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Exploring informal street traders' perceptions of digital banking in the City of Johannesburg Municipality

Loyiso Christopher Ngcongo

Supervisor: Dr Ayanda Magida

A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business

JOHANNESBURG

28 February 2025

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DECLARATION

I, Loyiso Christopher Ngcongo , declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Name: LOYISO CHRISTOPHER NGCONGO Signature: 

Signed at JOHANNESBURG……

On the ……28…….. day of ……FEBRUARY…… 2025

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Lastly, to my sister Aphelele, this research is dedicated to you. I hope that my journey serves as a source of inspiration, reminding you that no dream is too big to chase. May this work encourage you to never stop pursuing your aspirations, no matter how challenging the path may seem. I believe in you, and I am incredibly proud of all you are achieving and will continue to achieve.

This research is a small contribution to the ongoing conversation about socio-economic empowerment, financial inclusion, and the role of digital banking in transforming the lives of informal street traders. It is my hope that it will inspire further exploration and guide policy-making that fosters a more inclusive financial landscape for all.

ABSTRACT

This study explored informal street traders' perceptions of digital banking in the City of Johannesburg (CoJ) Municipality, with a focus on the diffusion of innovation (DOI) theory and associated perceptual theories, including self-perception, dissonance, beliefs and influence, and harmonisation theories. The research examines how informal traders perceive digital banking, their knowledge and attitudes toward its adoption, and the factors that shape their understanding of digital banking services. Specifically, the study investigates the DOI constructs such as awareness, persuasion, decision, implementation, and continuation, and their influence on the adoption of digital banking among informal traders. Additionally, the research explores how DOI characteristics—relative advantage, compatibility, complexity, trialability, and observability also influence informal street traders' perceptions and adoption of digital banking services. The study also considers how self-perception, dissonance, beliefs, and influence theories provide insight into the emotional and cognitive factors that drive or hinder adoption. Using a quantitative methodology, surveys were distributed to informal street traders within the CoJ key areas (Johannesburg CBD, SOWETO (Jabulani Mall), Randburg Taxi Rank, Midrand Taxi Rank, Lenasia, Sandton Taxi Rank, and Alexandra) with close-ended questions to collect measurable data. The findings revealed that all hypotheses were accepted, except for the third hypothesis, indicating a generally positive correlation between the DOI adoption process and traders' beliefs, self-perceptions, and harmonisation of digital banking. However, the adoption process was found to have a negative impact on dissonance factors. This research contributes to understanding the role of DOI and perceptual theories in digital banking adoption and suggests avenues for future studies in the context of informal traders in urban environments inundated with informal street traders.

KEY WORDS

Digital banking, Informal Street traders, Diffusion of innovation theory, Perceptions, Self-perception theory, Beliefs and influence, Harmonisation theory, Adoption process

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LIST OF ACRONYMS

CoJ – City of Johannesburg

COVID-19 – Corona Virus 2019

FSCA - Financial Sector Conduct Authority

FinTechs - Financial Technologies

GDP – Gross domestic product

TAM – Technology acceptance model

SPLEET - Social, political, legal, economic, environmental, and technological factors

CHAPTER 1. INTRODUCTION

This chapter introduces the research problem, the purpose of the study, the context of the study, the research questions, assumptions, and the relevancy of the study.

1.1 PURPOSE OF THE STUDY

This quantitative study examined the informal street traders' perceptions of digital banking in the City of Johannesburg (CoJ) municipality. Moreover, it examined the knowledge and attitudes of informal traders regarding the use of digital banking services and how they understand them.

1.2 CONTEXT OF THE STUDY

According to data, South Africa has the highest unemployment rate in Africa, (Saleh, 2022). As of March 2022, South Africa's unemployment rate was confirmed to be 34.5%, whilst youth unemployment for those aged between 15-24 years old was 63.9%, one of the highest in the world (Stats SA, 2022). It is said that poor education and lack of skills also influence the growth of unemployment in South Africa and as a result many of the unemployed citizens that are classified as "economically inactive" partake in what is called an "informal economy" (Burger & Fourie, 2019). The informal sector, including informal traders, are said to provide over 2.5 million jobs, and it is said that as of 2018, at least one person out of six people was employed in the informal sector, earning an income that provides for their families livelihoods (Fourie, 2018). Informal traders are defined as "survivalist self-employed individuals from the poorest layers of the population operating businesses in the informal sector that lack formal documentation and formality in terms of registration for income tax or VAT" (Vos, Vos, Nonjeke-Dlanjwa, Chauke, & Fakazi, 2018).

In the modern day, there is a plethora of banking institutions, payment methods, and FinTechs, yet over 23% of the population is said to be unbanked market with cash residuals estimated to be over twelve billion rands (R12 Billion) sitting outside the

banks, and banks have been struggling to integrate the unbanked market over the years due to fear of using technology, and the lack of trust for the banking systems by the unbanked market (Oxford Business Group, 2016). Kumar-Sharma (2022), Head of Advisory at In2IT Technologies, stated that “digital banking is key to reaching previously unbanked markets”. This could mean one thing: that the informal traders that are banked and unbanked could benefit from the digital banking services however it is their views on digital banking that must be understood, and whether they already benefiting from it while running their business and if so to what extent they are using digital banking services or benefiting from it.

