerations also play a significant role in shaping the institutional impact of technology on structures. For instance, Participant 4 recounts, "*Before, I used to use the Standard Bank machine, but the charges are too much. So now I am using the private one (Shop2Shop)."* This shift highlights how allocative resources, such as affordable payment technologies, can influence decision-making, prompting agents to bypass traditional systems and adopt alternatives better suited to their socio-economic context. This adoption of cost-effective tools like Shop2Shop reflects the emergent structures that arise when agents adapt technologies to fit institutional constraints, such as high fees associated with formal banking systems (Giddens, 1984; Orlikowski, 1992).

Participant 4's preference for Shop2Shop further demonstrates how technology can become institutionalised through routine use. As they explain, *"Shop2Shop is nice; also, it helps a lot. When you go to Three Star or a cash-and-carry, you pay with Shop2Shop – no problem. It is simple."* The widespread acceptance and usability of Shop2Shop contribute to its status as a legitimated resource, demonstrating how technology becomes embedded within business practices to facilitate smoother transactions. This aligns with Orlikowski's (1992) perspective that technologies are not deterministic but are continuously shaped and reshaped by the social practices in which they are enacted.

IV. Process D: Institutional Impact of Technology on Agents

Participant 4 provides insight into the institutional impact of technology on agents, highlighting how payment technologies shape his behaviours and practices within their social and institutional contexts.

Participant 4 begins by giving context to his cash-paying customers' financial situations by explaining, *"After Coronavirus, people have too much (sic) debts. Before, they used to (take credit), like, every day. But only the ones I know (would get credit)."* This explanation reflects how institutional forces, such as the economic pressures induced by the pandemic, have reshaped individual financial practices. Customers, constrained by increasing debt burdens, are now less inclined to seek credit, even in informal settings. This shift demonstrates how structural constraints—in this case, financial instability—alter agents' behaviours, forcing them to adopt more cautious financial strategies. From a structuration perspective, this change illustrates how external institutional dynamics, like economic disruptions, recursively shape and are shaped by individual financial actions. At the same time, the selective granting of credit based on personal relationships highlights the role of legitimation structures (Giddens, 1984), where trust and familiarity influence credit practices.

When talking about digital payments, particularly how he transacts when restocking his shop, he explains that, *"When you go to Three Star or a cash-and-carry, you pay with Shop2Shop – no problem. The app is on my phone. You just use it – simple,"* Participant 4 underscores how digital payments enable agents to navigate institutional environments more efficiently. By offering a streamlined and accessible tool for transactions, Shop2Shop serves as a facilitator that empowers agents to act with greater autonomy within their institutional context (Orlikowski, 1992).

Participant 4's experiences highlight how both cash and digital tools serve as resources shaped by socio-economic contexts, enabling flexible responses to shifting institutional constraints such as economic pressures and evolving financial practices. While cash remains a trusted option, digital payments like Shop2Shop offer enhanced convenience and efficiency. Participant 4's practices illustrate the duality of structure, where payment methods are simultaneously shaped by and reshape institutional norms, reflecting the adaptive capabilities of agents within their socio-technical environments.

4.3.5 Participant 5: Landlord and Carwash Owner

Participant 5 operates a business comprising backroom rentals and a carwash, positioned within a value chain that connects her directly with her customers. The business primarily relies on cash transactions, underpinned by the personal relationships she maintains with her tenants and carwash clients. This approach facilitates flexibility and understanding, especially for rental payments, allowing for direct,

empathetic communication regarding any payment delays. Although open to digital payments, Participant 5 remains cash-based, responding to her customers' preferences and the established practice within her business community. This method simplifies financial transactions, aligning with the needs of her tenants and carwash customers' needs and expectations.

I. **Process A: Technology as a Product of Human Action**

Participant 5's acceptance of cash underscores her active role in shaping the structures within her business. She demonstrates how technology continuously creates and re-creates organisational structures (Orlikowski, 2000), by stating:

> *"I would say 90% of them pay cash. 10% is e-wallet and (digital) transactions. The 10% use e-wallets when they don't have physical cash. They're usually in a hurry to go elsewhere and can only pay that way. Because we don't have payment devices, most carwash customers will pay cash." (Participant 5)*

The dominance of cash transactions is shaped and influenced by the actions of Participant 5's customers. Although Participant 5 highlights the benefits of digital payments, she understands her customers' economic circumstances, which play a significant role in building community and fostering trust among her customers. This aligns with Orlikowski's (1992) structuration perspective, which suggests that technology is both a product of human action and a constitutive element of social structures.

When it comes to digital payments as a product of human action, Participant 5 states: *"We are building our network. That is how we build our clientele. Once you have your regulars, you can move from this stage (paying cash) to the next (digital payments)."*

The tension Participant 5 feels between the advantages of digital payments and the established practices of cash transactions demonstrates how digital payments can be applied as a tool for advancing her business. While she sees the potential for efficiency and accountability in digital transactions, she also understands that their implementation must be balanced with her customers' preferences and the existing trust-based relationships built through cash payments. This is an example of the duality of technology (Orlikowski, 1992), where technology both shapes and is shaped by human action.

By navigating the incorporation of cash and digital payments, Participant 5 is not merely adopting new tools but is shaping the future of her business in a way that respects and preserves the relationships and trust that have been built over time.

II. Process B: Technology as a Medium of Human Action

Orlikowski (1992) discusses technology as both shaped by and shaping social practices. This perspective illustrates how Participant 5 perceives cash transactions not merely as economic exchanges but as opportunities for social interaction and trust-building. As Participant 5 notes:

> *We are building a community, a network. If a client comes in with their car, they are saying, 'I am trusting you with my car.' They expect the service due to them. By me being faithful to them, I am building that trust. It is that small talk when they check that everything is okay, and next time, they are going to come back.*

Cash payments function as a medium through which trust is cultivated. This insight aligns with Orlikowski's (1992) argument that technology (in this case, cash) facilitates human action, thereby enabling the construction and reinforcement of social relations within the community. Participant 5's approach to cash payments—characterised by leniency and understanding—underscores the compassionate nature of her business practices. Orlikowski (1992, 2000) emphasises how technology contributes to the constitution of organisational structures. Here, cash serves as a medium that embodies and facilitates values such as compassion and flexibility, reinforcing these principles within Participant 5's business operations. Thus, technology, represented by the physical form of money, becomes a conduit through which social connections and trust are established and sustained.

Conversely, Participant 5's perception of digital payments as formal and structured aligns with Orlikowski's (1992) view of technology as a medium that can formalise and standardise practices. Participant 5's apprehension about fully adopting digital payments—due to concerns about bank charges—illustrates the tension between the potential of digital technology to advance business practices and the practical economic implications that such technologies may impose on her business structure. Analysing Participant 5's reflections on cash and digital payments through the lens of Process B reveals the complex ways in which technology mediates human actions and interactions within the socio-economic context of Participant 5's business. Participant 5's experiences illustrate the nuanced role of technology in enabling and constraining human actions, mediating social connections, and reflecting the ongoing negotiation of human values within the socio-economic fabric of the business.

III. Process C: Institutional Impact of Technology on Structures

Process C examines how payment technologies interact with and influence institutional structures (Orlikowski, 1992). Structures are understood as the rules and resources that guide and shape practices within Participant 5's business operations.

Participant 5's cash transactions are more than simple economic exchanges that foster community trust. She explains cash as, *"...building a community, a network."* This reinforces the institutional structure of Participant 5's business, which values personal interaction and trust. The act of exchanging cash in person is not merely a transaction but a reaffirmation of the social values of the business, thereby shaping its institutional identity and trustworthiness. For backroom rentals, customers use cash, often requiring leniency, suggesting that cash payments facilitate a structure of understanding and flexibility within the business. Participant 5 observes, *"Customers who pay in cash usually require a bit of lenience. They go to me in person to explain their situation and hopefully set a plan."* Here, cash serves as both a tool for economic exchange and a medium through which social values are enacted and institutionalised (Orlikowski, 1992).

Participant 5's perspective on digital payments reveals a different institutional impact. She views digital payments as a means of formalising and advancing her business, enhancing accountability and record-keeping. She states, *"Using digital payment methods is you elevating and advancing your business, stretching yourself a bit further. It does not limit you to just cash. Being on that level is growth, but we are still young."* This perspective reflects the assertion that technology influences organisational practices and structures (Orlikowski, 1992) by introducing a layer of formality and efficiency that contrasts with the more personal and flexible structure facilitated by cash payments.

IV. Process D: Institutional Impact of Technology on Agents

The institutional impact of cash and digital payments on Participant 5's business demonstrates the interplay between technological tools and human relationships. For Participant 5, these impacts are manifested in how payment methods influence the behaviours and interactions of business owners and customers.

Cash transactions are deeply embedded in the social fabric, fostering trust, personal relationships, and flexibility. Participant 5 emphasises this by noting, *"I can trust you with my car,"* illustrating that cash exchanges go beyond financial transactions to become symbolic acts reinforcing community bonds. The physical handing over of cash and the in-person interactions it requires provide opportunities for compassion and understanding. For

instance, customers often seek leniency in payment arrangements, as Participant 5 observes: *"Customers who pay in cash usually require a bit of lenience. They go to me in person to explain their situation and hopefully set up a payment plan."* This dynamic ties business transactions to personal relationships, fostering a sense of community and mutual reliance.

There is a degree of apprehension towards fully embracing digital payments, primarily due to the associated bank charges and the perceived complexity they introduce. This is evident as Participant 5 states, *"Using digital payment methods is you elevating and advancing your business...It does not limit you to just cash. Being on that level is growth, but we are still young."*

On the other hand, digital payments introduce efficiency and formalisation, transforming traditional practices. While they represent growth and advancement, as Participant 5 acknowledges—*"Using digital payment methods is you elevating and advancing your business...It does not limit you to just cash,"*—they also bring challenges. These include apprehension about bank charges and the perceived complexity of digital systems. The transition to digital payments reflects a tension between embracing modern, formalised tools and preserving the relational dynamics characteristic of cash transactions. Ultimately, the shift toward digital payments alters the institutional role of agents, underscoring the dual impact of technology on agents: fostering organisational advancement while potentially reshaping the social and relational elements foundational to community-based business practices.

Participant 5 navigates the duality of cash and digital payments by actively engaging with the rules and resources embedded in each payment method, shaping and reshaping her business practices. Cash transactions are tied to the social structures of trust and community within her business, reflecting the enactment of social norms and values through cash, which Participant 5 appropriates to sustain a flexible and trust-oriented business model. Conversely, Participant 5 views digital payments as tools to advance her business, acknowledging that digital transactions formalise her operations and enhance accountability. Through this process, Participant 5 demonstrates how agents interact with and transform institutional structures by appropriating and enacting the dual affordances of cash and digital payments within her socio-economic context.

4.3.6 Participant 6: Mini Supermarket Owner

Participant 6 operates a mini supermarket in a township, serving a crucial role in the local value chain from suppliers to customers. The mini supermarket, shown below, primarily conducts transactions with suppliers through cash and occasionally utilises Shop2Shop for digital payments, facilitating the procurement of goods.

Participant 6's Tuck Shop.

Outside his shop, Participant 6 advertises one of the payments he accepts. Cash and digital payments are customer transaction payment methods that reflect his customers' access and preferences. Additionally, Participant 6 extends credit to known customers, acknowledging the economic challenges, such as job cuts during the COVID lockdown, that affect his low-income clientele. This credit system is essential to his business model, allowing him to maintain customer loyalty and support the community's needs. The use of Shop2Shop alongside traditional cash transactions and informal credit arrangements highlights Participant 6's adaptability in addressing the financial realities of his customers while ensuring business sustainability. This adaptability can be further analysed through the Structurational Model of Technology (Orlikowski, 1992), which offers insights into how Participant 2's business practices leverage technology to navigate these financial dynamics.

I. Process A: Technology as a Product of Human Action

Physical cash and digital payments are shaped by the actions and decisions of Participant 6's business. Participant 6 describes how cash has long been the dominant payment method in the township, shaped by its established role in everyday transactions.

Physical cash is a long-established medium that is preferred by the customers of Participant 6. This preference is rooted in habitual use and long-standing trust between Participant 6 and his customers. As Participant 6 explains*, "Card payments started now. It is not long; this technology is a new one."* This observation aligns with findings from studies that emphasise cultural and habitual factors that influence the continued use of cash, especially in underserved communities (Holmes, 2014).

Despite the availability of newer payment technologies, the continued use of cash reflects a practical decision-making process. For example, Participant 6 explains, *"In business, we prefer cash because this one (payment device) has a charge."* This demonstrates how businesses rely on cash to avoid the additional costs associated with electronic payments, showing a clear preference for evaluating immediate financial implications. This indicates that small businesses often prefer cash to avoid transaction fees and the complexities associated with digital payments (Rogoff, 2016).

Digital payments, however, are a prime example of how technology evolves as a direct product of human action (Orlikowski, 1992). In the township business landscape, these systems are introduced by external agents, such as technology providers, through active promotion and education, and are then integrated into the market. Participant 6 explains, *"They come and sell the machine to you. You buy the machine. They will show you how to operate it—done."* This interaction explains the initial stage of technological adoption, where human intervention is essential for embedding new technologies into everyday practices. Adopting digital payments is not solely about acquiring the technology; it also involves understanding how to use it effectively, which is heavily influenced by the training and support these external agents provide.

The ease with which users can learn and operate digital payment systems plays a significant role in their adoption. Participant 6 notes, *"They taught me. The agents come and tell you about it. They take out their card, pay and show you. That is easy. You go for it."* This reflects how the perceived simplicity and the quality of external support are critical factors in adopting technologies. The interaction between technology providers and users is

essential, as it ensures that the technology is not only accessible but also user-friendly, which, in turn, promotes broader adoption (Venkatesh et al., 2003).

The introduction of technology and the ongoing support users receive significantly impact the technology's sustainability and adoption. This dynamic highlights that the evolution of digital payments is a result of both technological advancements and human-mediated processes, where education, demonstration, and support play pivotal roles (Venkatesh et al., 2003). Human action, particularly education and demonstration, is crucial for ensuring that technology is adopted, adapted, and improved over time. As users engage with the technology, their experiences and feedback contribute to its ongoing development, illustrating the co-constructed nature of technological evolution (Orlikowski, 1992, 2000; Orlikowski & Iacono, 2001).

II. Process B: Technology as a Medium of Human Action

Cash and digital payments serve as mediums through which the actions of Participant 6 and his customers are conducted.

Physical cash is a traditional and widely recognised medium of exchange, allowing individuals to conduct transactions directly without intermediaries. Its tangible nature and immediate usability favour it in many contexts, especially for Participant 6, who highlights a preference for cash due to its immediacy and the avoidance of transaction fees*: "The cash is always risky. When you collect R1.00 or R2.00, it is profit. When you pay it in there (card machine), it means it has gone."* This preference explains how physical cash is not merely a convenience but a strategic choice that preserves profit margins. In practice, Participant 6's use of physical cash allows him to maximise profits by avoiding the transaction fees typically incurred with card payments. Therefore, cash serves as a medium of exchange and a vital tool for maintaining financial sustainability in Participant 6's business. By analysing Participant 6's perspective, it is clear that the deliberate avoidance of transaction fees is not just a matter of habit but a calculated economic decision. Cash serves as a medium of human action that directly influences business strategies. While physical cash offers immediate financial benefits, such as preserving profit margins, it also presents certain risks, including theft and the need to manage cash flow effectively. Therefore, while cash remains a crucial tool for Participant 6, its use must be balanced with considerations of security and efficiency.

When Participant 6 uses digital payments, he actively uses technology to extend his capabilities. For instance, he explains, *"I will go for it (digital payments). It is safe. Cash is*

suffering; with cash, you always have to be awake." This underlines the practical application of digital payments in reducing the risks associated with carrying and handling cash. Participant 6's use of digital payments involves a trade-off between enhanced security and convenience on the one hand, and potential costs, such as transaction fees on the other. In Participant 6's business, digital payments are a critical medium through which human action is mediated and extended. Payment technologies simplify transactions and reshape the dynamics of economic interaction, allowing Participant 6 to perform financial tasks with ease and advantage. Ultimately, using digital payments reflects a complex evaluation of benefits and risks. Participant 6 weighs the safety and convenience against the potential drawbacks, making informed choices that align with their needs and circumstances.

III. Process C: Institutional Impact of Technology on Structures

The institutional impact of physical cash is seen in its role in reinforcing traditional retail practices and sustaining business operations in township settings, particularly in Participant 6's business.