The 2021 research compiled by the Financial Sector Conduct Authority (FSCA) reported that banking digital banking users pointed out that convenience, constant access, simple user journey, and save on banking fees were major benefits for them. Digital banking platforms downtime, bank security, digital illiteracy, and digital penetration rate, are major drawbacks of digital banking in South Africa (Mothibi & Rahulani, 2021).In 2017, 54% of South Africa's population owned a bank account, which meant that 46% was unbanked. However, a major increase of 55.56% grew the total banked population to 84% as of December 2021, and this change can be attributed to new entrants in the market, digital banks such as Tyme Bank, Discovery, and Bank Zero, etc. (Claasen, 2022). Furthermore, it is estimated that 40% of the banked market still transacts in cash, and this means that these are the individuals who do not make use of digital banking services (Claasen, 2022). The banked market growth is said to have been driven by a low-fee pricing strategy by the new entrants in the banking market (FIS, 2022). It is also said that in South Africa “53% of point-of-sale purchases are made in cash”, and this is across all trades whether formal or informal (Cash Matters, 2021).

With South Africa reportedly having one of the highest unemployment rates in Africa, 34.5% as of March 2022, it is not uncommon that that the unemployed citizens would venture into informal trading just to survive (Saleh, 2022). South Africa’s population was estimated to be around 60.40 million as of January 2022, and 68.2% of the population has access to the internet, with more than 37% of the population earning less than $3.20 a day (Kemp, 2022).

Mujinga, Eloff and Kroeze (2016) study on the perceptions of online banking users reported major benefits of online banking such as convenience, speed, time saving, ease of use, and accessibility, etc., and over 61% of the findings on the inhibitors of digital banking was security, and 8% on the issue of privacy. Digital banking has continued to grow over the years regardless of the security concerns that banks and bank users have (Mujinga, Eloff, & Kroeze, 2016). The outbreak of the global pandemic, COVID-19 influenced digital banking and as of November 2020, 42% of the banked market preferred to use digital banking, 42% using cellphone banking, 24% using mobile payments such as Zapper, Snapscan, QR payments, etc., 9% still preferring to visit the branch, and 10% on telephone banking. These influenced the net change of +37 points on both digital banking and cellphone banking, while visiting branches declined by -45 points (McKinsey, 2020). The increase of digital penetration over the years in South Africa may also have had a greater impact on the use of digital banking services. The illustration below shows the preferred ways of interacting with the banks by consumers within the South African Market as a whole.

It is said that the telecommunications industry has also influenced the use of digital banking, specifically cellphone banking (Dagada, 2013). The rise of cybercrimes such as phishing and many others, has driven a huge demand for cybersecurity skills both in government and in the financial services sector, and it is assumed that the lack of skills in digital security is due to poor education and inexperienced workforce and this is also a challenge rooted to not young people not gaining access to further training (Business Tech, 2022). In 2021, South Africa was reportedly having more than two hundred (200) FinTechs, established to drive financial inclusion of those that were previously excluded. However, the high costs of mobile data still negatively impact the adoption of FinTechs (van Niekerk & Phaladi, 2021). Banking consumers also do not trust digital banking due to fears of getting overcharged for transactions that they do online. Still, security is a major concern for them and these further influences digital apathy amongst the banking consumers (Mujinga, Eloff, & Kroeze, 2016).

Johannesburg is by far the largest city in South Africa and the second largest in Africa, also named the biggest and powerful commercial powerhouse of Africa (City of Johannesburg, 2022). (City of Johannesburg, 2022). As of 2021 City of Johannesburg was a home to a total population that exceeds 5.8 million, and about 50.6% of the

population live in poverty (City of Johannesburg, 2022). In 2021, 12% of the population worked in informal sector, whilst over 41% remained unemployed (Stats SA, 2021). High unemployment rate is the main reason for starting an informal business, which means that informal traders depended on the income they made from their trade to survive, and this accounts to more than 60%; this response is also referred to as; 'economic survival' (Stats SA, 2021). Informal traders, form a large part of the informal sector and some of these businesses employ many people around their communities with no social protection, benefits, no contracts and do not pay any tax because majority of them do not declare their earnings nor do they have a legal registered entity that allows them to operate (Masuku & Nzewi, 2021).

Most informal traders are women, who have not had adequate educational training, or skills to work in the formal sector, while foreign nationals run most informal trades. (Masuku & Nzewi, 2021). Johannesburg, as the largest city in South Africa, accounted for more than 30% of the informal trade within which most of it is run by street vendors (Meyer, 2015). According to Gamieldien and Van Niekerk (2017), informal trading "provided individuals with a sense of pride in being in charge of their own welfare, as well as in their legitimate contribution to the economic growth of their families and communities". (Gamieldien & Van Niekerk , 2017).

According to the World Bank (2022), South Africa is one of the most unequal countries in the world and this is largely influenced by; race, education, labour market, demographics, and the locations that people live in (urban and rural). This inequality worsens the economic and financial inclusion of marginalised groups (World Bank, 2022). Whilst Johannesburg has a plethora of informal traders, it is important to note that the majority of South Africans are not very fond of banks due to perceived high costs of banking, lack of trust when it comes to the banks motives and systems, prefer cash transactions as they do not trust cashless or digital transactions due to fears of being defrauded, and most of these informal traders do not meet the requirements of the banks when it comes to borrowing or opening an account hence it becomes very challenging to fulfil financial inclusion (World Economic Forum, 2017).