Physical cash plays a significant role in shaping institutional structures, particularly within Participant 6's business. The continued use of cash in Participant 6's business is not merely a cultural preference but also a reflection of specific business operations and risk management strategies. For instance, he states, *"In business, you take risks. It is a part of it. Business and risk always go together. You take chances."* This statement emphasises how the institutionalisation of cash has solidified Participant 6's business practices. Cash is not only a medium of exchange but also a crucial element in managing the inherent risks of operating within the informal economy. The use of physical cash in these retail environments can be seen as a reinforcing mechanism for the existing economic order. The reliance of Participant 6 and his customers on cash can be understood as a form of institutional inertia, where established norms and practices resist change, thereby maintaining the status quo of the economic and social structures in these communities. The impact of physical cash on Participant 6's business highlights the complex interplay between tradition and innovation. Policymakers and stakeholders must carefully evaluate the benefits and drawbacks of fully transitioning from cash to digital systems. The success of such transitions will depend on addressing the underlying institutional structures that support cash reliance while fostering a willingness to embrace change

Regarding the institutional impact of digital payments on structures, Participant 6 explains that, *"There are different ones. Even the banks, some banks have their own card machines. They (the banks) choose; they do not give everyone."* Participant 6 explains the practical

application of digital payment systems within institutional frameworks. This observation highlights how banks and other financial institutions selectively provide digital payment technologies, influencing which businesses can access these tools. Analysing the provision of digital payment technologies made by banks introduces a layer of complexity into institutional structures. By controlling access to these technologies, banks are not only influencing the competitive landscape among retailers but are also shaping the operational norms within the industry. This analysis suggests that digital payments are more than a transactional tool; they are becoming a significant factor in the strategic decisions of institutions.

IV. Process D: Institutional Impact of Technology on Agents

In Participant 6's business, payments impact agents by shaping their approach to risk and business operations, requiring a certain tolerance for the risks associated with each form of payment.

Physical cash as an institution significantly impacts agents (Orlikowski, 1992), including Participant 6 and his customers, by imposing certain behavioural expectations and risk tolerance levels. The acceptance of cash-related risks by Participant 6, such as the potential for theft, reveals how deeply entrenched cash is within the operational frameworks of his business. This suggests that cash transactions are not just financial exchanges but also involve a broader social acceptance of risk. For instance, Participant 6's statement, *"We are okay with it. As long as they do not kill us, it is fine. Business is like that. Crime is a part of business; if you run a business, you are a target,"* exemplifies the normalisation of risk associated with cash transactions. This highlights how the institution of cash influences the roles and actions of agents, shaping their perceptions and approaches to business operations. In applying this understanding, it becomes evident that the normalisation of risk associated with cash transactions affects not only individual businesses but also the broader economy. The impact of physical cash on agents is multifaceted, encompassing behavioural expectations, risk tolerance, and broader economic implications. By recognising cash as an institution that shapes these dynamics, we can better understand the systemic effects on agents and potentially develop strategies to address associated risks. Evaluating the institutional impact of physical cash on agents requires considering both the benefits and drawbacks of such a system. While cash transactions are deeply ingrained in many societies and offer tangible benefits, the associated risks and behavioural expectations can have significant consequences.

Conversely, digital payments are fundamentally transforming the way Participant 6 conducts business. When asked about the integration of digital payments in his business, Participant 6 explains, *"It is not too much; it is fine...R2.50 is not a big deal. I am fine, okay."* This illustrates a growing familiarity and comfort with the costs associated with digital payments. As Participant 6 becomes more adept at using digital payments, he begins to innovate, developing new business strategies that leverage these technologies. This acceptance is part of a larger institutional shift towards digital financial services, which impacts how agents approach their daily activities. Participant 6 accepts risks as part of doing business associated with cash, indicating how cash as an institution, influences the behaviour and mindset of retailers. Digital payments, on the other hand, impact agents by offering a safer, albeit costlier, alternative to cash. The introduction of digital payments has led to changes in how agents manage their finances and interact with customers, with some beginning to see digital payments as a more secure and reliable option despite the associated fees.

Participant 6 demonstrates a pragmatic and adaptive approach to navigating cash and digital payments, balancing the risks and benefits of both systems. His reliance on cash reflects its deep institutional entrenchment in his business operations, where he accepts its associated risks, such as theft, as a normalised cost of doing business. Cash enables immediate transactions and negotiation leverage but requires heightened security measures and vigilance. Conversely, Participant 6 is increasingly integrating digital payments, valuing their security and efficiency despite associated fees and infrastructural challenges. His approach underscores a socio-technical negotiation, where tradition and innovation coexist, with digital payments offering a pathway toward greater financial management and operational resilience.

4.3.7 Participant 7: Tuck Shop Owner

Participant 7 runs a tuckshop that stocks a wide variety of goods, as depicted in the image below.

Figure 7

Participant 7's Tuck Shop

Participant 7's shop engages with suppliers to stock various products and serve a diverse customer base. Transactions with suppliers are likely a mix of cash and digital payments, ensuring a seamless supply chain. The tuckshop offers customers cash, Flash, and CellAir payment options, catering to different preferences and enhancing transaction efficiency. Flash and CellAir, as prepaid and payment services, facilitate a range of transactions, from buying airtime to paying utility bills, making the tuckshop a one-stop solution for customers. Despite the benefits of digital payments in improving customer experience, Participant 7 encounters challenges with service providers, including unresponsiveness and unfulfilled commitments. These issues highlight the complexities of integrating digital payment systems in small businesses, balancing the potential for service enhancement against operational challenges. These challenges can be further understood by analysing Participant 7's business practices through the lens of the Structurational Model of Technology (Orlikowski, 1992), which provides a framework for exploring how technology is adopted, adapted, and integrated within organisational contexts.

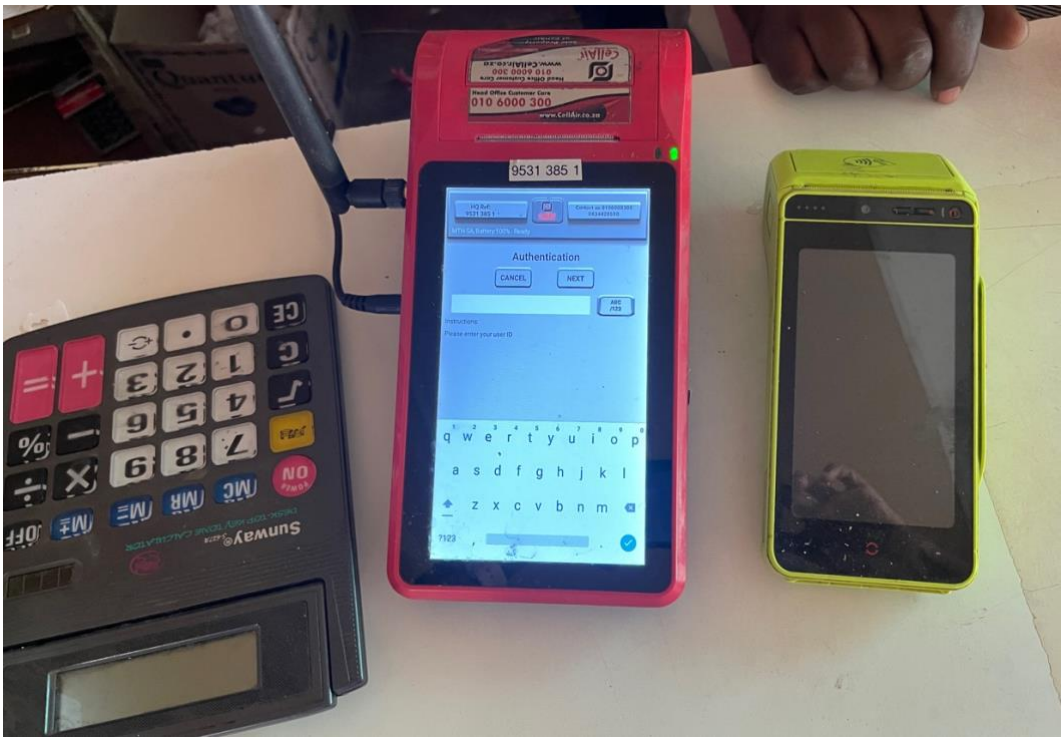
I. Process A: Technology as a Product of Human Action

Orlikowski's Structurational Model of Technology posits that technology is shaped by and shapes human action (Orlikowski, 1992). In the context of township retailers, cash and digital payments are products of deliberate human decisions and actions.

Participant 7 discusses the challenges of adopting digital payment systems: *"I tried CellAir. I am tired because of that guy. Someone gave us his number. (CellAir) only has airtime, data and electricity."* In the figure below, Participant 7 demonstrates how CellAir works

Figure 8

Participant's 7 Demonstration of the CellAir Payment Device



His challenges with CellAir demonstrate how the introduction and use of digital payments are directly influenced by the actions of service providers and the retailer's persistence. Despite these difficulties, the desire to adopt digital payments reflects a proactive approach to modernising transactions, which aligns with the view that technology is an outcome of human agency (Orlikowski, 1992). On the other hand, the continued reliance on cash is also a product of human action rooted in practicality and tradition. Cash is perceived as immediately accessible and trustworthy, enabling the retailer to reinvest in stock quickly. As Participant 7 states, *"I prefer cash. For safety, card is better. I prefer cash immediately. I will buy from another store."* The preference for cash reflects long-standing practices ingrained in the daily operations of the business, demonstrating how technology (in this case, the continued use of cash) is shaped by historical and contextual factors.

II. Process B: Technology as a Medium of Human Action

Orlikowski's (1992) model also views technology as a medium through which human actions are performed. Both cash and digital payments facilitate economic transactions in different ways.

Cash is a straightforward and widely accepted medium, with Participant 7 noting its immediacy and ease of use. The ability to quickly exchange cash for goods without relying on external systems ensures that transactions are completed without delays, which is crucial in a fast-paced retail environment. However, cash also comes with risks, such as handling fake currency: *"Yes, somebody, they bring (fake money). I test it. I break it and put it in the garbage."* The fake money given to Participant 7 by a customer is shown in the figure below.

Figure 9

Fake R100 Note

The use of fake money by a customer demonstrates that while cash is a reliable medium, it is not without vulnerabilities, reinforcing the concept that technology mediates human action while also being subject to it (Orlikowski, 1992).

In contrast, digital payments offer the potential for safer transactions, reducing the need to handle large amounts of cash. Participant 7 acknowledges this: *"For safety, card is better."* Digital payments also provide a record of transactions, which can be beneficial for accounting and tracking sales. However, the technology behind digital payments can introduce complexities and trust issues, particularly with specific customer demographics: *"Young people are not good. Most of them, they cheat us—they swipe; they cheat with the swiping."* This mistrust can hinder the full adoption of digital payments, limiting their effectiveness as a medium of action, reflecting the duality of technology as enabling and constraining human actions (Giddens, 1986; Orlikowski, 1992)

III. Process C: Institutional Impact of Technology on Structures

Process C examines how technology influences institutional structures by either reinforcing or transforming established norms and practices (Orlikowski, 1992). In Participant 7's retail environment, both cash and digital payments serve as mediums through which these structural changes occur.

As a traditional and deeply entrenched medium, cash upholds existing structures within the township economy. Participant 7's preference for cash—*"I prefer cash"*—illustrates this adherence to established practices. The reliance on cash sustains the familiar economic norms prevalent in these communities, where cash is perceived as straightforward, universally accepted, and devoid of additional fees. This aligns with Giddens' (1984) concept of structuration, emphasising the recursive nature of structures: the ongoing use of cash reinforces the stability of township economic practices, ensuring continuity for both retailers and customers.

Conversely, digital payments possess transformative potential by introducing new business practices. While the interviews reveal a growing awareness of the safety and convenience of digital transactions, barriers such as operational challenges, unreliable service providers, and the costs of adopting point-of-sale systems have hindered their widespread integration. For example, one participant noted, *"Speed points are expensive,"* highlighting the economic trade-offs involved. However, digitisation reshapes these structures by offering transparency, efficiency, and improved security, facilitating formalisation and financial inclusion. Over time, a gradual shift to digital payments could align township retail with broader economic trends, fostering a modernised ecosystem. This process encapsulates the tension between agency and structure. While agents recognise the potential benefits of digital payments, the enduring dominance of cash reflects the interplay between institutional inertia and technological innovation.

IV. Process D: Institutional Impact of Technology on Agents

Process D examines how technology shapes and is shaped by agents' perceptions, actions, and interactions within institutions, influencing their roles and relationships (Orlikowski, 1992).

Cash transactions, deeply ingrained in the routines of township retailers, reinforce personalised trust relationships between retailers and their customers. Participant 7's statement—*"When I see a face I know, then no problem"*—illustrates how familiarity and repeated cash interactions foster trust. This supports Giddens' (1984) concept of structuration, where social structures such as trust are continuously reproduced through

habitual actions. The routine use of cash enables retailers to build interpersonal connections, often allowing them to extend informal credit based on these trust dynamics.

In contrast, digital payments introduce new practices and perceptions that can challenge these established trust relationships. For example, the retailer's suspicion of younger customers using digital payments—*"Young people are not good. Most of them they cheat us,"*—reveals how technology alters the social scripts governing interactions. This mistrust constrains the retailer's willingness to accept digital payments from certain groups, thereby reshaping the agency of both the retailer and the customer. These evolving dynamics highlight the duality of technology, as it both influences and is influenced by agents' actions and institutional norms (Orlikowski, 1992).

In summary, cash remains the preferred medium in Participant 7's business, reinforcing existing structures and fostering trust-based relationships. Participant 7 demonstrates adaptability, leveraging cash for its familiarity and immediacy while cautiously integrating digital payments where feasible, reflecting the tension between tradition and modernisation in their business practices. Participant 7 exhibits a pragmatic approach to navigating cash and digital payments, balancing the benefits and limitations of each. Digital payments, while offering advantages like convenience and improved bookkeeping, are viewed with caution due to mistrust in specific customer segments and operational barriers like unreliable networks during load-shedding.

4.3.8 Participant 8: Salon Co-Owner

Participant 8 co-owns a hair salon, serving as an intermediary between suppliers of salon products and the salon's customers. The business operates on a cash-only basis, primarily due to the influence of his business partner, who is hesitant to adopt digital payments because of the associated costs and the belief that customers are willing to use cash for the salon's competitively priced services. Although Participant 8 acknowledges the inconvenience for customers who must withdraw cash, he emphasises that the high quality of service provided by the salon justifies this payment method. This scenario highlights the complex decision-making process in small businesses, where operational costs, customer payment preferences, and perceived service value are carefully balanced when determining payment options. This decision-making process can be further unpacked by analysing Participant 8's business practices through the Structurational Model of Technology (Orlikowski, 1992), which provides a lens for examining how payment choices are influenced by both technological and contextual factors.

I. Process A: Technology as a Product of Human Action

In the application of Process A, technologies, including payment methods, are not mere neutral tools but products of human action, shaped by the interplay between agency and structure (Orlikowski, 1992). This interplay reflects the duality of structure, wherein human actions are simultaneously constrained and enabled by existing structures, which are outcomes of past actions (Orlikowski, 1992). For instance, in Participant 8's business, the persistence of cash transactions can be attributed to established practices and the specific socio-economic structures that have historically guided these practices. As Participant 8 explains, *"It has always been cash...I do not think they have the facilities for card, which for me is a bit of an irritation given today's accessibility to payment methods."* He highlights how the existing cash-based structure is both a product of pre-existing actions and a constraint on future actions, illustrating the recursive nature of structuration (Orlikowski, 1992).

Digital payments, conversely, represent an emerging challenge to these established structures. Participant 8's reference to other retailers who *"offer payments via Yoco or other digital methods"* signals a shift where agents are beginning to interact with new modalities, such as norms, interpretive schemes, and resources introduced by digital technologies. These new payment technologies are not neutral; they are products of evolving human actions and decisions, reflecting broader socio-economic changes and potentially reconfiguring their embedded structures (Orlikowski, 1992, 2000).

II. Process B: Technology as a Medium of Human Action

In the Structurational Model of Technology, Orlikowski (1992) teaches that technology functions as a medium of human action, actively shaping the interactions of individuals and organisations within the structures they inhabit. For Participant 8, cash is a key modality through which economic transactions are mediated. He mentions, *"If I'm sitting on R100 cash and R100 in my account, whatever I am getting, if it is as close as possible to R100, I'm using cash."* This statement reflects how cash serves as an interpretive scheme—a shared understanding among agents regarding its utility and convenience in specific contexts (Orlikowski, 1992).

Digital payments, in contrast, offer a different modality that reconfigures these interactions by introducing alternative norms and resources. Participant 8's discomfort with carrying cash—*"I do not like paying cash. I do not like carrying cash...it disappears the moment you see it."*—illustrates a different interpretive scheme, where digital money is perceived as safer and more convenient. This shift in perception underscores how digital technologies are reconstituting the medium of economic transactions, introducing new possibilities and

constraints (Orlikowski, 1992, 2000). The transformation of these modalities reflects the ongoing negotiation between structure and agency as new technologies are integrated into everyday practices.