The informal traders and informal economy are said to be the sector which banks have overlooked for so many years, automatically excluding them from accessing basic

services offered by South Africa's traditional banks (Swira, 2021). South Africa over the last few years has seen new entrants in the market that digitally disrupted the traditional banks to steer digital transformation, these new entrants include Discovery Bank, Bank Zero, and Tymebank and they operate like FinTechs to reach the unbanked market (Money Today South Africa, 2021). With high internet penetration in South Africa, it is evident that most bank customers are digitally savvy, and traditional banks are geared towards providing their customers with omnichannel experience, and they are also using big data analytics to study consumer behaviour to segment, drive personalisation, and provide seamless client experience (Engineering News, 2022). It said that digital banking has benefits and drawbacks within South Africa, and the benefits include according to Mothibi and Rahulani (2021, 9) "*simplified customer journey, convenience, and constant access, and lower bank fees*", the drawbacks that hinder the adoption of digital banking "*downtime or operational stability, security issues, and technological illiteracy".*

Banks in South Africa are focused at giving their customers the best digital experience, the have focused on digitising customer experience, products and services, operations, and technology, as well as the digital transformation within the organisation (Mothibi & Rahulani, 2021). Furthermore, Mothibi and Rahulani (2021) stated that for banks to increase digital banking adoption, they need to improve "digital literacy and consumer education, data protection and privacy, cybersecurity and digital identity, data ethics, partnerships and third-party risk, and digital operations risk". Given that most informal street traders deal with cash only, it can be assumed that they do not use digital banking services (Claasen, 2022).

1.3 RESEARCH PROBLEM

As of 2013, South Africa had over one million informal traders and that the informal sector has direct connections with the formal sector, yet they remain unregulated (Ndabeni & Maharajh, 2013). In March 2022, the City of Johannesburg signed the informal trading policy into effect and emphasised that all informal traders need a permit to trade to ensure that the informal traders concerned get allocated a trading stall (City of Johannesburg, 2022). Most informal traders in South Africa have started

their informal trade business with their savings, borrowed money from friends and families, and microfinance, but very little on the banks (Mothobi, Gillwald, & Aguera, 2020). Furthermore, Mothobi et al. (2020) stated that “financial exclusion is acute when it comes to informal traders, and access to formal financial services by the informal sector is hampered by lack of credit history or bad credit history by the owner, inadequate collateral, a lack of skills and the knowledge to produce financial statements, and poor business models and plans”.

South African informal traders make use of a bank account to 53%, meaning that 47% is unbanked or have a bank account but choose to keep their own money and trade only in cash (Mothibi & Rahulani, 2021). In 2021, First National Bank came up with the plan to drive financial inclusion for informal traders by launching Android Speedpoint devices to digitalise the payments in the sector following innovations by FinTechs that have started to digitalise financial transactions between business owners and their customers (Buthelezi, 2021).

Digital banking and digital payment solutions could bring financial inclusion of marginalised populations, especially informal traders who often struggle to trade when their customers do not have cash at hand (Monzon, 2022). South African banks offer a wide variety of digital banking solutions to process payments for different customers with different needs, and some include payment devices which traders must buy. this is often costly, and trust in the banks is still a rampant issue for digital skills (Mothibi & Rahulani, 2021). The main problem of the study is to understand informal street traders’ perceptions of digital banking in the city of Johannesburg municipality.

1.4 RESEARCH QUESTIONS

Research questions were designed to answer the research hypotheses, and to also contribute to existing knowledge which will help fill the gap in literature on informal traders, digital banking, as financial inclusion since few studies focus on how socio-economic factors influence the informal street traders’ perceptions of digital banking within the City of Johannesburg. The research study adds dept to the body of knowledge on financial inclusion for marginalised groups working in informal sector.

Furthermore, the research questions aim to gain and provide insight into the practical implementation for transformation for policy makers, banking institutions, and FinTech institutions on the challenges and opportunities when it comes to integrating informal street traders in the digital economy. The research questions were also intended to contribute to policy making for the municipalities as well as the government development structures so they can understand how they can provide support to informal street traders regarding their digital skills.

The research questions below align with the research problem and context, see below questions:

a) Which diffusion of innovation constructs (awareness, persuasion, decision, implementation, and continuation) influence the adoption of digital banking amongst informal street traders within the City of Johannesburg Municipality?

b) Which characteristics of diffusion of innovation theory (relative advantage, compatibility, complexity, trialability, and observability) influence digital banking adoption and perceptions amongst informal street traders within the City of Johannesburg Municipality?

These research questions uncovered reasons for adoption or no adoption for digital banking amongst the inform street traders

1.5 SIGNIFICANCE OF THE STUDY

This study aimed to explore informal street traders' perceptions of digital banking. Many scholars have published research studies on the informal economy, digital banking, street traders, the unbanked market, financial inclusion, digital transformation, and many more about this research study. However, there is a gap in the literature in understanding the perceptions of digital banking for informal traders and how they process payments other than cash. Therefore, this study will contribute and add to the body of knowledge that many scholars have published.

As stated in the research problem of South Africa's informal traders make use of a bank account to 53%, meaning that 47% are unbanked or have a bank account but choose to keep their own money and trade only in cash (Mothibi & Rahulani, 2021). This challenges economic growth, banks, and government (Business Tech, 2022). Furthermore, this study will help define the views of the street traders on digital banking, detail their understanding of digital banking and its benefits, and profile informal street traders accordingly to give insights which could be beneficial to the government development structures set to tackle financial exclusion and drive financial inclusion for all. Lastly, also the research findings of the study will be beneficial to digital technology providers, the financial services industry, FinTechs, and the municipalities that have a huge number of street vendors especially the City of Johannesburg and in the South African context.

1.7 DELIMITATIONS OF THE STUDY

The City of Johannesburg municipality population is made up of all racial demographics of South Africa. However, based on the research studies on informal street trading, it is estimated that over 90% of street traders in South Africa are predominantly black, some poor, unemployed and lack formal skills to work in the formal sector (Masuku & Nzewi, 2021).

1.8 DEFINITION OF TERMS

- **Banked Market –** is referred to as either a financial or a demographic market that has access to financial services such as a banking account, credit cards, banking loans, savings and investment accounts (González & Díaz, 2018).

- **Digital bank –** is the bank that renders all banking services that can be accessed on banking branches fully online via the internet or mobile applications instead of physical branches (Vives, 2022).

- **Digital banking –** is the kind of banking that relies on digital technologies such as the internet or mobile applications to render banking services to banking customers (Lee & Lee, 2022).

- **Digital illiteracy-** refers to people's inability to use digital technologies and tools to look for, create, and assess information (Martin, 2021).

- **Digital literacy –** is used to refer to people's ability to using digital technologies and tools to look for, create, and assess information (Martin, 2021).

- **Financial exclusion –** is a social construct that refers to the exclusion of marginalised individuals (e.g. low-income earners, rural and unemployed populations, and minorities etc.) who by their socio-economic status face financial challenges that limits their access to financial services but also worsen their social well-being and financial security (Rhyne & Otero, 2020).

- **Financial inclusion –** is the term that refers to businesses and individuals (no-matter their socio-economic status or background) having access to financial services that meet their needs, and this helps to alleviate poverty and promote financial prosperity for all (Rhyne, 2017).

- **Formal sector –** refers to formal businesses or industries that are recognised and accepted by the government, and they run under official laws and regulations (Schneider, Buehn, & Montenegro, 2010).

- **Informal economy –** refers to businesses that are not regulated or protected by the government and are often made up of individual business owners such as street vendors and unregistered businesses (Chen, 2018).

- **Informal street traders –** often referred to as "street vendors", are group of individuals who sell small volumes of products and services without formal registration or abiding to local laws and regulations, and they do not pay tax and are not registered with the state (Huchzermeyer & Karam, 2020).

- **Microfinance –** is defined as a form of financial lending to low-income business owners and earners who may be excluded from traditional credit and lending through the banks or any formal financial services structure (Ahmed, 2018).

1.9 REPORT STRUCTURE

Chapter 1 introduced the research problem for the research study in question. In addition, context of the research problem, sub-problems, research objectives, significance, and assumptions of the research study are discussed.

In **Chapter 2**, the researcher explores and presents existing literature and theoretical frameworks, approaches, and models related to the research problem and the study's objectives.

Chapter 3 focuses on the research methodology and details the methods for data collection, research design, sampling procedure, limitations, data analysis and interpretation techniques, validity, and reliability, as well as the ethical considerations for this research study.

Chapter 4 focuses on data analysis on the research findings of the data collection methods used in the study.

Chapter 5 provides a conclusion by summarising the research study and its findings and providing recommendations.

Chapter 6 provides recommendations and conclusion

CHAPTER 2. LITERATURE REVIEW

2.1 INTRODUCTION

This chapter presents a literature review which discusses the role of informal street traders in the informal economy and how digital technologies might influence their perceptions of digital banking and technology adoption. The theories of perceptions, technology adoption, digital banking, technology adoption, informal economy, and the informal traders' needs and challenges are examined to develop the research model for this research study.

2.2 UNDERSTRANDING INFORMAL TRADERS

Even though many informal street traders are faced with challenges, it is important to note that they give social and security net for millions in South Africa, especially for those who are unemployed or lack formal skills to take part in the formal economy (Willemse, 2011). Ukukhula Business Solutions (2003p. 4) defines informal street trading as “the economic activity undertaken by entrepreneurs who sell legal goods and services within a space deemed public property, within the informal sector”. The informal sector in South Africa provides over 2.5 million jobs in the economy and drives the informal economy, and this is not limited to informal street trading (Fourie, 2018). The rise of informal street trading is owed to the rising cost of living and unemployment rate within the economy (Stats SA, 2021).

Informal trading is mostly unregulated, and knowing how much exactly the informal traders make from trade cannot be ascertained since most of them do not participate in financing and trading takes place in the form of cash, making it easy for financial criminal activities such as money laundering and tax evasion to take place (Abid, 2017). In providing employment, the informal traders may sometimes not be aware of the backgrounds of people they hire, including their criminal backgrounds therefore making them vulnerable to criminal activities and to other factors such as being targeted by organised crime syndicates (Willemse, 2011).

Abid (2019, p624) stated that “to avoid leaving traces of their transactions, people engaged in informal trade activities use mainly cash.” This supports the evidence of financial crimes argued by Willemse (2011) regarding tax evasion and money laundering.

According to Willemse (2011, p8), “informal street traders also rely on opportunities of collective bargaining, and cases exist where informal street traders used collective action and tax evasion as bargaining tools and if taxes were to be paid guaranteed services can be demanded from the government by the informal traders”. As of 2018, more than two billion of the working population around the world worked in the informal economy, with over 85% of Africa’s population, over 68% in Asia, and over 68% in the Middle East, around 40% of North and South America, and 25% of Europe’s populations working in the informal economy across different sectors whereby there are poor working conditions and the lack of social protection, and this may result to low productivity levels, (ILO, 2018).

In 2018, South Africa had over 2.8 million South Africans working in the informal sector, with over 40% reportedly being involved in the informal trade, and it is for this reason that the government factored in the informal sector in the 2030 National Development Plan also to give the informal traders a room to grow and develop themselves to become sustainable and support economy development and job creation (SALGA, 2018). As of 2018, 69% of informal traders within the City of Johannesburg did not belong to any trade union, whilst the rest did (ILO, 2018).

In a study by Muwanga-Zake (2018) for public policy examining perceptions of informal traders on tax. Many of the informal traders are unbanked, and if they are to be formalised, start paying taxes and become regulated, the state would be able to collect taxes from them (Muwanga-Zake, 2018). To tackle the issue of formality of the informal street traders, in some countries around the world, governments have relied on collective bargaining, such as working with trade unions to ensure fair trading, better working conditions and social protection rights for those involved in the informal trading (Abid, 2017).