III. Process C: Institutional Impact of Technology on Structures

The Structurational Model of Technology (Orlikowski, 1992) posits that structures are both the medium and the outcome of the practices they recursively organise. In Participant 8's experience, the predominance of cash transactions reflects deeply entrenched structures—norms, power relations, and routines—that have shaped economic interactions. As Participant 8 observes, *"Everywhere you are using cash around this area. So it is only natural to just continue to not have to pay the service fee of using, you know, digital EFT."* This illustrates how the structure of Participant 8's ecosystem, characterised by cash transactions, is maintained and reinforced by the ongoing practices of retailers and customers, perpetuating the status quo (Orlikowski, 1992).

However, the gradual adoption of digital payments signifies a reconfiguration of the existing cash-based structures. According to Orlikowski (1992), structures are dynamic and subject to change as individuals exercise agency within them, mainly as they interact with new technologies. The introduction of digital payments in Participant 8's daily dealings indicates a shift in the institutional structure, where new norms (paying via EFT) begin to challenge the existing economic landscape. This evolving structure is an illustration of a more integrated digital economy within these communities, demonstrating the dynamic interplay between agency and structure in shaping institutional change (Orlikowski, 1992, 2000).

IV. Process D: Institutional Impact of Technology on Agents

The choice between cash and digital payments significantly influences Participant 8 and his customers' behaviours and practices. For instance, the participant states, *"If you gave me cash and said this is for a haircut, I am going straight to that haircut."* In this instance, cash acts as a material resource that directs immediate action, reflecting Participant 8's internalisation of the norm that cash is intended for specific, planned transactions (Orlikowski, 1992).

Conversely, digital payments introduce different modalities that alter Participant 8's practices. His description of digital money as *"imaginary"* and prone to overuse—*"Digital money...it is imaginary. You can make it up."*—suggests that the intangibility of digital transactions can lead to different spending behaviours. This reflects how new technologies

reshape the interpretive schemes and power dynamics within economic interactions, potentially leading to more liberal spending practices due to the perceived flexibility of digital money. The agency of Participant 8 in adopting or resisting these technologies highlights the complex and ongoing process of structuration, where both structures and agents are continuously shaping each other.

For Participant 8, cash remains a dominant force, shaped by historical practices and the community's specific needs, while digital payments represent an emerging shift towards convenience. The institutional impact of these payment methods on both structures and agents underscores the complex interplay between technology and society, where new technological possibilities gradually challenge traditional practices, leading to potential reconfigurations of existing structures (Orlikowski, 1992, 2000). Participant 8's interview highlights the broader digital divide issue, which manifests between different geographic areas and market segments. This divide is not merely technological but is rooted in local norms and economic realities that heavily influence technological adoption.

4.4 Conclusion

The data illustrates how technology—whether in the tangible form of cash or the abstract nature of digital transactions—serves as a modality through which social structures are instantiated and reinforced. Cash, as a medium of exchange, carries symbolic weight, representing trust and respect in specific socio-cultural contexts, whereas digital payments symbolise modernity, security, and efficiency. This dichotomy reflects the duality of technology (Orlikowski, 1992), where technology both shapes and is shaped by human action and institutional contexts. It also reveals the ongoing dialectic between tradition and innovation, where individual and collective actions contribute to the ongoing structuration of technological practices.

Furthermore, the analysis reveals that individual preferences for payment methods are significantly influenced by broader societal norms and safety concerns, demonstrating the recursive relationship between technology and social structures as posited by Orlikowski (1992, 2000). This interaction exemplifies how the adoption of digital technology in everyday practices is not merely a linear progression towards efficiency but a complex negotiation involving identity, tradition, and convenience within specific cultural and social frameworks. It highlights the ways in which structures enable and constrain individual actions, while these actions, in turn, sustain and modify the structures within which they operate.

The analysis of the data insight prompts a reconsideration of how technological adoption and use are conceptualised, urging a deeper appreciation for the cultural, social, and personal dimensions that inform interactions with technology. It challenges the reductionist view of technology as merely a tool for convenience and efficiency, encouraging reflection on how technology is intricately interwoven into the broader fabric of social life. Through this perspective, decisions, practices, and relationships can be better understood as not only influenced by but also contributing to the ongoing structuration of the technological landscapes inhabited.

CHAPTER 5: DISCUSSION - ANALYSIS, SYNTHESIS AND EVALUATION

5.1 Introduction

The financial transaction landscape presents an intriguing interplay between cash and digital payments, revealing a complex debate of agency and structure (Giddens, 1986; Orlikowski, 1992). With its tangible form, cash offers an immediacy and accessibility that digital transactions often struggle to replicate. This ensures quick and inclusive transactions, which is particularly relevant in regions with limited technological infrastructure. The physical presence of cash aligns with established structures and norms (Giddens, 1986; Orlikowski, 1992), fostering trust and anonymity in sectors where these values are paramount. The continued use of cash in these contexts demonstrates an exercise of agency within the constraints and opportunities of existing structures (Orlikowski, 1992).

Conversely, digital payments exemplify the efficiency and scalability of modern technology, facilitating seamless transactions across geographical boundaries and offering enhanced security features. However, their adoption hinges on pre-existing structures like digital infrastructure and user literacy, potentially creating a digital divide that excludes some populations (World Bank, 2021). This reflects Orlikowski's (1992) emphasis on the interdependence of technology and organisational practices, where technology shapes and is shaped by established routines and capabilities.

Table 2 below summarises the differentiating features of cash and digital payments. The juxtaposition of cash and digital payments reflects a broader structuration process (Orlikowski, 1992), where each payment method's adoption and use are continuously shaped by and shape the socio-economic practices and preferences of individuals and communities. The synthesis of cash and digital payments within this dual-system approach suggests a complementary rather than competitive relationship, underscoring the importance of accommodating diverse user needs and contextual realities. This balanced perspective aligns with Orlikowski's (1992) interpretation of Structuration Theory, emphasising the dynamic interplay between human agency and the broader structures within which financial transactions occur, and emphasising the need for a flexible, inclusive approach to payment systems that leverage the strengths of both cash and digital methods.

Table 3

Comparison of Cash and Digital Payments

	Cash	Digital Payment Methods
Customer preference	Preferred in traditional settings and by those wary of digital transactions	Increasingly preferred for convenience and growing digital literacy and access
Transaction convenience	Less convenient for large transactions due to physical handling	Facilitates remote and instant transactions, enhancing convenience
Security/risk	Higher risk of theft and loss; offers anonymity	Lower physical risk, cybersecurity concerns
Operational efficiency	Less efficient due to manual counting and physical banking	Improved with automated processes and easier reconciliation
Customer experience	Familiar and straightforward, but requires carrying cash	Enhanced experience with seamless transactions; depends on internet connectivity
Cost implications	No direct fees, but handling and banking costs may apply	May incur transaction fees, but reduces handling and banking costs
Accessibility	Highly accessible, especially in areas with limited digital infrastructure	Requires digital infrastructure and banking services
Flexibility/adaptability	Limited, difficult for online transactions	Highly adaptable to various contexts, including online transactions

5.2 Synthesising Data Through the Structurational Model of Technology

In this chapter, I synthesise the data analysed through the lens of the Structurational Model of Technology (Orlikowski, 1992), focusing on Processes A through D. This chapter discusses how payment technologies interact in the township business landscape.

5.2.1 Process A: Technology as a Product of Human Action

Cash and digital payments in townships emerge as products of human action shaped by distinct needs. Cash, with its emphasis on reliability, ensures transactions remain unaffected by infrastructural limitations like power outages. This aligns with the model's emphasis on technology adapting to local constraints (Orlikowski, 1992). Conversely, digital payments reflect aspirations for global integration. They leverage technological advancements to offer convenience and security, potentially attracting a wider customer base and integrating township businesses into the digital economy (Petersen & Charman, 2018; Klaus & Nguyen, 2013).

I. Cash as a product of human action

Cash transactions are a persistent form of payment within many township settings (Rogerson, 2018). Cash remains a functional and reliable medium of exchange in environments such as Tlhabane, where infrastructure constraints—such as recurrent power outages and limited digital connectivity—pose significant challenges to electronic transactions.

Participant 1's reliance on cash and speed points to handle transactions swiftly—*"When someone pays for something, I get the money by the time my day ends"*—illustrates how cash is used not merely as a medium of exchange but as a dependable tool in managing daily business operations efficiently. This choice reflects a practical adaptation to the immediate context, ensuring that transactions can be completed without the risk of technological failure. Similarly, Participant 4 emphasises the immediacy of cash, stating, *"Cash is always risky, but you take chances in business"*, indicating a pragmatic acceptance of the risks involved with handling cash. This emphasis on the practicality of cash transactions should resonate with the audience of policymakers and professionals, highlighting the real-world relevance of the research.

The continued use of cash in townships exemplifies a key concept within the Structuration Model of Technology (Orlikowski, 1992): technology (in this case, a traditional form of currency) is not static but adapts to fit the constraints and needs of its users (Orlikowski, 1992). Despite infrastructure limitations, township residents have chosen cash as the most reliable and accessible form of payment, demonstrating the reciprocal relationship between technology and social structures. This is reinforced by the broader socio-economic context wherein cash-based transactions dominate informal economic activities due to regulatory barriers and socio-economic constraints (Charman & Petersen, 2015; Kibuuka & Tustin, 2019). This adaptability of technology, even in the face of constraints, should empower policymakers and professionals to consider innovative solutions for township settings.

II. Digital payments as a product of human action

Digital payments are positioned as an entry point to the broader digital economy (FinMark Trust, 2023; South African Reserve Bank, 2024). By adopting digital payment systems, businesses can integrate with other digital platforms and services, potentially opening new opportunities. According to the data, consumers, particularly a growing segment that values convenience and security, are also driving the adoption of digital payments. Digital wallets and mobile money offer a faster and more secure alternative to carrying cash, especially in areas with high crime rates. The potential of digital payments to create new opportunities

and enhance security should inspire the audience of policymakers and professionals, encouraging them to explore the benefits of digitalisation in township settings.

However, the data also reveals that digital payments are imposed structures. Adopting digital payments is not merely about strategic foresight but often a forced adaptation to align with global market trends. For example, Participant 2's acceptance of any payment form—*"Whatever you bring, I can always accept it,"*—is interpreted as both flexibility and a necessity in a competitive market, where failing to offer digital options could mean losing customers. Moreover, digital payment systems often come with costs, such as transaction fees, and require technological infrastructure like reliable internet connectivity, which can be a significant barrier for many township retailers (Chigada & Hirschfelder, 2017). These systems impose new dependencies and vulnerabilities, such as fraud and technical failures, that can complicate business operations.

The flexibility of township business owners in payment acceptance demonstrates how digital solutions are incorporated to meet customer preferences and to provide a seamless shopping experience. This adaptation is not only about leveraging new technologies but also about shaping these technologies to align with the social and economic fabric of the community, thus expanding the business's customer base and improving service delivery. Participant 6 similarly highlights the adaptability required, noting, *"In business, you take risks. It's a part of it. Business and risk always go together."*

III. Reevaluating agency and constraint

The Structuration Model of Technology (Orlikowski, 1992) provides a theoretical framework that aids in comprehending the complex relationship between technology and society, particularly in the context of cash and digital payments in townships. This analysis underscores that cash and digital payments are not static technologies but continuously redefined by those who use them. They evolve according to the changing economic landscapes, user needs, and technological innovations, exemplifying the concept of technology as a product of human action as proposed in the Structuration Model of Technology (Orlikowski, 1992). This theory helps us understand the dual role of technology as both a facilitator and an outcome of social practices, reflecting how township retailers, through their active engagement and adaptation, shape and influence payment technologies to serve their unique operational contexts.

While the argument that cash and digital payments are products of human action, shaped by the specific needs and constraints of township retailers, is compelling, there is a counter

> perspective that emphasises the constraints these payment methods impose on human actions. This viewpoint suggests that rather than merely being shaped by users, payment methods can significantly influence and sometimes limit the actions and decisions of retailers and customers. Here, technology is seen not just as a tool adapted for use but also as an imposing force that can dictate certain behaviours and business operations.

Winner (2014) argues that technologies can embody specific forms of power and authority, suggesting that technology is not just a backdrop for social action but an actor that can enforce specific power dynamics and dependencies. Similarly, Foucault's (1982) discussions on power-knowledge relationships illuminate how technologies can become instruments to exert control. In the context of township retailers, the necessity to adopt digital payments can be seen as a form of enforced modernisation, which, while potentially offering new opportunities, also imposes new dependencies on technological infrastructures and external financial entities. Moreover, Segal et al. (1993), in their critique of the societal impact of technology, suggest that every technology comes with a trade-off; it gives and takes away, often reinforcing existing societal structures and power relations rather than dismantling them. In the township context, while digital payments may offer greater security and efficiency, they also require investments in infrastructure, incur transaction fees, and necessitate reliance on banking systems that may only sometimes favour the lower economic strata.

Exploring Process A: Technology as a Product of Human Action (Orlikowski, 1992) within the context of township economies provides a vivid illustration of the mutual constitution of technology and human agency, mainly through the example of payment methods used by township retailers. The discussion of Process A: Technology as a Product of Human Action (Orlikowski, 1992), using specific examples from this conversation, effectively illustrates how technology in township retail settings is continually shaped by and shapes the actions of its users. This nuanced view of technology emphasises its role not just as a tool but as an integral component of the socio-economic interactions within township communities.

5.2.2 Process B: Technology as a Medium of Human Action

Township economies, a convergence of traditional business models and technological advancements, serve as the backdrop for the exploration of Process B: Technology as a Medium of Human Action (Orlikowski, 1992).

I. Cash as a medium of human action

Cash plays a central role in township economies, acting as a structuring element (Giddens, 1986; Orlikowski, 1992) that shapes the operational and social dynamics of business transactions. Its widespread use reinforces established commerce practices that emphasise immediacy and physical interaction. This aligns with the Structurational Model of Technology's (Orlikowski, 1992) focus on how technologies (in this case, cash) become embedded within social structures, influencing and structuring the actions of business owners.

For instance, Participant 1 discusses the role of cash in ensuring transaction completion within the business day: *"When someone pays for something, I get the money by the time my day ends."* This example illustrates how cash mediates business activities by providing immediate financial liquidity. Such immediacy is crucial in environments where cash flow consistency is vital for daily operations, and trust is built through face-to-face interactions. This transaction supports a traditional business model where relationships and personal trust are currency, fostering a deep connection with the community and stabilising the business's standing within the local economy.

Participant 3 highlights the challenges of relying on cash: *"I can't swipe for less than R50 because the profit will not even be R1."* This statement underscores the operational constraints and risks associated with cash handling, including theft and potential loss, as Participant 3 noted. Cash facilitates direct exchange and reinforces existing social structures within the community (Orlikowski, 2007); however, its reliance can hinder scalability and potentially isolate businesses from the broader digital economy. Township businesses may find it challenging to expand their customer base or participate in non-local markets where digital transactions dominate (Charman & Petersen, 2015). This highlights the limitations of cash within the evolving technological landscape. While cash ensures daily operational efficiency, it may potentially restrict the business's ability to engage with a broader customer base that prefers digital payment options.

Participant 5 adds another perspective by noting how cash transactions foster a sense of community and trust: *"When people pay with cash in person, they can establish trust."* This illustrates how cash, while practical, also plays a significant role in the social fabric of township businesses, facilitating personal interactions and trust-building.

II. Digital payments as a medium of human action

Digital payments, in contrast to cash, introduce a different form of mediation within township economies. Whereas cash reinforces existing practices, digital payment systems act as new structuring elements (Giddens, 1986; Orlikowski, 1992) that reshape how businesses operate and interact with their environment. For example, digital payments can enable businesses to accept payments remotely, reducing the need for physical presence and potentially expanding their customer base. They also streamline financial management practices, such as automated record-keeping and faster transactions, reflecting the concept of technology restructuring social routines and practices within organisations (Orlikowski, 2000). This shift in practices aligns with Orlikowski's (1992) notion of technology adapting to social structures and resource constraints.

Participant 2's statement, *"Whatever you bring, I can always accept it,"* exemplifies the duality of digital payments within township economies. Through the lens of Structuration Theory (Giddens, 1986; Orlikowski, 1992), digital payments act as structuring elements that mediate interactions between businesses and customers. Accepting various digital payment options allows Participant 2 to accommodate a broader range of customer preferences and financial behaviours. This flexibility fosters a closer alignment between the business and its customer base, potentially enhancing customer service and attracting a broader clientele. This aligns with Structuration Theory's emphasis on technology's ability to reshape social structures and resource allocation (Giddens, 1986).

Participant 4 also illustrates the benefits of digital payments: *"With Shop2Shop, I do not have to carry cash, which is risky. It is much safer to use the app."* This highlights how digital payments can minimise security risks and streamline business operations. Furthermore, digital payments facilitate deeper integration into the broader digital economy (FinMark Trust, 2023; South African Reserve Bank, 2024). Faster transactions, automated record-keeping, and streamlined financial management practices reflect the concept of technology restructuring social routines and practices within organisations (Orlikowski, 2000).