It is known that South Africa is faced with development challenges. Amongst other things, it is believed to drive a rising rate of unemployment in the country, therefore leaving room for those who are unemployed to start an unregulated informal trade business, mostly in the urban areas of the country (SALGA, 2018). Poor education is also said to be one of the key drivers for the rising number of informal traders around the world, most of the people involved on the informal trader do not have secondary or tertiary education, and more than 60% originate from rural areas and come to urban areas in search of a better life (ILO, 2018). Research studies show that those with no education have a high propensity to engage in informal economy activities and that the higher the level of education is, the lesser the number of informal economy involvement, and Africa has one of the highest share of people working in the informal economy (OECD, 2024).

The education issue in the informal sector is mostly argued and reported by scholars. A high number of informal street traders have no secondary or tertiary education, and this is the fact across South Africa, as opposed to an estimate averaging one-third (33.33%) of street traders having secondary education and no tertiary graduates have been found in the informal trade sector (Willemse, 2011). ILO (2018) reported that lack of education and poor education levels drive the rate through which the number of informal traders is growing, and this increases informality. Therefore, with low levels of education, there is high probability of increased informality, and high levels of education could see a decrease in informality (ILO, 2018).

2.2.1 *Informal street traders' challenges in South African Metros*

Like every business, informal traders have their challenges that they face daily, and it is also said that in the digital era some of these business challenges can also be seen as opportunities for growth (Bangsawan, et al., 2020). A study by Willemse (2011) investigating opportunities and challenges for informal traders in South Africa's four major metropolitan cities; Johannesburg, Cape Town, eThekwini, and Tshwane stated several challenges that are faced with informal traders. According to Willemse (2011p,13), these challenges include "*poor cash-flow, maintaining stock levels, competition, unavailability of transport, lack of support and funding for startup and expansion costs for the business, insufficient structure or shelter, insufficient*

infrastructure such as water and waste bins, insufficient service from suppliers, business location, and many others". Amongst other interventions to solve these challenges, new opportunities such as providing financial aid, improving structures of trade structures, competitive pricing and improving security would greatly benefit informal traders (Willemse, 2011).

Willemse (2011:11) stated that "47.4% of the informal street traders did not use either formal banking facilities or informal sources." This finding gives insight into the study and will also be used to investigate the percentage of informal street traders who have a bank account in 2022. The illustration below in Figure 3 from Willemse's (2011) study depicts the average cost of starting an informal trade between four major metros targeted within the research study.

As of 2011, 53% of the informal trade businesses were started with capital of less than five hundred rands (R500) across the four metros, and out of these, over 60% of the informal trades in Johannesburg were also started with capital less than R500 as it is estimated that then, 47% of them informal traders did not have a bank account whereas over 50% of Johannesburg informal street traders were said to be unbanked. If 47% of the informal street traders remain unbanked this would mean out of every hundred informal street traders making R84000 a month, there is about R3.9 million in Johannesburg that is circulating in the hands of informal traders, and this is way more considering other income levels from other informal street traders even outside of Johannesburg. Countrywide, resulting in losses in tax revenue or a registered number of businesses that have a high potential of growing only if their funds were registered. Willemse (2011:11) reported that the percentage of informal traders who serviced more than 20 customers a day in Johannesburg exceeded 40% with Tshwane being the highest at more than 48%.

Zogli, Dladla, and Dlamini (2021:412) stated, "lack of business space for trading and storage, lack of funding to expand business, poor hygiene and the lack of ablution facilities for traders as well as municipal harassment were the major constraints of the informal operators". Furthermore, it is also stated that access to financial services is almost non-existed for informal traders, and financial services organisations pose barriers to accessing funding for these traders as they require assets as collateral and informal traders reported that growing their trade requires lots of funding which they

struggle with because they are not legally recognised entrepreneurs or business owners by the financial institution or the state (Zogli, Dladla, & Dlamini, 2021). What this means is that if the high percentage is unbanked, there would be high chance of these informal traders not aware of digital banking channels and services available in the market, and those that are aware fearing to spend more money in bank fees and lack trust for banking systems. Informal street traders are the key drivers of the informal economy (Stats SA, 2021).

It is important that the government sees the value of informal traders, or the informal economy brings to the economy, and therefore blends them into the economic development plans and continue to support innovations in this sector especially those aimed at bridging the gap between the formal and the informal economy (SAITA, 2022). In addition to informal traders' challenges, the skills to run a business, permanent trading spots, crime, transportation services, business support and training, and access to capital are inhibitors to growth (Sovendle, 2019).

2.3 DIGITAL IN THE INFORMAL ECONOMY

Digital in the informal economy means using a plethora of digital technologies to come up with digital platforms, digital marketplaces, access to digital financial services, e-commerce, and digital payment systems, but the informal economy market has fears pertaining to loss of trade, loss of customer base, digital security and safety, and lack of digital skills continue to inhibit the adoption of digital in the sector (UNDP Accelerator Labs, 2022). In South Africa and other 15 countries across Africa, they continue to digitise operations such as logistics and transportation for informal traders and some small enterprises, retailing of goods, mobile learning, communication, and connection, but accessibility is only to those with internet usage and digital skills which may vary from one trader to another affecting adoption and usage (Theko, 2022).

G20 (2018:10) report detailed that in the informal trading sector, technology companies and financial services institutions must look at opportunities to develop inclusive digital payment infrastructures, give incentives to merchants for payment acceptance of digital payments, and provision incentives for consumers, and support

cross-border payments and transactions in the digital economy. Additionally, G20 (2018:9) reported that digitalisation of the informal economy can offer "*unprecedented opportunity to address eligibility and affordability barriers to formal financial inclusion faced by informal individuals and firms. Digitisation can facilitate identity verification, promote digital payments, improve the information environment, and financial consumer protection and financial literacy*".

Researchers have argued that digitalisation of the informal economy sector can lead to new revenue streams and aid in driving quality employment within the sector, and assuming that informal street traders, also known as "*survivalist entrepreneurs"* do not make use of or have limited access to new technologies and this is exacerbated by their eagerness to have a stable income and refrain from perceived unnecessary expenditures that come with digital, and social issues and background also determine their chances of using digital technologies, key to their to their businesses (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH, 2020).

2.4 UNDERSTANDING DIGITAL BANKING

Digital banking synonymous to "*online banking",* is the combination of both online and mobile banking which allow banking customers to navigate and tackle their banking needs 24/7 without the need to leave their homes or have physical contact with traditional banking branches. Digital banking provides accessibility and convenience to banking customers (Napoletano & Foreman, 2021). In addition to using digital technologies, digital banking requires a solid infrastructure, governance, investments and technical resources or skills internally and externally, and customer touchpoints or channels to be factored into the strategy to build or enhance digital banking for banking customers (Skinner, 2014).

Digital banking requires access to internet technology**,** and as of 2020, South Africa was estimated to have over 41% of informal street traders who make use of online banking with 72% having access to email, and 69% using digital means to look for information online, and this is due to the growing mobile penetration in South Africa (Mothobi, Gillwald, & Aguera, 2020).

Mothobi, Gillwald, and Aguera (2020:15) stated that 93% of the informal traders in South Africa owned a mobile device, and 9% did not use the internet because they did not know how to use whilst 57% stated they have no need for it, and 24% said it was too expensive. Furthermore, 47% of informal sector business owners were said to not have access to formal banking which means they couldn't make use of digital banking services, those who made use of their personal bank account for their informal trade accounted for 29%, and 24% had a dedicated account which they used to deposit funds for their businesses **(Mothobi, Gillwald, & Aguera, 2020)**.

Digital banking models are different to traditional banking models and are non-lean able to disrupt the entire banking value chain by using big data analytics to draw prescriptive and descriptive analytics for better lending decisions and bundling value propositions to eligible credit clients (Bayel & McIntyre, 2021).

2.4.1 Digital banking architecture

Digital banking infrastructure has both internal and external drivers as outlined below in **Figure 2.5.1-1**, the internal drivers comprise of cost reduction on the information technology and other technologies including platforms, simplified information technology and big data, risk management such as cybersecurity and other risk technologies as stipulated by the regulators; whilst the external drivers are regulators, differentiation in services, channels and customer experience (Capgemini, 2015).



Figure 2-1 : Key success factors for digital banking architecture (Capgemini, 2015).

2.4.2 Challenges for digital banking

Banking customers do not trust digital banking due to fears of getting overcharged for transactions that they do online, but security is a major concern for them and these further influences digital apathy amongst the banking consumers (Mujinga, Eloff, & Kroeze, 2016). Furthermore, Mothibi and Rahulani (2021:19) stated that for banks to increase digital banking adoption they would need to improve "*digital literacy and consumer education, data protection and privacy, cybersecurity and digital identity, data ethics, partnerships and third-party risk, and digital operations risk*" as these are major blockers of digital banking adoption. Consumer education is also one of the biggest challenges for banks when it comes to digital banking because of the language barriers and lack of digital skills in the informal economy (Claasen, 2022).

2.4.3 Digital banking channels

Digital banking channels provide banking clients with a self-service capability to manage their day-to-day banking needs, receive and facilitate payments, and process and send payments to unbanked individuals to collect cash at retail stores (Absa CIB, 2022). Digital banking channels can be classified as either internet or mobile banking, channels and therefore it very important to have best user experience design (UX) and integrating all technologies that would maximise customer experience and make clients fall in love with the brand and stay loyal (Bayel & McIntyre, 2021). Digital banking channels are also referred to as online transaction channels for payable and receivables and relies on the integration of digital technologies capture client value and deliver value 24/7 to clients and has a capability of tracking all the important and valuable customer data (Standard Bank, 2022).

2.4.4 Internet Banking

Internet banking is used on computers or mobile devices that have access to the internet, and it is classified as a modern way of banking for individuals and all sizes of businesses all around the world to allow banking clients to process payments without having to go to the physical banking branch (Sonali, 2020). Internet banking aids banking clients with 24/7 access to the banking services they need, and therefore, computer networks and digital devices with the

capability of accessing the internet are used to provision almost 90% of banking services but security, data privacy and trust are very critical to the banking institutions, and therefore banks initiate their own username, password, and verification policies (Mujinga, Eloff, & Kroeze, 2016). Banking services such as account opening, bill payments, funds transfer, bookkeeping, account administration, e-commerce (ordering banking products and OTT services), and bank documents can be accessed through internet banking by those with access (Sonali, 2020).

2.4.5 Mobile Banking

Mobile banking nowadays is the most common channels used to access and provision banking services, and it uses different digital technologies to collect data, and banking clients can access all banking services like internet banking allowing them to transact anywhere, anytime at the tip of their fingers (Sonali, 2020). Scholars have argued that mobile banking can foster and drive financial inclusion in the developing economies where most of the population is unbanked, and banking institutions can partner with telcos to create sustainable FinTech models and solutions (Hlongwane, 2018).

When designing mobile banking interfaces or any form of digital banking, banks need to consider customer behaviours and journeys, over technology and therefore prescribe technologies that is informed by insights derived from the data and research (Krishnan, 2014). According to Nicoletti (2014:28-30) "*mobile baking has social value, to drive financial inclusion to those that are unbanked, disabled, or those who lack mobility, and is cost effective*". Some of the available mobile banking services include e-wallets, USSDs, QR payments, and in wearable devices (Sonali, 2020). Mobile banking is a revolutionised provision of financial services and driving financial inclusion through means of technological innovations (Hlongwane, 2018).