III. Exploring duality and interplay

While the narrative portraying cash and digital payments as complementary forces in shaping township business practices holds merit, a counterargument emerges. The Structurational Model of Technology (Orlikowski, 1992) emphasises the duality of structures inherent in all technologies. This counterpoint questions how these methods truly

enhance operations and community interactions. The supposed benefits of each come with trade-offs that complicate their use and local economic impact.

Participant 6 captures this complexity: *"In business, you take risks. It is a part of it. Business and risk always go together."* The choice of payment method becomes a navigation through a complex social and economic landscape. Business owners reproduce existing practices while adapting to the limitations and risks associated with each technology. This aligns with the Structurational Model of Technology's (Orlikowski, 1992) focus on the ongoing interplay between human agency and the structures they utilise.

Furthermore, the counterargument challenges the notion that technology is merely a bridge to improvement. Structuration Theory suggests that technology can also be a barrier (Giddens, 1986; Orlikowski, 1992, 2000). For instance, the adoption of digital payments introduces new dependencies on infrastructure or expertise that do not align with existing practices or community needs. This could lead to increased costs or difficulties in implementation, potentially creating new constraints alongside potential benefits. It's important to consider these potential risks and challenges when evaluating the impact of digital payments on township economies.

Cash and digital payments undoubtedly mediate the actions of township business owners, operating within a complex interplay of social and economic structures. Cash facilitates a transactional model that prioritises immediate interactions and trust, deeply rooted in the informal economy's relational dynamics. Conversely, digital payments offer a pathway towards modernisation, efficiency, and broader market integration. Recognising this duality enables a more nuanced analysis of the opportunities and challenges of evolving payment systems within township economies and highlights the intricate balance between tradition and innovation in shaping economic behaviours.

5.2.3 Process C: Institutional Impact of Technology on Structures

This section explores how these structuring elements influence the institutional landscape of township businesses (Orlikowski, 1992) and examines how technology shapes and reshapes formal rules and informal norms within organisations.

I. Institutional impact of cash on structures

Orlikowski's (1992) framework calls for a move beyond a simplistic view of technology's impact. Cash and digital payments do not simply replace each other; they form a duality of

structures (Giddens, 1986; Orlikowski, 1992) coexisting within township economies. Participant 1's reliance on cash exemplifies this duality. He states, *"When someone pays for something, I get the money by the time my day ends."* The immediate resolution offered by speed points aligns with the reproduction of established norms (Giddens, 1986; Orlikowski, 1992), which refers to the immediacy and tangibility of cash transactions. This technology reinforces face-to-face interaction and community trust, which are central to these institutional structures. Cash transactions maintain a sense of familiarity and strengthen the social bonds within townships.

Participant 3 also emphasises the importance of cash, noting, *"It is almost the same. I accept both, but cash is still more common."* This highlights the continued dominance of cash in facilitating daily transactions and the social interactions accompanying them.

II. Institutional impact of digital payments on structures

However, as exemplified by Participant 2's adaptability, digital payments introduce transformative elements (Orlikowski, 2000). His ability to accept various digital payment methods disrupts traditional practices. Participant 2 highlights this shift, stating, *"Whatever you bring, I can always accept it."* This flexibility expands market reach and customer interaction beyond geographical limitations. This shift reflects a restructuring (Orlikowski, 2000) of the business environment, potentially impacting the customer-retailer interaction paradigm in townships. It highlights the ongoing negotiation between human agency (business owners adapting) and technology's structuring influence, offering a promising glimpse into the future of township economies.

Participant 4 conveys the practical benefits of digital payments by stating, *"With Shop2Shop, I do not have to carry cash, which is risky. It is much safer to use the app."* This illustrates how digital payments can enhance security and operational efficiency, transforming business practices.

The adoption of digital payment methods in townships restructures cultural norms (Orlikowski, 1992) within the business community. Shifting from a cash-based system to one embracing digital payments transforms the perception of transaction legitimacy and security. This fosters a reproduction of trust through a new structuring element—digital technology. This restructuring reinforces the integration of digital technologies into business practices, aligning with the idea that technology is both a medium and outcome of social practices (Orlikowski, 1992). Participant 6 notes, *"In business, you take risks. It is a part of it. Business and risk always go together."* This perspective emphasises the cultural

adaptation required to adopt digital payments and the evolving norms around transaction methods.

Process C: Institutional Impact of Technology on Structures (Orlikowski, 1992). Structuration Theory provides a comprehensive framework for understanding how township businesses handle cash versus digital payment methods. This process highlights how cash and digital payments influence business workflows, decision-making processes, and cultural norms within township economies (Orlikowski, 1992).

5.2.4 Process D: Institutional Impact of Technology on Agents

Orlikowski (1992) explains that the institutional impact of technology refers to how established norms, rules, and practices within an organisation or broader societal context are influenced or transformed by the integration and use of technology. In the context of township businesses, technology such as cash and digital payment systems can significantly alter business operations, impacting everything from transactional methods to customer interactions.

I. Institutional impact of cash on agents

Cash payments reinforce traditional business practices that rely on direct, face-to-face interactions. For example, Participant 1 emphasises the immediacy and reliability of cash: *"When someone pays for something, I get the money by the time my day ends."* This immediacy helps maintain trust and personal relationships. The reliance on cash also ensures that business owners continually manage and handle physical money, which shapes their daily operations and decision-making processes.

Participant 6 indicates that cash-based operations may require business owners to extend credit to customers, increasing financial risk: *"I take credit. Too much, actually. When you stay in one place, the tuckshop business credit is a part of it."* This highlights how cash handling comes with risks such as theft and loss, and the need for secure storage, necessitating constant vigilance and limiting the scalability of businesses.

For customers, cash payments provide a tangible and immediate sense of transaction completion, reinforcing trust in the business. As Participant 8 notes, *"Cash gives you respect in certain places. Furthermore, many people respect the site."* This reflects a cultural norm where cash transactions are seen as more legitimate and secure, influencing customer preferences and behaviours. While cash is convenient, it can also be limiting in

terms of access to broader financial services. Customers relying solely on cash may face challenges in emergencies or when large transactions are required, highlighting a significant limitation in financial flexibility.

II. Institutional Impact of Digital Payments on Agents

Despite the benefits, digital payments have challenges including transaction fees and a dependency on reliable technology infrastructure. Participant 6's hesitation about card machine fees—*"To avoid… (hesitant to say charges) ...when you collect R1.00 or R2.00, it is profit. When you pay it in there (card machine), it means it has gone. The profit will be gone"*—highlights the financial burden digital payments can impose on small businesses.

Participant 2 illustrates how digital payments impact operational practices by ensuring that payments are confirmed before goods are delivered: *"When it comes to selling products, and someone promises me money, I wait for the money to reflect before I hand over the product."* This reliance on digital confirmation reduces financial risk and enhances trust in the transaction process.

Digital payments offer convenience and a broader range of transaction options for customers. Participant 8's preference for not carrying cash due to its psychological impact—*"If you see cash, you think you have it, you spend it."*—demonstrates how digital payments influence spending behaviour and financial management. For customers, digital payments can pose barriers to technological literacy and access. The reliance on digital systems can exclude those who are not tech-savvy or lack access to digital devices and stable internet connections. Additionally, as Participant 1 notes, technological disruptions like load-shedding can force customers to revert to cash, demonstrating the instability that digital payments can introduce: *"Sometimes the speed points we have give us small problems, like when there is load-shedding and there is no network. We sometimes lose customers."*

III. Institutional challenges and dependencies

One of the critical institutional challenges highlighted is the dependency on external vendors for the ongoing functionality of digital payment systems. This reliance on external agents for maintenance and support can significantly influence internal operational structures. If support is unreliable and inadequate, it can lead to disruptions in service, affecting customer satisfaction and business reliability. As noted in the conversation, participants face challenges when support is not readily available or practical, underscoring the impact of these external relationships on internal business processes.

For business owners, the dependency on payment provider agents affects their ability to provide consistent and reliable customer service. The need to contact agents for troubleshooting, as described by Participant 7, highlights how operational efficiency is directly tied to the availability and quality of external support. This dependency can also impact decision-making processes within the business, as owners must weigh the risks and benefits of adopting new technologies based on the reliability of the support network. For customers, the reliability of digital payment systems can influence their shopping experience and trust in the business. Delays or issues with digital transactions can lead to customer dissatisfaction, impacting the business's reputation and customer loyalty. This scenario underscores the broader institutional challenges of small businesses when integrating digital technologies into their operations.

The comparative analysis of cash versus digital payments reveals that both methods have significant institutional impacts on agents within township businesses. Cash payments reinforce traditional practices, trust, and face-to-face interactions, but they also present risks and limitations in scalability and financial flexibility. Digital payments, on the other hand, introduce modern efficiencies, broader market reach, and improved financial management, but they come with challenges related to technological dependency and accessibility. Understanding these impacts underscores technology's intricate dual role in structuring and shaping the social practices and institutional structures within township economies, aligning with Orlikowski's Structuration Theory (Orlikowski, 1992, 2000).

IV. Agents: Business Owners, Suppliers, and Customers

The agents that technology impacts within the context of township businesses are primarily the business owners, their customers, and the suppliers. These agents interact with and are influenced by various transaction technologies, including traditional cash and modern digital payment systems. Here are the specific ways in which these agents are impacted:

Business Owners: Business owners like Participant 1 experience challenges with digital payment systems due to external factors such as load-shedding and network outages. These factors impact their ability to conduct transactions smoothly, as the statement highlights: *"Sometimes the speed points we have give us small problems, like when there's load-shedding and there is no network. We sometimes lose customers. Some will go to the ATM to get cash; others will go and not come back."* Additionally, business owners in townships like Tlhabane adapt their payment confirmation processes based on the reliability of digital payments: *"The thing is, when it comes to selling products and someone promises me money, I wait for the money to reflect before I hand over the product. So any method is fine*

as long as I get the money." This illustrates how technology impacts their decision-making and trust management practices. The data also shows examples of how businesses that are reliant on credit demonstrate how long-term relationships and trust are managed within the constraints and capabilities of available technology. As Participant 6 mentions:

> *I take credit. Too much, actually. When you stay in one place, the tuckshop business credit is a part of it. I have been here for 13 years, and I know them. Even if they do not return to pay, they will come next month. I know them. I am taking chances.*

This shows how technology (both cash and digital credit systems) influences their business operations and risk management strategies.

Customers as agents: Participant 8 highlights customer preferences and their psychological response to different payment methods by stating:

> *I am absorbing that (bank charges). So for him, it makes no sense (to go digital), and he benefits nothing...Furthermore, honestly, I do not like paying cash. I would not say I like carrying cash. Why does it disappear the moment you see it? Like, once again, it is a psychological thing. If you see cash, you think you have it, you spend it.*

This statement shows how the availability and perceived benefits or drawbacks of different payment technologies influence customer behaviour and preferences.

Suppliers as agents: The institutional impact of technology on agents within the context of township businesses extends to the payment provider agents who market and support digital payment platforms. These agents play a crucial role in disseminating, implementing, and maintaining digital payment technologies, thereby influencing the operational structures and practices of businesses. Payment provider agents are often the first point of contact for business owners when new digital payment platforms are introduced. As highlighted by Participant 7, agents actively market these devices to businesses: *"Yes. Flash is hectic. We even called the girlfriend's phone. But still."* This engagement is pivotal in shaping the initial perception and adoption of digital technologies. The agent's ability to effectively communicate the benefits and functionalities of these platforms significantly impacts whether business owners decide to integrate them into their operations. The reliability of the agents' support and maintenance services is critical in successfully adopting and using digital payment systems.

Process D (Orlikowski, 1992) emphasises the role of agents such as payment provider representatives. Their ability to provide adequate support and maintenance services directly impacts operational efficiency and customer service for township businesses. Challenges in securing reliable support highlight the broader institutional dependencies inherent in adopting digital technologies. Furthermore, Process D (Orlikowski, 1992) offers a nuanced understanding of technology's institutional impact on agents within townships. Both cash and digital payments structure, and are structured by the behaviours and decisions of business owners and customers. By focusing on the interplay between technology, agency, and institutional structures (Orlikowski, 1992), this framework provides a comprehensive lens for navigating the multifaceted impacts of payment technologies in township economies.

5.3 Themes

By integrating the insights derived from the synthesis of data through the Structurational Model of Technology (Orlikowski, 1992), common themes were identified, highlighting the interconnectedness of economic behaviour and technological adoption within township settings. Additionally, more profound implications of these insights emerged from the data synthesis, providing a nuanced understanding of how economic practices and technology interact in these socio-economic environments. The following section builds on these insights by examining the key themes in detail, providing a deeper exploration of the observed patterns.

5.3.1 The *Cyborgisation* of Township Retailers

The term cyborg is a combination of ‘cybernetics’ and ‘organism’ (Clynes & Kline, 1990) and represents the fusion of mechanical and organic elements into a single entity. By merging these concepts, the term *cyborg* emphasises the integration of artificial and natural components, leading to enhanced abilities and new forms of interaction.

In the context of township retailers, digital payment systems represent the cybernetics or ‘cy’ component of the cyborg, providing the technological infrastructure that facilitates transactions, financial management, and security. Business owners embody the ‘organism’ or ‘borg’ component, utilising these technologies to enhance their business operations and adapt to the socio-economic landscape. This concept aligns with the idea of *cyborgisation*, described by Haraway (1991) as the blending of humans and machines to extend capabilities and enhance performance.

The evolving dynamics of payment systems in the South African township retail landscape reflect a deeper, symbiotic relationship between township business owners and their payment technologies, moving beyond mere interaction to a state where people and payment devices are increasingly seen as interconnected entities.

I. Payment systems as cybernetic components

In traditional studies of payment systems, the focus often remains on the separate entities of the business owner and the payment device—how each interacts independently. However, my research reveals a more nuanced picture where payment devices are not just tools but extensions of the business owners. This is evident in how township retailers integrate digital and physical payment methods seamlessly into their daily operations, reflecting a profound integration of technology into their personal and business identities. For instance, as Participant 2's flexibility with accepting any form of payment—*"Whatever you bring, I can always accept it"*—suggests, payment devices are adapted and used based on the community's immediate social and economic needs. This adaptation demonstrates interaction and an intersection where the payment method is critical to the retailer's operational strategy, reflecting a symbiotic relationship that enhances business efficiency and customer service.

II. *Cyborgisation* of township business owners

The *cyborgisation* of township business owners can be seen in how deeply embedded payment technologies are in their operational and strategic frameworks. Business owners leverage these technologies to expand their capabilities—managing finances, extending credit, tracking transactions, and ensuring security. The technology extends their capabilities, almost as a second skin that enhances their operational efficacy and strategic reach. For example, the immediacy with which digital payments are processed and the trust business owners place in these systems highlight a reliance that extends beyond traditional tool use. Participant 1 illustrates this point with their dependence on speed points to ensure funds are received by day's end, which is integral to the fluidity of daily business operations.

This integration points to a new understanding of technology in township economies—not merely as external aids but as intrinsic elements of the business owner's operational self. This perspective aligns with Haraway's (1990) concept of the cyborg, which describes a hybrid of machine and organism, a creature of social reality and fiction. In township settings, the business owner and the payment device create a hybrid identity that enhances human capabilities and redefines interactions within the socio-economic landscape.

III. What *Cyborgisation* of township retailers reveals about the research question

The *cyborgisation* of township retailers provides critical insights into the research question: *Is cash still king? Exploring how small businesses navigate physical cash and digital payments.* This concept shows that while cash remains a crucial component due to its reliability and immediacy, the integration of digital payment systems is increasingly transforming township retail practices.

The concept of *cyborgisation* in township retailers aligns with broader academic discussions on the integration of technology in socio-economic practices. As Haraway (1991) argues, technology and humans co-evolve, creating new forms of interaction and dependency. This is particularly evident in South African townships, where digital payment technologies are not just adopted but are integrated into the very fabric of business operations, altering traditional practices and social norms. Orlikowski (1992) further supports this by emphasising that technology is not merely an external tool but is intertwined with its users' social structures and practices.

The *cyborgisation* of township business owners, as evidenced by their integration with payment technologies, challenges the traditional narrative of cash dominance. It highlights a future where human-computer intersections redefine economic, social, and personal boundaries, fundamentally altering how business is conducted and experienced in township markets. This research thus adds a vital dimension to our understanding of payment systems, proposing a view where technology and humans co-evolve, co-exist, and co-create the business landscape in South African townships.

5.3.2 Township Businesses as Informal Banks

In the socio-economic landscape of South African townships, small businesses play an essential role that extends beyond traditional retail functions. They act as informal financial institutions, providing essential banking services in communities with limited formal financial infrastructure. This phenomenon can be understood through the structuration perspective (Orlikowski, 1992, 2000), which emphasises the mutual constitution of technology and human action. Township retailers extend their roles beyond traditional retail by serving as informal financial institutions. This extension is mainly due to their strategic positioning within communities underserved by formal banking facilities, compelling them to fill financial service gaps.

I. **Credit provision**

In environments marked by economic instability, township retailers often offer credit to regular customers, thus enabling essential purchases on a deferred payment basis. This practice is critical in supporting households with inconsistent income flows, underlining the community's reliance on informal credit systems to navigate financial uncertainties. *"The speed points that I have in the shop...when I have a problem with it, they solve it immediately,"* says Participant 1, illustrating how technological solutions facilitate efficient credit management (Ligthelm, 2012).

II. **Money transfers and bill payments**

Township retailers facilitate essential financial transactions, such as local money transfers and bill payments, services often unavailable in these communities due to the lack of formal banking infrastructure (Ligthelm, 2012). Digital payments play a significant role in enhancing this capability, as illustrated by Participant 2: *"Those who are around (nearby), I just go and collect the money from them...for clients that are far...those people will send eWallets (FNB), CashSend (Absa)."*

The role of township retailers as merchants and informal financial service providers underscores the complex socio-economic and institutional dynamics within which they operate. By leveraging cash and digital payment methods, these retailers do not merely conduct transactions; they create a more inclusive, flexible, and responsive financial ecosystem. Combining technology with traditional financial practices reflects a profound understanding of the community's needs, as township businesses implement innovative strategies to meet these needs effectively. This dynamic interplay highlights the critical role of technology in transforming economic practices, ensuring that township economies survive and thrive.

Examining township retailers as informal banks provides insight into the question, *Is cash still king?* This perspective highlights the complex interplay between cash and digital payments in township economies and explains the evolving roles that small businesses play in the financial ecosystem. Here is how the concept of retailers becoming informal banks enhances our understanding:

I. **Cash as a dominant but complemented payment method**

Cash remains a crucial element of the financial ecosystem in townships, particularly in environments where trust in formal institutions is low and digital infrastructure is underdeveloped. This reflects Giddens' (1984) concept of structures enabling and constraining actions. Cash transactions, grounded in trust and familiarity, enable economic activities by providing a reliable and immediate means of exchange, even as they may

constrain broader financial integration. Participant 1 supports this by stating, *"When someone pays for something, I get the money by the time my day ends,"* highlighting the immediacy and trust associated with cash transactions.

II. Digital payments as a growing influence

The growing adoption of digital payments signifies a significant shift towards a more integrated and versatile payment system. According to Orlikowski (1992), technology is not just an external force acting on organisations but is deeply intertwined with social practices. Digital payments exemplify this by transforming financial practices, making them more efficient and secure. Participant 2 illustrates this point: *"Whatever you bring, I can always accept it,"* showcasing the flexibility and efficiency provided by digital payments. This shift illustrates how new technologies can alter existing structures and create new patterns of interaction within the financial ecosystem.

III. Hybrid payment models

The coexistence of cash and digital payments in township economies, facilitated by the adaptive role of retailers as informal banks, reveals a hybrid financial system. Structuration theory posits that social systems are produced and reproduced through regular social practices. The use of cash and digital payments by retailers demonstrates how these practices are continuously adapted to meet the community's diverse needs. This hybrid approach leverages the benefits of both systems, providing flexibility and inclusivity. Participant 5 notes, *"Right now, I would say 90% of them pay cash. 10% is e-wallet and transaction. The 10% use e-wallets when they do not have physical cash,"* indicating the blending of cash and digital transactions in daily operations.

IV. Agency and adaptation

Retailers act as agents who navigate and adapt to both cash and digital payment systems, shaping and being shaped by the financial structures around them. This aligns with Giddens' emphasis on agency, where the actions of individuals are both constrained and enabled by the structures they inhabit. By adopting digital payment systems, retailers provide essential financial services and contribute to the ongoing evolution of the financial ecosystem (Giddens, 1986; Orlikowski, 1992, 2000). Participant 6 discusses the adaptation challenges: *"To avoid… (hesitant to say charges) …when you collect R1.00 or R2.00 it is profit. When you pay it in there (card machine) it means it has gone. The profit will be gone,"* highlighting the financial considerations impacting the adoption of digital payments.

The role of township retailers as informal banks underscores their critical function in bridging the gap between formal financial services and the underserved populations within South African townships. This unique position enables them to provide essential financial services such as credit provision, savings schemes, money transfers, and bill payments, which are typically inaccessible to many township residents due to limited formal banking infrastructure (Charman & Petersen, 2015; FinMark Trust, 2023).

Structuration Theory's (Giddens, 1986; Orlikowski, 1992) emphasis on the duality of structure and agency highlights the adaptive strategies employed by township businesses. Participant data from the study reveals how retailers effectively manage these dual systems. For instance, the immediacy of cash transactions supports daily liquidity needs and builds trust, while digital payments offer flexibility and broader market reach. The ability of retailers to balance these methods showcases their adaptability and resilience, ensuring they remain pivotal in the local financial ecosystem.

Ultimately, the evolving role of township retailers as informal banks reveals a future where cash and digital payments coexist harmoniously, each complementing the other. This dual system leverages the strengths of both payment methods, providing a robust, inclusive, and adaptable financial framework that caters to the socio-economic realities of township communities. Through their innovative practices, township retailers exemplify how informal financial systems can integrate formal banking elements to foster economic resilience and inclusion (Charman & Petersen, 2015; FinMark Trust, 2023; South African Reserve Bank, 2024).

5.3.3 Situational Adaptability as Customer Experience Redesign

In township economies, retailers transcend the traditional role of shop owners to become architects of customer experiences rooted in the township's unique cultural, economic, and social contexts. Applying the Structurational Model of Technology (Orlikowski, 1992), we observe how these retailers use technology and personal interaction to continuously shape and be shaped by the social structures within which they operate, thereby crafting experiences that resonate with their customers' needs and preferences.

The Structurational Model of Technology (Orlikowski, 1992) posits that social structures are both the medium and the outcome of social practices. Retailers, through their actions, reproduce and transform these structures, adapting to their customers' needs and the socio-economic environment. The ability of retailers to integrate cash and digital payments, personalise services, and build trust can be seen as enacting these social structures (Giddens, 1986). By leveraging their situational adaptability, they

continuously shape and are shaped by the financial ecosystem in which they operate. This duality of structure and agency is evident in how retailers balance traditional practices with modern technological advancements (Giddens, 1986; Orlikowski, 1992), thus redesigning the customer experience to be more inclusive, flexible, and responsive.

A fundamental aspect of customer experience design for township retailers is the development of personal relationships. These retailers often know their customers by name, creating an environment of familiarity and trust beyond conventional customer service. For instance, Participant 2's approach to payment flexibility illustrates this dynamic: *"I normally prefer my customers to use the method that suits them because I encounter different types of people – I am flexible. Whatever you bring, I can always accept it."* This adaptability is not just a business strategy, but a reflection of the deep connections formed between retailers and their customers.

I. Redesigning the customer experience

The customisation of payment options to align with local preferences and cultural practices ensures that products offered by township retailers are relevant and deeply integrated into the everyday lives of the community. Participant 1's use of payment technologies to ensure transaction efficiency showcases an understanding of the community's preferences: *"When someone pays for something, I get the money by the time my day ends"*. Operational strategies in township retail are meticulously designed to maximise convenience and accessibility. Participant 2's adoption of versatile payment systems caters to customer convenience, accommodating those who prefer to carry not cash: *"Those who are around (nearby), I just go and collect the money from them...for clients that are far...those people will send eWallets (FNB), CashSend (Absa)."* The data revealed that convenience and accessibility are fundamental components of the customer experience, significantly influencing customer satisfaction and encouraging repeat business.

II. Integration of cash and digital payments

Participant 1 highlights the importance of immediacy and reliability in cash transactions: *"When someone pays for something, I get the money by the time my day ends."* This immediate liquidity is crucial for daily operations in environments where digital infrastructure may be unreliable. Conversely, Participant 2 showcases the flexibility of accepting various payment methods: *"Whatever you bring, I can always accept it,"* illustrating how digital payments enhance transactional efficiency and customer convenience. Participant 5 notes, *"Right now, I would say 90% of them pay cash. 10% is e-wallet and transaction. The 10% use e-wallets when they do not have physical cash."* This

balanced approach demonstrates the retailer's ability to cater to diverse customer preferences, leveraging cash and digital payments to meet situational needs.

III. Personalising services and building trust

Participant 3 emphasises the role of personal relationships in customer interactions: *"I know most of my customers by name, and they trust me to give them credit when they need it."* This personal touch is a cornerstone of customer experience in township retail, fostering loyalty and repeat business. Participant 4 shares a similar sentiment: *"People come to me because they know I will help them when they are short on cash. It is about trust and being part of the community."* This trust-based relationship is essential in environments where formal financial services are limited.

IV. Customising payment options

Participant 6 discusses the challenges and adaptations associated with digital payments: *"To avoid... (hesitant to say charges) ...when you collect R1.00 or R2.00, it is profit. When you pay it in there (card machine), it means it has gone. The profit will be gone."* Despite the cost concerns, adopting digital payments reflects an understanding of their benefits in enhancing the customer experience.

In summary, as customer experience designers, township retailers employ strategies intricately woven into the community fabric. Their approach transcends transactional relationships, fostering a sense of belonging and loyalty through personalised services, active community engagement, culturally relevant product selections, and strategically convenient operations. These practices reflect a sophisticated interplay between social norms, cultural values, and economic activities, highlighting the dynamic role of township retailers in shaping and being shaped by the communities they serve.

The situational adaptability of township retailers significantly redesigns the customer experience by integrating multiple payment methods, personalising interactions, and building trust. This adaptability, grounded in structuration theory, highlights the dynamic interplay between agency and structure in transforming financial practices and enhancing service delivery. By examining the balanced perspectives of eight participants, it is clear that township retailers effectively navigate their socio-economic landscape, providing a customer experience that is both resilient and innovative.

5.3.4 Business Owners as Key Community Stakeholders

Township business owners extend their roles beyond commercial activities to actively engage in and support their local communities, playing pivotal roles in their socio-economic environments. Business owners and communities engage in mutual shaping (Orlikowski, 1992, 2000), where business practices influence community development, and community characteristics shape business strategies and operations. As business owners navigate their roles within the community, they develop emergent practices that reflect the dynamic interaction between business goals and community needs. These practices evolve over time, contributing to the community's ongoing structuration (Orlikowski, 1992; Orlikowski & Iacono, 2001).

I. Understanding the role of business owners as key community stakeholders

The role of business owners as key community stakeholders is multifaceted, encompassing economic, social, and cultural dimensions. In township environments, especially where business owners are often foreign nationals, their influence extends beyond mere commercial activities to actively supporting and engaging with the local community. Township business owners draw upon and reproduce social structures through their actions (Orlikowski, 1992, 2007; Orlikowski & Iacono, 2001). This duality means that while existing norms and practices guide their behaviours, their actions also modify these structures. For example, by learning local languages and integrating them into cultural practices, foreign business owners do not merely adapt to existing norms but also contribute to evolving community dynamics.

Economic contributions: Business owners offer essential goods and services tailored to local needs. Participant 1 demonstrates this by stating, *"When someone pays for something, I get the money by the time my day ends,"* highlighting the immediacy and reliability of their transactions, which are crucial in areas with limited formal financial infrastructure. In addition to providing goods and services, township businesses are flexible in their payment methods. They demonstrate significant adaptability by accepting a variety of payment forms. Participant 2 notes, *"Whatever you bring, I can always accept it,"* indicating their willingness to accommodate diverse financial situations, enhancing accessibility for all community members.

Social integration: Business owners often establish personal connections with their customers, fostering trust and loyalty. Participant 3 says, *"I know most of my customers by name, and they trust me to give them credit when they need it,"* illustrating the importance of personal relationships in community-centric markets. Furthermore, proactively learning

local languages helps business owners integrate into the community. This integration is crucial for building trust and establishing themselves as key stakeholders. Participant 4 explains, *"People come to me because they know I will help them when they are short on cash. It is about trust and being part of the community."*

Financial services and support: By offering informal credit, business owners support households with inconsistent income flows. Participant 3 highlights this practice, which shows how trust and personal relationships underpin these financial arrangements, essential for community resilience. On the other hand, businesses embracing digital payments enhance operational efficiency. Participant 5 mentions*, "Right now, I would say 90% of them pay cash. 10% is e-wallet and transaction. The 10% use e-wallets when they do not have physical cash,"* reflecting a balanced integration of traditional and modern payment methods.

Reflexivity and adaptation: According to structuration theory, the reflexive monitoring of actions enables individuals to adjust their practices in response to outcomes (Giddens, 1986). Business owners continuously evaluate and adapt their strategies to better serve their communities. Participant 6 reflects on the challenges of digital payments: *"To avoid... (hesitant to say charges) ...when you collect R1.00 or R2.00, it is profit. When you pay it in there (card machine), it means it has gone. The profit will be gone."* This ongoing adaptation highlights their commitment to balancing operational efficiency with customer needs.

Understanding the role of business owners as key community stakeholders through the lens of structuration theory reveals the dynamic interplay between agency and structure (Giddens, 1986; Orlikowski, 1992). These business owners provide essential economic services and actively contribute to the social and cultural vitality of their communities. By integrating cash and digital payment methods, building personal relationships, and engaging in community activities, they exemplify how individual actions can reshape and reinforce social structures, fostering a resilient and inclusive community.

Orlikowski (1992) further elaborates on this by demonstrating how technology and social practices are mutually constitutive. Business owners who adopt and adapt digital technologies in their transactions not only improve operational efficiency but also contribute to the evolving social fabric of their communities. This technological integration supports the notion of the duality of technology, where technology shapes and is shaped by human action (Orlikowski, 1992). By doing so, these business owners play a pivotal role in both maintaining and transforming the socio-economic landscape of their communities.

5.3.5 Payments as Negotiation

In the dynamic landscape of township economies, retailers take on a role that extends beyond mere commerce to include strategic negotiations necessary for sustaining operations. Giddens (1986) and Orlikowski (1992) explain negotiation as a process through which structures are produced and reproduced. During negotiation, individuals draw on existing structures, and their actions can also modify these structures.

For township businesses, payments facilitate negotiations with suppliers and customers. Through effective supplier negotiations, township retailers secure favourable terms that enhance their operational viability and competitive edge. The data revealed that customer bargaining allows retailers to remain accessible and relevant to the community's needs, fostering loyalty and sustained patronage. Additionally, by forging strategic partnerships, they expand their influence and capability, contributing significantly to community development and resilience. Orlikowski (1992) discusses how different stakeholders in an organisation have different technological frames — their assumptions, expectations, and knowledge about technology. Negotiation is critical as these frames must be aligned for successful technology implementation. In her study on the adoption of Lotus Notes, she showed how different groups within the same organisation had to negotiate their understandings and uses of the technology to achieve effective implementation (Orlikowski, 1992). Negotiation underscores the critical economic and social roles of township retailers, highlighting their importance beyond traditional retail functions. Their ability to navigate these various fronts is not merely a business strategy but a vital community engagement practice that strengthens their integral role in the social and economic fabric of the townships.

I. **Supplier negotiations**

Township retailers actively negotiate with suppliers to secure better pricing, bulk discounts, and favourable payment terms. These negotiations are vital for keeping prices competitive and managing limited cash flow, reflecting the duality of structure where the economic environment shapes the actions of retailers. Participant 1 highlights the strategic use of payment technologies to manage business operations: *"The speed points that I have in the shop, I got with my business account. When I have a problem with it, they solve it immediately...I get the money by the time my day ends."* This statement underscores the importance of effective financial management and technological integration in maintaining operational viability. Through these negotiations, township retailers demonstrate their agency in navigating and influencing the economic structures they operate within, consistent with structuration theory's emphasis on the active role of agents in shaping social practices.

II. Customer negotiations

Negotiating prices with customers is another area where township retailers excel, balancing profitability with the necessity to meet the community's economic capabilities. This practice is transactional and a form of social interaction that reinforces community bonds. Participant 2's flexibility in payment methods reflects this negotiation aspect at the customer level: *"Whatever you bring, I can always accept it."* This adaptability indicates a deeper strategy of customer retention and satisfaction, which is critical in environments where price sensitivity is high. The data demonstrates that negotiations are typical in the township business settings that serve customers with high price sensitivity. This aligns with Structuration Theory's concept of reflexivity (Giddens, 1986), where agents continually adjust their actions based on feedback and outcomes, reshaping the structures within which they operate.

III. Strategic partnerships

Forging strategic partnerships is another crucial aspect of negotiation for township retailers. By building relationships with local suppliers, community organisations, and other businesses, retailers can enhance their operational capabilities and influence within the community. Participant 3 highlights the importance of personal relationships in business: *"I know most of my customers by name, and they trust me to give them credit when they need it."* This trust extends to partnerships, where mutual support and collaboration can lead to better business outcomes and community benefits. These strategic partnerships reflect the ongoing structuration process, where the interactions and negotiations between retailers and their partners continually shape and redefine the township's economic and social structures. This process is central to the adaptability and resilience of township businesses.