2.4.6 Financial inclusion for the unbanked

World Bank (2022) listed financial inclusion as a driver for seven out of the seventeen strategic development goals and belied it would help alleviate poverty and promote

prosperity. Countries have their development plans strategies and to steer financial inclusion, part of the strategy requires that countries have their own strategy and policies in place for financial inclusion, have financial services products and technology companies for the financially excluded segments, foster and maintain solid financial consumer protections, track and monitor behavioural and capabilities, and provide financing of small micro-medium enterprises (SMMEs) as well as training on digital financial services (World Bank, 2022).

Financial inclusion is deemed as a global initiative through all countries must participate to fight against poverty and inequality (World Bank, 2022). Financial inclusion according to World Bank website (2022) "*is a critical enabler for poverty reduction and inclusive growth. Access to transaction accounts opens a pathway to broader financial inclusion, whereby people and firms can make financial transactions more efficiently and safely, access funds (whether payments, credit, savings, or other) invest in the future, and cope with economic shocks*". Digital banking and financial inclusion initiatives provide a wide range of opportunities that did not exist before emergence of technologies within the financial services sector (Kelly, 2020).

To drive financial inclusion for the unbanked, banks in South Africa provision mobile banking services which include e-wallets, USSDs, QR payments, and in wearable devices (Sonali, 2020). Mobile banking is a revolutionises provision of financial services and driving financial inclusion through means of technological innovations (Hlongwane, 2018).

FinTechs have been praised for driving financial inclusion for unbanked and underbanked markets (van Niekerk & Phaladi, 2021). According to Albastaki, Razzaque and Sarea (2020:303), FinTechs "*are a group of companies that use technology and innovations to make financial systems and the delivery of financial services more affordable and efficient*". Digital technologies can be used to prevent and manage risks that could potentially hold back financial inclusion, and such technologies comprise of machine learning, artificial intelligence, cybersecurity, and many more (Bazarbash , 2019).

2.5 THEORIES OF PERCEPTIONS

The study of perceptions has sparked debates in the field of psychology and many scholars have argued whether perceptions are fictional or part of reality (Evanoff, 2020). University of Central Florida website (2022) defined perception as "*way sensory information is organised, interpreted, and consciously experienced, is processed either bottom-up or top-down*". Scholars have studied perceptions and came up with different theories of perceptions, however for this study to come up with the conceptual framework, two theories of perceptions are reviewed below, and they are: *self-perception theory, and cognitive dissonance theory* (UK Essays, 2018) .

2.5.1 Self-perception theory

Self-perception theory concerns itself with studying the awareness of self, and how one's self-awareness might influence their attitudes, perceptions, and behaviours about phenomenon in question (The Decision Lab, 2022). UK Essays website (2018) postulated that self-perception theory deals with *"when individuals come to "know" or better understand their own attitudes, emotions, and other personal states mostly by concluding them from observing their own behaviour and/or the situations in which this behaviour occurs".*

When it comes to technology, research studies have reported that digital technologies have direct influence on the perception of self, and the key factors driving this stems from digital skills, background, beliefs, and competence, etcetera (Romero-Tena, Barragán-Sánchez, Llorente-Cejudo, & Palacios-Rodríguez, 2020). Furthermore, early childhood education, socio-economic status, digital skills transfer and training, can influence's one adoption of digital technologies and usage, and the key steps to boost one's skills and self-perception for digital that must be followed is through commitment of trainers, access to digital resources and technology, availability of digital pedagogies, reviews and feedback on training, promotion and empowerment and facilitation of digital (Romero-Tena, Barragán-Sánchez, Llorente-Cejudo, & Palacios-Rodríguez, 2020). Banks need to promote consumer education on digital products to ensure buy in and increase digital banking adoption because this has an impact on customer experience and touchpoints (Claasen, 2022). Socio-

demographics impact one's self-perceptions about digital technologies, usage, and competence (Romero-Tena, Barragán-Sánchez, Llorente-Cejudo, & Palacios-Rodríguez, 2020).

2.5.2 Cognitive dissonance theory

According to Morvan and O'Connor (2017, p10), cognitive-dissonance theory "*implies and points out that individuals strive towards consistency within themselves, and their attitudes and perceptions tend to exist in clusters that are internally consistent because human beings prefer consistency*". Individual's perceptions under this theory sometimes contradict each other especially if their perception of a phenomena feels uncomfortable (UK Essays, 2018).

Howard (2022) wrote on the Forbes website that cognitive dissonance theory and technology improvements can lead to diffusion of innovations, and the concept of innovation as a discipline is often greeted with scepticism in the marketplace. Perceptions of an individual come from experiences, and often the negative experiences overrule the positive experiences when it comes to influencing one's perceptions, hence the contradiction in their thoughts and opinions. Technological dissatisfaction and poor experience leads to dissonance and this can evoke individuals' emotions, which might lead to behavioural shift to whether accept or reject digital innovations and perceived wellbeing (see **Figure 2-2** for the illustration of disconfirmation outcomes).