IV. Balancing act and community engagement

The ability of retailers to negotiate effectively across various fronts is not just a business strategy but a crucial community engagement practice. This adaptability ensures they meet diverse needs and preferences, reinforcing their role as integral community stakeholders. Participant 4 shares*, "People come to me because they know I will help them when they are short on cash. It is about trust and being part of the community."* This sentiment underscores the social capital built through ongoing negotiations and interactions. Participant 5 discusses the balance between cash and digital transactions: *"Right now, I would say 90% of them pay cash. 10% is e-wallet and transaction. The 10% use e-wallets*

when they do not have physical cash." This adaptability ensures that all customers can engage in the local economy regardless of their payment preferences.

The multifaceted role of township retailers as negotiators is pivotal for their survival and the well-being of their communities. Through supplier negotiations, they enhance their operational viability through customer bargaining, they maintain accessibility and relevance, and through strategic partnerships, they expand their influence and capability within the community. These negotiation skills underscore the critical economic and social roles of township retailers, highlighting their importance beyond traditional retail functions. Their ability to successfully negotiate across various fronts is not just a business strategy but a crucial community engagement practice that reinforces their integral role in the social and economic fabric of the townships.

5.3.6 Invisible Payment Methods

Trust and relational currency are particularly important in environments where formal financial systems may be limited or inaccessible. They allow for transactions based on mutual understanding and long-term relationships (Granovetter, 1985). Intuition, often built on deep personal knowledge of the community, further facilitates these non-monetary exchanges by enabling retailers to assess the credibility and reliability of their customers (Geertz, 1978). These invisible payment methods sustain economic activities and reinforce social cohesion and resilience within township communities.

I. Relationships as currency

As highlighted by Participant 2, the flexibility in accepting various forms of payment is not just a business strategy but a testament to the importance of maintaining strong, personal relationships with customers. *"I normally prefer my customers to use the method that suits them because I encounter different types of people – I'm flexible. Whatever you bring, I can always accept it."* This approach demonstrates how relationships can act as a form of currency, facilitating transactions that might not have been possible strictly through monetary means. This flexibility ensures that all customers feel valued and cared for regardless of their current financial status or preferred payment method, thus fostering long-term loyalty and trust.

II. Trust as currency

An essential aspect of township retail operations is the provision of credit, which heavily relies on the trust established between the retailer and the customer. Participant 1's use of speedy transactions to manage credit efficiently is a prime example: *"When someone pays*

for something, I get the money by the time my day ends." This trust is not merely about believing that customers will repay in time but also forms the basis of deeper relationships that enhance community cohesion and mutual economic support. The trust allows for flexible credit terms, which can be crucial for customers dealing with irregular income streams, thereby sustaining community members through financially challenging times (Ligthelm, 2012).

III. Intuition as a gauge

Intuition in gauging customer needs and preferences is critical in township retail settings. Retailers like Participant 1 and Participant 2 must intuitively understand which products or services to offer and how to engage with each customer. This intuition helps tailor their business strategies to the unique dynamics of their customer base, ensuring relevance and enhancing customer satisfaction. Such intuitive engagement allows retailers to anticipate customer needs before they are explicitly stated, facilitating a proactive rather than reactive business approach.

Invisible payment methods in township economies emphasise the critical role of non-monetary transactions in sustaining economic activities and reinforcing social cohesion. Trust, relationships, and intuition facilitate commerce and strengthen the community's social fabric. These methods highlight the adaptive and integrative strategies of township retailers, who navigate complex environments by leveraging monetary and non-monetary payment forms. This nuanced understanding of economic exchange underscores the continued relevance of cash, while acknowledging the growing importance of digital payments and the enduring value of invisible methods.

Structuration theory suggests that social structures are the medium and outcome of the practices they recursively organise (Giddens, 1986). In the context of township economies, invisible payment methods exemplify how economic transactions shape social norms and relationships. Orlikowski's (1992, 2000) work further explains the dynamic interplay between technology and organisational practices. Her studies on the role of technology in organisations highlight how technological advancements are integrated into existing social structures and how they, in turn, reshape these structures (Orlikowski, 1992, 2000).

Integrating these invisible payment methods is crucial in environments where traditional banking infrastructure may be lacking or where people may prefer more personalised interactions. These methods provide a way to conduct transactions, reinforcing community values and norms, ensuring that all members can participate in the local economy irrespective of their monetary capabilities. Invisible payment methods in township economies illustrate a sophisticated understanding of the socio-economic

landscape, where monetary transactions are often intertwined with deeper social interactions. Trust, relationships, and intuition not only facilitate commerce but also reinforce the community's social fabric, making them as valuable, if not more so, than the currency that changes hands. This nuanced approach to economic exchange highlights the adaptive and integrative strategies of township retailers to thrive within complex, multifaceted environments.

5.3.7 Sweets-for-Change: Restructuring Role of Physical Cash

The sweets-for-change practice is an example of the duality of structure (Giddens, 1986; Orlikowski, 1992). The duality of structure suggests that the actions of individuals are shaped by structures (rules, norms), and these actions simultaneously reinforce or alter those structures. In the context of sweets-for-change, this practice subtly shapes customer behaviour. Over time, customers become accustomed to receiving sweets and small snacks instead of small change, making this practice a norm. This norm is a structuring element that influences both consumer habits and business operations. Consumers adapt to this practice for the convenience of not carrying small change, while businesses benefit from the lower cost of providing sweets instead of coins.

Participant 3's implementation of this practice highlights its economic and structural benefits: *"Customers often opt for an ice lolly with the change from small purchases like a GrandPa headache sachet or a single razor blade."* This shows how the practice becomes embedded in daily transactions, reinforcing consumer expectations and business routines.

This practice helps maintain existing profit-making strategies. Township business owners reinforce their profit margins as the cost of sweets is often less than the equivalent value in coins. This dynamic reflects the process of reproduction (Orlikowski, 1992, 2000), where established business strategies are upheld, but the mode of exchange is transformed—from monetary change to sweets.

The sweets-for-change practice demonstrates how a simple change in transaction method can influence and reinforce consumer behaviour and business operations. This duality—where structure shapes behaviour and behaviour, in turn, reinforces structure—exemplifies Giddens' theory. The practice simultaneously preserves existing profit-making strategies while transforming the form of exchange, thus highlighting the dynamic and cyclical nature of social structures.

Furthermore, the sweets-for-change practice is an illustration of how township businesses navigate cash management. This theme reveals economic benefits, such as higher profit margins, improved cash flow management, and social advantages, including enhanced customer satisfaction and loyalty. By fostering

innovation within a specific institutional context, Orlikowski (1992) underscores the importance of understanding local adaptations within the broader technology framework and economic behaviour in township economies. The ongoing negotiation between technology and social structures highlights the dynamic nature of these environments and the critical role of human agency in driving change and innovation.

In summary, the sweets-for-change practice is an example of the interplay between structure and agency in township economies. It showcases how innovative solutions can address practical challenges, foster customer loyalty, and reshape cultural norms. This practice highlights the importance of local adaptations and the potential for such innovations to transform the broader economic landscape. By examining this practice through the lens of the Structurational Model of Technology (Orlikowski, 1992), we gain a deeper understanding of the complex dynamics at play in township economies and the critical role of the agency of township businesses in driving economic and social change.

5.4 The Evaluation of the Structurational Model of Technology in Exploring Cash and Digital Payments in Township Businesses

Reflecting on the process of analysing data through the Structurational Model of Technology (Orlikowski, 1992), the model indeed proved valuable, offering a framework to investigate the complex interplay between cash and digital payment systems in township businesses. By focusing on the duality of structure, it helped with the studying of how social practices both shape and are shaped by technology. However, engaging directly with the model also revealed some limitations that required adaptive approaches to make it fully applicable within the unique context of township economies.

5.4.1 Strengths of the Structurational Model of Technology

I. **Integration of social and technological dynamics**

The Structurational Model of Technology (Orlikowski, 1992) effectively integrates the social and technological dimensions of payment systems in township businesses. Orlikowski's (1992) emphasis on the duality of technology—where technology shapes and is shaped by human actions—aligns with the focus of the research on how township business owners negotiate between cash and digital payments. This framework allows for an analysis beyond the simplistic view of technology as a tool to replace cash. Instead, it provides a lens to explore how social norms, cultural practices, and economic realities sustain the continued use of cash while simultaneously opening spaces for digital payment

adoption. The flexibility of the model is especially useful in understanding why cash remains dominant despite the increasing availability of digital technologies.

II. Human agency in payment choices

A significant strength of the Structurational Model of Technology (Orlikowski, 1992) is its focus on human agency, which is crucial for understanding payment decisions in township economies. Township business owners and consumers are not passive recipients of technology; they actively make decisions about whether to use cash or digital payments based on factors like convenience, trust, and accessibility. By foregrounding human agency, the model supports an exploration of how township business owners adapt digital payment technologies to their specific contexts while still relying on cash for its familiarity and perceived reliability. This aligns with the findings that many township businesses adopt digital payments selectively, often alongside cash, rather than fully transitioning to digital systems.

III. Contextual and flexible analysis

The socio-technical approach of the model allows for a deep exploration of the township business context, where factors such as informal economic structures, local customs, and limited access to formal banking services shape financial practices. Orlikowski's (1992) model provides the flexibility to analyse how cash and digital payments are enacted in everyday transactions. For instance, the use of cash in township businesses is more than just an economic choice. However, it is tied to trust, social relationships, and the need for tangible transactions in environments where digital infrastructures may be unreliable. The model's ability to account for these socio-cultural factors enhances the depth of the analysis, revealing the complex interactions between technology and local economic realities.

IV. Understanding the evolution of payment practices

The model is particularly suited to investigating the evolution of payment practices over time. Orlikowski's (1992) concept of the duality of technology highlights how digital payments are not static innovations but evolve through their interactions with users and institutions. In township businesses, the slow adoption of digital payments can be viewed through this lens, where the specific needs and constraints of users shape digital systems. This framework allows researchers to explore how digital payments are gradually integrated into daily practices without entirely displacing cash, offering insights into the gradual transformation of financial practices in these communities.

5.4.2 Limitations of the Structurational Model of Technology

I. Abstract theoretical framework

While the model provided a robust foundation, its abstract nature presented some challenges. Unlike models that offer clear guidelines for data collection and analysis, the Structurational Model (Orlikowski, 1992) does not prescribe a straightforward method for capturing and interpreting data. Applying the model required significant interpretation and adaptation to fit the township business context. This lack of a prescriptive approach meant that decisions had to be made on how best to operationalise concepts such as duality of structure in practical terms, which occasionally left gaps in how to capture the moment-to-moment decisions of township business owners around payment methods.

The abstract nature of the model was mitigated by incorporating socio-informatic perspectives that provided additional guidance for operationalising theoretical concepts in a practical way. These perspectives allowed a closer examination of the interactions between people and payment technologies, enabling a more structured approach to data collection that captured real-time decision-making processes of business owners.

II. Limitations in applying an organisational framework to informal township economies

Another limitation was that the Structurational Model (Orlikowski, 1992) was originally developed for analysing technology within formal organisational settings, whereas township businesses operate within informal, complex environments. Unlike structured organisations, townships are characterised by unique socio-economic dynamics, including limited infrastructure, informal business practices, and resource constraints. These factors added layers of complexity that the model did not explicitly address, especially regarding barriers to digital adoption, such as unreliable internet access and the prevalence of unbanked or underbanked populations. The informal nature of these businesses also meant that payment decisions are often highly contextual and reactive, making it difficult to apply a model designed with organisational technology use in mind.

Addressing the gap between the Structurational Model's (Orlikowski, 1992) organisational focus and the informal township context required tailoring the model's application. By contextualising the analysis through interviews and observations, insights into the lived realities of township business owners were gathered, adding depth to the understanding of cash and digital payment choices. This approach was crucial in capturing the unique challenges and motivations of business owners in these environments, which often differ from those in more formal organisations.

III. Underemphasis on structural barriers

While the model emphasises agency, it tends to underplay structural barriers that are critical within the township context. For instance, high transaction fees, limited financial literacy, and infrastructural limitations are powerful determinants in payment choices that the model does not fully account for. In these cases, structural constraints can overshadow individual agency, making it difficult to rely on a framework that doesn't fully address these systemic issues.

To account for the structural barriers that the model underemphasises, additional data was gathered on infrastructural challenges and economic factors directly influencing digital payment adoption. This included examining transaction fees, internet access, and issues relating to accessing digital payment devices. Through qualitative methods, these structural constraints were given the necessary weight in the analysis, providing a more accurate portrayal of the factors limiting digital adoption in township businesses.

The Structurational Model of Technology (Orlikowski, 1992) offers a valuable framework for exploring the coexistence of cash and digital payments in township businesses, mainly through its emphasis on human agency and the reciprocal relationship between technology and social structures. However, the model's abstract nature, its organisational focus, and its limited consideration of structural barriers required adaptive approaches to fully address the realities of township contexts. By integrating socio-informatic perspectives and supplementing the model with contextual insights gathered through interviews and observations, a richer understanding of digital payment adoption in township businesses was achieved. These adaptations allowed for a more holistic analysis that addressed the systemic and infrastructural constraints shaping payment behaviours in township economies. This experience reflects both the strengths and limitations of the Structurational Model (Orlikowski, 1992) in this unique setting, underscoring the importance of flexibility and contextualisation when applying theoretical frameworks to real-world, informal environments.

5.5 Conclusion

Examining the insights shared throughout this paper, it becomes evident that framing physical cash and digital payments as antagonistic competitors needs to capture the nuanced reality. Instead, the data reveals a dynamic, fluid symbiosis between these two forms of payment, characterised by an ongoing negotiation that intertwines them within the fabric of economic transactions. This symbiotic

relationship, far from being a mere backdrop, is a pivotal thread weaving through the thematic explorations.

Overall, this research highlights an invisible dimension of technological evolution, where changes are not necessarily observable as new features or hardware but are evident in the nuanced ways technology is used to foster better service and customer experience. The discussion reveals that human agency, particularly the negotiation between retailers and customers, is a critical catalyst for the evolution of payment technologies. This evolution is characterised not by formal design changes but by informal adjustments in usage patterns to accommodate customer preferences better.

Within the framework of the Structurational Model of Technology (Orlikowski, 1992), the ongoing negotiation between retailers and customers serves as a critical medium through which payment technologies are not merely used but actively reconfigured. This dynamic process of technological adaptation underscores Orlikowski's (2000) assertion that technology and human action are inextricably linked, with technology shaping and being shaped by social practices. The continuous redesign of payment methods through everyday interactions represents an invisible evolution of payment technologies. This evolution transcends mere technical updates or enhancements in hardware design. Instead, it is characterised by how retailers adapt the application of existing payment technologies to better meet their customers' needs and preferences. A poignant illustration of this adaptation is the willingness of retailers to modify their payment practices to accommodate customers desiring to purchase goods on credit. This modification of payment practices reflects a form of technological reconfiguration driven by human agency and negotiation, aligning with Orlikowski's (1992) concept of technology as a medium of human action. It showcases how the utility and application of technology are continually renegotiated within the context of retailer-customer interactions, leading to emergent practices that extend beyond the original design intentions of the payment systems.

Navigating the philosophical tension between physical cash and digital payments, business owners find themselves mediating a complex negotiation between tradition and innovation—a theme deeply explored in Orlikowski's work on the duality of technology and its constitutive role in shaping organisational and societal practices (Orlikowski, 1992, 2000, 2007). This tension embodies a choice between transaction methods. It represents a broader dialogue about the interplay between tangible practices rooted in history and the intangible, often abstract, nature of modern digital interactions. With its tangible presence, physical cash signifies a longstanding tradition of economic exchange, embodying established practices and cultural rituals that have persisted across time and space. As Orlikowski (1992) might suggest, this transaction is embedded within the social fabric, offering a sense of immediacy and tangible reality that underscores the value of direct human connection. Cash facilitates an interaction that is not just economic but also deeply social, reflecting a shared understanding of value

and trust. On the other hand, digital payments represent the cutting edge of technological innovation, encapsulating the movement towards abstraction in economic transactions. As Orlikowski (2000, 2007) discussed, this shift challenges traditional boundaries and reshapes the landscape of social and organisational structures. Digital payments exemplify how technology can extend the reach of economic participation, transcending physical limitations and redefining value transfer mechanisms with unprecedented efficiency and scale.

CHAPTER 6: CONCLUSION

6.1 Introduction

This chapter consolidates the core components of this research by summarising the key findings, limitations, practical implications, and contributions to information systems research. It underscores the practical applications of the findings and situates them within a broader academic context. The chapter also highlights the study's advancement of empirical knowledge on financial inclusivity and hybrid economic models in underserved communities. This chapter, therefore, serves as a culmination of the study's contributions and a foundation for future inquiry in the evolving landscape of inclusive financial systems.

The chapter opens with a summary of key findings, presenting a cohesive overview of the study's central insights, particularly on the resilience of cash in township economies and its complementary role alongside digital payments. These findings reveal the socio-technical dynamics influencing payment behaviours, showing how township businesses strategically balance cash and digital transactions to accommodate diverse customer needs effectively. Following this, the limitations section provides a transparent discussion of constraints encountered during the study, such as sample representativeness and contextual limitations. This reflective analysis clarifies how these factors may affect the interpretation and generalisability of the findings, guiding readers in assessing the study's scope and reliability. The chapter then translates the findings into recommendations for payment providers, policymakers, and business owners. It emphasises the importance of hybrid payment solutions that integrate the flexibility of cash with accessible digital options, ensuring that financial services align with the real-world dynamics of township economies. The recommendations extend to future research avenues, suggesting further exploration to scale these insights to other emerging markets and examine the evolving roles of cash and digital payments amid rapid technological advancements.

In summary, this chapter reflects on the study's contributions to Information Systems research, emphasising the study's enhancement of theoretical and practical insights into hybrid financial systems in underserved markets. By investigating the interplay between cash and digital payment systems within township settings, this research emphasises that effective financial inclusion must prioritise solutions that align with users' existing trust systems and preferences. This chapter consolidates the study's insights, implications, and directions for future research. It also highlights the importance of designing inclusive financial solutions that are adaptable and sensitive to the unique socio-economic fabric of townships, where cash and digital payments operate in tandem.

6.2 Summary of Findings

This study set out to explore the resilience of cash within South African township economies, specifically examining the nuanced ways township businesses navigate the coexistence of cash and digital payments. Employing the Structurational Model of Technology (Orlikowski, 1992) as the analytical lens, this research has fulfilled its promise to challenge the assumption that digital payments would naturally replace cash in these settings. Instead, the findings reveal a complex socio-technical ecosystem where both payment methods hold distinct, complementary roles, shaped by cultural, practical, and relational factors.

I. Cash as a socio-technical tool

The study confirms that cash remains central to township economies, deeply embedded in daily practices and social structures. The role of cash extends beyond a transactional tool; it embodies values of trust, immediacy, and community respect. Its tangible nature provides immediacy and reliability, particularly valuable in contexts with limited digital infrastructure. This result fulfils the study's commitment to explore why cash endures and challenges any simplistic view that digital alternatives could simply displace cash. Instead, the research underscores that cash's socio-cultural resonance must be considered for digital payments to achieve equitable adoption in these communities.

II. Digital payments as a complementary, not replacing, factor

While digital payments offer undeniable benefits such as convenience, security, and financial record-keeping, they have not rendered cash obsolete in township settings. Businesses in townships demonstrate a hybrid approach, selectively adopting digital payments to meet the needs of specific transactions or customer demographics while still relying on cash for its versatility. This adaptability confirms the study's assertion that digital and cash payments coexist rather than compete. The findings suggest that financial inclusion efforts should adopt a dual-system approach, embracing the complementary roles of both payment methods to better serve township economies.

III. The structurational dynamics of payment practices

The findings illustrate a 'cyborgisation' of township retailers who operate as informal banks, bridging traditional and digital financial tools to serve their communities. Payment practices are not only practical choices but also reflective of a continuous negotiation between tradition and innovation. Digital payments symbolise modernity and progress, while cash retains its cultural significance, highlighting the dialectic between stability and change within these communities. This nuanced view reinforces the research objective to

move beyond a binary ‘cash versus digital’ framework, recognising that payment methods are co-constructed within a socio-technical environment.

IV. Trust, community, and payment preferences

A key insight from this research is the role of trust and community ties in shaping payment preferences. Township business owners underscored that cash transactions foster interpersonal trust and uphold community values, creating a direct, relational engagement with customers that digital transactions—often perceived as invisible payment methods—currently struggle to replicate. This tangibility of cash aligns with the role of businesses as integral community stakeholders, grounding financial interactions in familiar, visible practices that enhance trust and social cohesion. This insight fulfils the study's aim to understand the social dimensions of payment choices, emphasising that digital solutions must be designed to complement, rather than disrupt, these existing social bonds.

V. Structural and infrastructural barriers to digital adoption

Infrastructural limitations, including unreliable internet access, transaction fees, and scarce banking facilities, also contribute to the continued use of cash. These limitations are not mere logistical issues but structural constraints that shape payment behaviours, underscoring the resilience of cash. For township businesses, digital payments are a viable supplement but remain secondary in environments where cash’s reliability is paramount. This finding supports the research objective to uncover barriers to digital adoption and suggests that meaningful financial inclusion must address these infrastructural gaps.

VI. Township businesses as adaptive, informal financial hubs

The study reveals that township businesses demonstrate remarkable adaptability, acting as informal banks and essential financial facilitators within their communities. These business owners exemplify a form of situational adaptability, reconfiguring customer experiences by offering flexible payment options tailored to community needs. The role of cash in change-giving, illustrated by practices like ‘sweets-for-change,’ underscores this adaptability, showing how businesses creatively fulfil customer expectations while navigating constraints. This adaptability further supports the study’s objective of understanding how township businesses balance socio-technical complexities, confirming that they are not mere recipients of technology but active agents in shaping its use.

By uncovering the factors that sustain this dual-payment landscape, the research contributes to a broader discourse on financial inclusion, advocating for solutions that bridge the gap between technological innovation and the practical realities of underserved communities. These findings underscore that

meaningful financial inclusion requires an adaptive approach that respects local dynamics and preferences, integrating traditional and digital systems to foster economic empowerment. The insights from this study provide a foundation for inclusive innovation, showing that hybrid payment systems can transform everyday transactions into pathways for community-centred financial growth.

6.3 Research Limitations

Reflecting on the research process reveals both the rewarding and challenging aspects of examining payment practices in South African townships. Conducting this study highlighted the complexities of these financial systems and underscored the value of approaching them with sensitivity and adaptability. The methodological choices and analytical framework applied—primarily the Structurational Model of Technology—shaped the study, revealing both strengths and limitations in understanding the socio-technical interactions in township businesses.

I. Methodological limitations

The use of qualitative methods captured the detailed realities of township business owners, presenting nuanced insights that quantitative approaches may not reveal. Engaging directly with participants and recording their experiences provided depth to the findings, though this depth inherently limited generalisability. While the Structurational Model of Technology provided a framework for analysing these socio-technical interactions, it left room to question whether a complementary quantitative approach might add further layers of understanding.

II. Sample and population limitations

The specific selection of business owners within a single township created an in-depth lens through which the issue was viewed. This purposeful sample offered insights into the ways township businesses navigate cash and digital payments, but did not represent micro-enterprises or larger businesses in other townships. Given the unique characteristics of each township, the sample's limitations suggest that findings are most applicable within similar township contexts. Broadening the scope in future studies could deepen understanding and bring additional perspectives into the discourse.

III. Data collection and measurement limitations

Balancing authenticity with potential self-reporting biases was a key challenge. Interviews conducted in English and Setswana fostered openness but posed translation challenges in maintaining accuracy. The reliance on semi-structured interviews enabled detailed

narratives but introduced potential interviewer influence. Although care was taken to capture authentic insights, the inherent limitations of self-reported data and interpretative biases cannot be fully eliminated.

IV. Contextual limitations

The study's timing and socio-economic setting may have influenced participants' responses, as township businesses operate in environments affected by market trends, policies, and technological changes. This context informed the findings, although shifts in economic conditions or digital infrastructure could alter payment behaviours over time. Conducting the study during a period of increased digital adoption affected perspectives on cash and digital solutions, highlighting the importance of contextual relevance.

V. Analytical limitations

Applying the Structurational Model of Technology as an analytical framework provided insight into the negotiation of technology within township businesses. While this model clarified the interaction between social structures and technology use, infrastructural issues—such as transaction costs and connectivity—remained underexplored. The thematic analysis approach enabled the identification of patterns, though the possibility of interpretative bias remains. Reflexivity measures were employed to minimise bias, though different analytical lenses may have influenced the findings differently.

These limitations provide necessary context for interpreting the findings. The study's qualitative nature offers a detailed understanding of the complex relationship between cash and digital payments, while its limited sample suggests caution in generalising the conclusions. The insights gained are most applicable to the specific township context studied, though they also suggest directions for future research with more diverse samples and mixed methods approaches to enhance relevance and scope.

In summary, this research experience emphasised the importance of depth and reflexivity when exploring socio-technical dynamics within township contexts. The limitations encountered reflect the inherent complexities of these settings and the impact of methodological choices on research outcomes. This study offers valuable insights into the adaptability of township businesses and the layered relationship between cash and digital payments, highlighting the need for inclusive, context-sensitive approaches in advancing financial inclusion.

6.4 Recommendations

The following recommendations highlight the need for a well-rounded approach to improving the financial ecosystem within South Africa's township economies. Future research focusing on customer behaviour, technology adoption, regulatory impacts, socio-economic effects, and the role of trust and social capital can guide the development of more effective and inclusive payment systems. These efforts aim to address current challenges facing township businesses, fostering a resilient and collaborative economic environment that supports sustainable growth and financial inclusion.

6.4.1 Payment Providers, Policymakers and Business Owners

I. Recommendations for payment providers

To foster digital payment adoption while acknowledging the persistence of cash, payment providers should consider developing hybrid financial solutions that integrate digital and cash functionalities, allowing township businesses to retain the flexibility and accessibility of cash alongside the benefits of digital platforms. Given the findings on trust and convenience, providers could enhance their platforms with features that support offline transactions and facilitate peer-to-peer cash exchanges through verified community members acting as cash handlers in areas with limited ATM access. Addressing infrastructural challenges, such as improving network reliability and reducing transaction fees, is crucial to creating a user-friendly experience that accommodates the unique operational needs of township businesses.

II. Recommendations for policymakers

Policymakers should aim to design inclusive financial regulations that support both cash and digital ecosystems. Recognising that township businesses are deeply embedded within their communities, policies that encourage community-led financial initiatives could empower these businesses to expand financial access without mandating full digital adoption. The creation of public-private partnerships to improve digital infrastructure, particularly in underserved areas, is essential to overcome the infrastructural limitations identified in this study. Additionally, policymakers should incentivise the use of cash-to-digital transition programs, providing tax relief or subsidies for businesses that adopt dual payment systems and contribute to the broader goal of financial inclusion.

III. Recommendations for business owners

Given the mixed preferences for cash and digital payments, business owners can benefit by adopting a dual payment system that enables them to cater to both cash-preferred customers and those comfortable with digital transactions. Owners may also find value in participating in community training and financial literacy programs that deepen their understanding of digital finance, equipping them to handle cash and digital payments more confidently. Collaborative efforts among local businesses to form a community network of trusted cash handlers would support each other in providing digital access points, improving cash flow, while also preparing for a gradual shift towards increased digital use.

6.4.2 Recommendations for future research

I. Expanding the scope and diversity of samples

Future research should seek to broaden the sample across multiple townships and regions to capture a more diverse range of socio-economic contexts, which would enhance the generalisability of findings. Including businesses of different sizes and sectors could reveal insights into sector-specific payment practices, shedding light on whether cash remains dominant across various business models or primarily in informal, community-driven enterprises.

II. Investigating the long-term impacts of hybrid payment methods

Building on this study's findings that a dual-system approach may be more feasible in township economies, future research could examine the long-term impacts of hybrid payment models on business growth, community trust, and financial inclusion. Tracking such impacts over time would reveal whether hybrid models facilitate smoother transitions toward digital payments or maintain cash dependency. Additionally, studies could investigate the socio-economic effects on customers and business owners as digital literacy and infrastructure improve.

III. Exploring trust-building features in digital payment systems

Given that trust emerged as a critical factor in the continued use of cash, future research should investigate specific trust-building mechanisms that could be integrated into digital platforms. Research into features like personalised customer service or community-driven support channels within digital apps could enhance customer comfort with digital payments. Understanding how digital solutions can replicate the interpersonal and trust-

based qualities of cash transactions may be key to fostering broader digital adoption in township communities.

IV. **Examining the regulatory impact on payment choices in township economies**

The regulatory environment plays a significant role in shaping payment options available to township businesses. Future studies should focus on how specific regulations, such as transaction fee structures and compliance requirements, influence business decisions between cash and digital payments. Research that examines policy-driven barriers and enablers can provide valuable insights to policymakers and identify areas where regulatory adjustments could foster more inclusive financial practices.

V. **Employing mixed-methods approaches for comprehensive insights**

This study's qualitative design offered rich insights into township business practices, but the addition of quantitative data would further enhance understanding. Future studies should employ a mixed-methods approach to combine in-depth qualitative insights with quantitative measures, such as transaction frequency and digital platform usage statistics. Quantitative data would allow for a clearer understanding of patterns in payment behaviours and provide empirical support to supplement narrative findings.

These recommendations bridge the gap between cash and digital payments in township economies while addressing the unique socio-technical dynamics and trust-based relationships that characterise these communities. A collaborative approach between payment providers, policymakers, and business owners, supported by further research, holds the potential to enhance financial inclusion and promote sustainable economic growth in underserved communities

6.5 Contribution to Information Systems Research

This research contributes to Information systems research by studying how payment technologies are implemented, adapted and used in South African township socio-economic contexts. By analysing the dual use of cash and digital payments, the research expands Information Systems scholarship in underrepresented and underserved economic contexts.

This chapter is a view of how the research question was explored, how it was addressed, and how the findings contribute to Information Systems research. It highlights the study’s theoretical and practical contributions, demonstrating its relevance to advancing knowledge on technology use in diverse socio-technical and economic systems.

6.5.1 How the Research Question Contributes to Information Systems Research

I. Challenging the 'cash versus digital' dichotomy

The study critiques the binary perspective often present in IS research, which assumes digital payments will inevitably replace cash. By demonstrating the coexistence and complementarity of cash and digital payments, it advocates for hybrid solutions that respect local contexts, encouraging IS scholars to move beyond linear narratives of technological progress.

II. Positioning township businesses as key Information Systems stakeholders

The research positions township businesses as critical actors in IS systems, akin to informal financial intermediaries, whose practices shape and sustain the dual structures of cash and digital economies. This perspective underscores the value of integrating community-driven insights into Information Systems frameworks, enriching the field's understanding of grassroots innovation and its role in socio-technical systems.

III. Exploring contextual adaptability in technology use

The study highlights how technology adoption is influenced by contextual factors such as trust, cultural norms, and socio-economic conditions. For instance, findings revealed that cash fosters trust and community cohesion, attributes that digital payments are yet to replicate. This insight was particularly evident in township businesses where cash transactions are preferred for their immediacy and symbolic value, while digital payments are viewed as tools for efficiency and security. By showing how township businesses adapt digital tools to align with existing cash practices, the research emphasises the importance of localised and context-sensitive technology design in Information Systems.

6.5.2 How the Method of Analysis Contributes to Information Systems Research

I. Advancing socio-technical theory

By exploring how township businesses blend cash and digital payment systems, this research extends socio-technical theory to underserved contexts. It highlights the interplay between technology, social structures, and human agency, showcasing the adaptability of socio-technical systems in environments with infrastructural and social constraints.

II. Contributing to theoretical and practical knowledge

The application of the Structurational Model of Technology provides a strong theoretical lens for understanding the recursive relationship between technology and social practices. It advances empirical knowledge in Information Systems by demonstrating how hybrid financial systems operate in marginalised economies, offering a framework for studying similar socio-technical systems in other contexts.

III. **Expanding Information Systems research to underserved contexts**

The study broadens the geographical and cultural scope of Information Systems research by focusing on South African townships. It addresses the unique challenges and opportunities of technology use in informal economies, encouraging further exploration of underserved and marginalised settings.

6.5.3 How the Research Findings Contribute to Information Systems Research

I. **Informing the design of inclusive financial systems**

By identifying the dual role of cash and digital payments, the study provides actionable insights for IS practitioners and policymakers designing financial technologies for underserved economies. It highlights the importance of user-centred, context-aware design in financial inclusion initiatives, reinforcing the relevance of IS research to real-world challenges.

II. **Positioning township businesses as key Information Systems stakeholders**

The findings reveal how township businesses act as informal financial intermediaries, shaping and sustaining the coexistence of cash and digital economies. This insight enriches IS frameworks by demonstrating how community-driven practices influence hybrid financial systems.

III. **Highlighting contextual adaptability**

The study emphasises the socio-technical adaptability of township businesses, illustrating how they integrate digital payments while maintaining the functional and relational benefits of cash. This adaptability reflects the recursive nature of socio-technical systems, aligning with IS research's focus on the dynamic interplay between technology and social practices.

This research significantly contributes to Information Systems scholarship by enhancing the understanding of technology adoption in underserved contexts. It challenges the binary perspective of 'cash versus digital,' and highlights the importance of hybrid, context-sensitive payment solutions.

Through the application of the Structurational Model of Technology (Orlikowski, 1992), this research contributes to Information Systems scholarship by demonstrating the recursive relationship between technology and social structures, particularly in informal economic settings. It demonstrates how payment systems—both digital and cash-based—are co-constructed through socio-technical interactions, offering critical insights into the adaptability and contextual shaping of technology. By extending Information Systems research to underserved contexts, this study broadens the field's scope, encouraging further exploration of socio-technical adaptability in marginalised contexts. The findings and recommendations of this research reinforce the role of Information Systems research in fostering inclusive innovation in diverse economic environments.

6.6 Conclusion

The economic tapestry of township businesses—characterised by the early morning rush of workers and school children stopping at the nearest spaza shop for small, quick purchases—reflects a vibrant environment where the interplay between cash and digital payments goes beyond the simplistic idea of displacement or competition. Rather than a tug-of-war, it is better described as a symbiotic relationship—an integrative coexistence where both forms of payment supplement and complement each other. This harmonious interplay between physical cash and digital payments provides key insights into how township businesses navigate financial transactions, underscoring an adaptive approach to payment methods. The integrative approach to payment methods is not just a business strategy but a reflection of a deeper understanding of the socio-economic ecosystem in which township businesses operate. The choice of payment method embodies broader societal norms, customer habits, and the level of trust within the community. The data collected in this research shows that township businesses navigate the challenges of both payment methods by adopting a hybrid approach, blending the reliability of cash with the growing accessibility of digital options. This adaptability is crucial in a landscape where customer preferences, economic conditions, and technological infrastructure vary widely.

Policymakers, like the South African Reserve Bank, are implementing financial inclusion strategies, such as Vision 2025, by promoting digital payment solutions (South African Reserve Bank, 2024). However, the findings of this research challenge the conventional narratives about the displacement of cash in the digital era, offering a contextually rich and nuanced perspective on financial transactions in township economies. Township business owners view cash as a necessary component in the township socio-economic landscape. The FinMark Trust (2023) attributes the persistence of cash to the fact that 88% of South African adults use cash to buy food and groceries, even though the majority have access to digital payment methods.

These statistics and findings from this research indicate that while digital payments are becoming more integrated into South Africa's financial landscape, cash remains a key player, particularly in socio-economic environments where financial practices are deeply embedded in the informal sector.

The social practices, agency, and structural factors that influence payment methods in township businesses, analysed through Orlikowski's (1992) Structurational Model of Technology, reveal the coexistence of cash and digital payments as a complex, negotiated process that reflects broader socio-economic realities rather than a straightforward transition from one form of payment to another. By recognising the dual role of technology as both shaped by and shaping social structures (Orlikowski, 1992), the research has offered insights into how financial inclusion efforts can be more effectively tailored to the needs and practices of township businesses.

While cash may not undisputedly be king, it remains a vital component of the economic fabric in townships, coexisting with digital payments in a way that reflects the adaptability and resilience of these communities.

REFERENCES

Achord, S., Allayannis, G., Bethel, J., Chava, S., & Fernando, C. (2017). Cash holdings and financial crisis: Evidence from institutional ownership. *Review of Financial Studies, 30*(11), 3936–3971.

Ashworth, J., & Goodhart, C. A. E. (2020). The surprising recovery of currency usage. *International Journal of Central Banking, 16*(3), 239-277. https://ideas.repec.org/a/ijc/ijcjou/y2020q2a7.html

Badenhorst, C. (2007). *Research writing: Breaking the barriers (1st ed.).* Van Schaik eBooks.

Bátiz-Lazo, B., Haigh, T., & Stearns, D. L. (2018). How the future shaped the past: The case of the cashless society. *Enterprise & Society, 19*(4), 847–888.

Bech, M. L., Faruqui, U., Ougaard, F., & Picillo, C. (2018). Payments are a-changin' but cash still rules. *BIS Quarterly Review, March.*

Bijker, W. (1997). *Of bicycles, bakelites, and bulbs: toward a theory of sociotechnical change (1st ed.).* MIT Press. https://www.fulcrum.org/epubs/mp48sg460?locale=en#page=1

Bijker, W. E., & Law, J. (1992). Shaping technology/building society. *Bulletin of Science, Technology & Society, 14*(4), 240-241. https://doi.org/10.1177/027046769401400468

Blaxter, L., Hughes, C., & Tight, M. (2006). *How to research (3rd ed.).* Open University Press.

Bloor, D. (1976). *Knowledge and social imagery* (2nd ed.). Routledge & K. Paul.

Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development.* Sage Publications, Inc.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Bryman, A., Bell, E., Reck, J., & Fields, J. (2021). *Social research methods*. Oxford University Press.

Bvuma, S., & Marnewick, C. (2020). An information and communication technology adoption framework for small, medium and micro-enterprises operating in townships South Africa. *The Southern African Journal of Entrepreneurship and Small Business Management, 12*(1). https://doi.org/10.4102/sajesbm.v12i1.318

Bygstad, B., & Munkvold, B. E. (2011). Exploring the role of informants in interpretive case study research in IS. *Journal of Information Technology, 26*(1), 32–45. https://doi.org/https://doi.org/10.1057/jit.2010.15

Callon, M. (1984). Some elements of a sociology of translation: Domestication of the scallops and the fishermen of St Brieuc Bay. *The Sociological Review, 32*(1), 196–233. https://doi.org/https://doi.org/10.1111/j.1467-954X.1984.tb00113.x

Cassell, C., & Symon, G. (2004). *Essential guide to qualitative methods in organizational research.* SAGE Publications Ltd. https://doi.org/10.4135/9781446280119

Charman, A., & Petersen, L. (2015). *The layout of the township economy: the surprising spatial distribution of informal township enterprises.* https://api.semanticscholar.org/CorpusID:168063488

Chigada, J. M., & Hirschfelder, B. (2017). Mobile banking in South Africa: A review and directions for future research. *SA Journal of Information Management, 19*(1). https://doi.org/https://doi.org/10.4102/sajim.v19i1.789

Clynes, M. E., & Kline, N. S. (1990). Cyborgs and space. *Astronautics, 14*(9), 26–27.

Collins, H. (1985). *Changing order: Replication and induction in scientific practice, 51*(2). University of Chicago Press.

Creswell, J. W. (2008). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Sage Publications, Inc.

Dass, R., & Pal, S. (2011). A meta analysis on adoption of mobile financial services. *Indian Institute of Management Ahmedabad, 2*(0), 1–26. https://ideas.repec.org/p/iim/iimawp/9939.html

Elliot, R., Fischer, C. T., & Rennie, D. L. (1999). Evolving guidelines for publication of qualitative research studies in psychology and related fields. *British Journal of Clinical Psychology, 38*(3), 215–229. https://www.academia.edu/download/47300030/Evolving_guidelines_for_publication_of_q20160717-5943-15x4ccy.pdf

Finlay, L. (2002). "Outing" the researcher: The provenance, process, and practice of reflexivity. *Qualitative Health Research, 12*(4), 531–545. https://doi.org/10.1177/104973202129120052

FinMark Trust. (2023). *The state of the digital payments ecosystem in South African townships: A study conducted in Tembisa and Hammanskraal.* https://finmark.org.za/Publications/Community_Digitalisation_Pocket_Guide.pdf

Foucault, M. (1982). The subject and power. *Critical Inquiry, 8*(4), 777–795. https://doi.org/10.1086/448181

Geertz, C. (1978). The bazaar economy: Information and search in peasant marketing. *American Economic Association, 68*(2), 28–32.

Giddens, A. (1986). *The constitution of society: Outline of the theory of structuration* (1st ed.). University of California Press.

Giddens, A. (1990). *The consequences of modernity*. Stanford University Press.

Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology, 91*(3), 481–510. https://doi.org/10.1086/228311

Gwamanda, M. (2019). *Why do South Africans use stokvels and what are the barriers that prevent participation in the formal financial sector?* [University of Cape Town]. https://open.uct.ac.za/items/d46e581c-85f7-4c01-9b3c-5eadcf8681f4

Haraway, D. (1991). *Simians, cyborgs and women: The reinvention of nature* (1st ed.). Routledge. https://doi.org/https://doi.org/10.1007/978-1-4020-3803-7_4

Holmes, G. (2014). *The meaning of money and the digital money socio-technical network in a low income community in South Africa.* https://core.ac.uk/download/pdf/188772996.pdf

Holstein, J., & Gubrium, J. (1995). *The active interview.* SAGE Publications, Inc. https://doi.org/10.4135/9781412986120

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14–26. https://doi.org/10.3102/0013189X033007014

Jones, M. R., & Karsten, H. (2008). Giddens's structuration theory and information systems research. *MIS Quarterly: Management Information Systems, 32*(1), 127. https://www.jstor.org/stable/25148831

Kibuuka, P., & Tustin, D. (2019). The key triggers for the transitioning of informal SMMEs to formal SMMEs: A baseline survey of the Gauteng Province—South Africa. *Journal of Psychology Research, 9*(1). https://www.davidpublisher.com/Public/uploads/Contribute/5c878927af4b0.pdf

Klein, H. K., & Kleinman, D. L. (2002). The social construction of technology: Structural considerations. *Science Technology and Human Values, 27*(1). https://doi.org/https://doi.org/10.2307/249410

Klein, H. K., & Myers, M. D. (1999). A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS Quarterly, 23*(1), 67. https://doi.org/10.2307/249410

Knorr-Cetina, K. (1981). *The manufacture of knowledge: An essay on the constructivist and contextual nature of science*. Pergamon Press.

Kvale, S., & Brinkmann, S. (2008). *Interviews: Learning the craft of qualitative research interviewing* (2nd ed.). SAGE Publications, Inc.

Latour, B. (1983). *Give me a laboratory and I will raise the world.* http://www.bruno-latour.fr/sites/default/files/12-GIVE-ME-A-LAB-GB.pdf

Latour, B. (1984). The powers of association. *Sociological Review, 32*(1), 264–277. https://doi.org/https://doi.org/10.1111/j.1467-954X.1984.tb00115.x

Latour, B. (1990). Technology is society made durable. *The Sociological Review, 38*(1), 103–130. https://doi.org/https://doi.org/10.1111/j.1467-954X.1990.tb03350.x

Latour, B., & Woolgar, S. (1986). *Laboratory life: The construction of scientific facts* (2nd ed.). Princeton University Press.

Law, J. (1992). Notes on the theory of the actor-network: Ordering, strategy, and heterogeneity. *Systems Practice, 5*(4), 379–393. https://doi.org/10.1007/BF01059830

Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons, 61*(1), 35–46. https://doi.org/10.1016/j.bushor.2017.09.003

Leonardi, P. M. (2011). When flexible routines meet flexible technologies: Affordance, constraint, and the imbrication of human and material agencies. *MIS Quarterly, 35*(1), 147–167. https://doi.org/https://doi.org/10.2307/23043493

Ligthelm, A. (2012). The viability of informal micro businesses in South Africa: A longitudinal analysis (2007 to 2011). *African Journal of Business Management, 6*(46), 11416–11425.

Lincoln, Y. S., Guba, E. G., & Pilotta, J. J. (1985). Naturalistic inquiry. *International Journal of Intercultural Relations, 9*(4), 438–439. https://doi.org/10.1016/0147-1767(85)90062-8

Mason, J. (2017). *Qualitative researching* (3rd ed.). SAGE Publications, Inc.

Mbiti, J. S. (1990). *African religions & philosophy* (2nd ed.). Heinemann.

Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation* (4th ed.). Jossey-Bass.

Mkhize, T. (2024). The role of corporate social responsibility in SMEs in eThekwini Municipality in South Africa. *International Journal of Research in Business and Social Science, 13*(1), 427–437. https://doi.org/10.20525/ijrbs.v13i1.3070

Neuman, W. (2000). Social research methods: qualitative and quantitative approaches. *Teaching Sociology*, *30*(3). https://doi.org/10.2307/3211488

Neves, D., & Du Toit, A. (2012). Money and sociality in South Africa's informal economy. *Africa, 82*(1). https://doi.org/10.1017/S0001972011000763

Orlikowski, W. J. (1992). The duality of technology: Rethinking the concept of technology in organizations. *Organization Science, 3*(3). https://doi.org/10.1287/orsc.3.3.398

Orlikowski, W. J. (2000). Using technology and constituting structures: A practice lens for studying technology in organizations. *Organization Science, 11*(4). https://doi.org/10.1287/orsc.11.4.404.14600

Orlikowski, W. J. (2007). Sociomaterial practices: Exploring technology at work. *Organization Studies, 28*(9). https://doi.org/10.1177/0170840607081138

Orlikowski, W. J., & Baroudi, J. J. (1991). Studying information technology in organizations: Research approaches and assumptions. *Information Systems Research, 2*(1). https://doi.org/10.1287/isre.2.1.1

Orlikowski, W. J., & Gash, D. C. (1994). Technological frames: Making sense of information technology in organizations. *ACM Transactions on Information Systems, 12*(2). https://doi.org/10.1145/196734.196745

Orlikowski, W. J., & Iacono, C. S. (2001). Research commentary: Desperately seeking the "IT" in IT research - A call to theorizing the IT artifact. *Information Systems Research, 12*(2). https://doi.org/10.1287/isre.12.2.121.9700

Orlikowski, W. J., & Scott, S. V. (2008). Sociomateriality: Challenging the separation of technology, work and organization. The Academy of Management Annals, 2(1), 433–474. https://doi.org/10.1080/19416520802211644

Phiri, M. Z., Molotja, N., Makelane, H., Kupamupindi, T., & Ndinda, C. (2016). Inclusive innovation and inequality in South Africa: A case for transformative social policy. *Innovation and Development, 6*(1), 123–139. https://doi.org/10.1080/2157930X.2015.1047112

Pinch, T. J., & Bijker, W. E. (1984). The social construction of facts and artefacts: Or how the sociology of science and the sociology of technology might benefit each other. *Social Studies of Science, 14*(3). https://doi.org/10.1177/030631284014003004

Porteous, D., Sander, C., Leach, J., Arora, S., Ellis, K., & Matul, M. (2005). *The access frontier as an approach and tool in making markets work for the poor.* https://www.researchgate.net/publication/228646554_The_access_frontier_as_an_approach_and_tool_in_making_markets_work_for_the_poor

Punch, K. F. (2014). *Introduction to social research: Quantitative and qualitative approaches* (3rd ed.). SAGE Publications, Inc. https://us.sagepub.com/en-us/nam/introduction-to-social-research/book237782

Rogerson, C. (2018). *Local economic development in the changing world: The experience of Southern Africa.* Routledge.

Rogoff, K. S. (2016). *The curse of cash.* Princeton University Press. https://doi.org/10.1515/9781400883219

Rumney, E. (2021, June 18). Scale of cash economy in South African townships stuns FirstRand. *CNBC Africa.* https://www.cnbcafrica.com/2021/scale-of-cash-economy-in-south-african-townships-stuns-firstrand-2/

Sanders, E. B. N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *CoDesign, 4*(1), 5–18. https://doi.org/10.1080/15710880701875068

Seekings, J. (2022). Townships and economic marginalisation in South Africa: Informality and poverty in post-apartheid Cape Town. *African Studies Review, 65*(1), 55–79.

Segal, H. P., Postman, N., & Ross, A. (1993). Technopoly: The surrender of culture to technology. *The Journal of American History, 79*(4), 1695. https://doi.org/10.2307/2080364

Shaikh, A. A., & Karjaluoto, H. (2015). Mobile banking adoption: A literature review. *Telematics and Informatics, 32*(1), 129–142. https://doi.org/10.1016/J.TELE.2014.05.003

South African Reserve Bank. (2024). *Digital payments roadmap: Towards an inclusive, accessible, effective and sustainable digital payments South Africa.* https://www.resbank.co.za/en/home/publications/publication-detail-pages/media-releases/2024/The-SARB-releases-Roadmap-towards-inclusive-digital-payments

Spradley, J. P. (1979). *The ethnographic interview.* Holt, Rinehart and Winston. https://spada.uns.ac.id/pluginfile.php/262424/mod_resource/content/1/James%20P.%20Spradley%20-%20The%20Ethnographic%20Interview-Harcourt%2C%20Brace%2C%20Jovanovich%20%281979%29%20%281%29.pdf

Srouji, J. (2020). The role of cash in an increasingly digital world: Perspectives from emerging markets. *Journal of Financial Inclusion, 12*(3), 45–67.

Statistics South Africa. (2016). *Community survey 2016: Provinces at a glance.* Statistics South Africa.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3), 425. https://doi.org/10.2307/30036540

Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity.* Cambridge University Press. https://doi.org/10.1017/CBO9780511803932

Wiles, R., Crow, G., Charles, V., & Heath, S. (2007). Informed consent and the research process: Following rules or striking balances? *Sociological Research Online, 12*(2), 99–110. https://doi.org/10.5153/sro.1208

Willig, C. (2001). *Introducing qualitative research in psychology: Adventures in theory and methods* (1st ed.). Open University Press.

Winner, L. (2014). Technologies as forms of life. In R. L. Sandler (Ed.), *Ethics and emerging technologies* (pp. 67-83). Palgrave Macmillan. https://doi.org/10.1057/9781137349088_4

Zuboff, S. (1988). *In the age of the smart machine: The future of work and power* (Reprint). Basic Books.