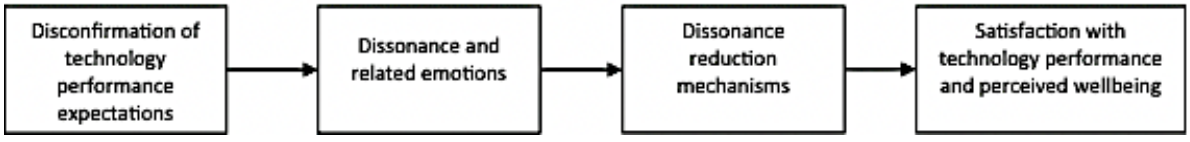


Figure 2-2: Cognitive-Dissonance conceptual framework of digital adoption (**Source:** Marikyan, Papagiannidis and Alamanos, 2020:5**)**

Cognitive dissonance theory asserts that, adoption of digital technologies is heavily influenced by satisfaction, meeting expectations or perceived benefits, emotions and thoughts, and experience, whereas if there are discrepancies and disconfirmations from technology this might lead to dissatisfaction, apathy and discontinuation of use

of digital technologies (Marikyan, Papagiannidis, & Alamanos, 2020). Satisfaction and positive sentiments about a phenomenon, is associated to harmonisation theory, because cognitive dissonance studies negative perception, and if digital technologies are in sync with one's expectations, beliefs, values, and so on, chances of adoption and usage are very high (Mawlawi , 2020). Furthermore, banking institutions adapt to environmental changes, and understand what is happening in the markets, banks must stay abreast of the SPLEET (*social, political, legal, economic, environmental, and technological)* factors and how these factors might have an influence on the adoption and introduction of new technologies in digital banking which might influence perceptions of their external environment (Mawlawi , 2020).

2.6 DIFFUSION OF INNOVATION THEORY OF DIGITAL BANKING

Besides digital banking being a disruption in the sector, over the years, there have been innovations in digital banking, including massive investments on IT capabilities and infrastructure, and recent developments have been the use of advanced digital technologies to analyse consumer behaviour, segmentation of customers, obtaining descriptive and prescriptive data and insights to base product and credit decision and cross-selling, strengthening security and risk management, and so on (Capgemini, 2015). Some of the key innovations noted on digital banking has been the use of big data to recommend bank products to customers, as well as the incorporation of machine learning, artificial intelligence with biometrics data with own modalities such as; "voice, fingerprints, face, retina, or iris of the eye, vein infrared thermogram, or a combination of these identifiers" as a point of security check when looking on digital apps making it harder for criminals to gain access, and enrolling bank cards on mobile devices to be used to pay wirelessly at a point of sale (Clear Bridge Mobile, 2019).

The diffusion of innovation theory concerns itself with the widespread of innovations in society, and social theorists and scientists use this theory to study societal socio-technical systems (Yasusa & Batres, 2012). Sirk (2020) stated that diffusion of innovation can influence adoption through a five step process names "*awareness, persuasion, decision, implementation, and continuation".* There are five beliefs through which innovation can influence how innovation can be adopted in society, and these beliefs comprise *relative advantage, compatibility, complexity, trialability, and*

observability (Nor, Pearson, & Ahmad, 2010). Innovation adoption is categorised into "*innovators, early adopters, early majority, late majority, and laggards"* (Sirk, 2020).

According to Nor, Pearson and Ahmad (2020, p69), following the rigorous process of diffusion of innovation on influencing the adoption of digital banking effect the intent and attitudes of digital banking within society. A research study by Mujinga, Elloff and Kroeze (2019, p4) stated that the perception of digital banking is associated with the benefits of perceived benefits of digital banking, which are "*convenience, speed, ease of use, saves time, accessibility, security, transaction availability, no bank queues, less charges, control of accounts, reliability and etcetera*". Nor Pearson and Ahmad (2020, p71) hypothesis signified that the beliefs of diffusion of innovation influence perceptions leading to the rate of adoption, see research model below from these scholars in **Figure 2-3.**

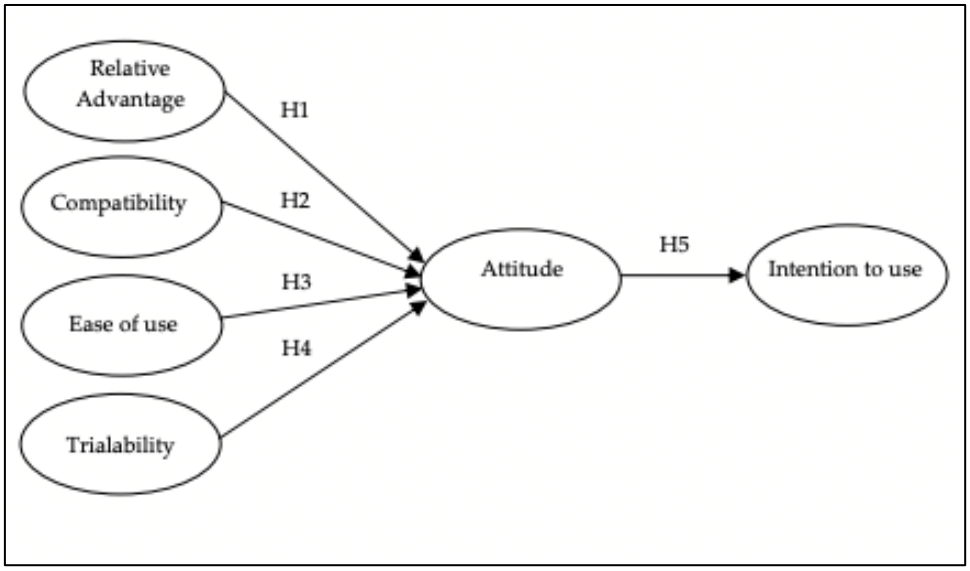


Figure 2-3: Diffusion of innovation of digital banking research model (**Source:** Nor, Pearson and Ahmad, 2020:71).

Rogers (2003:11) stated that diffusion of innovation has four elements namely "*the innovation, communication channels, time, a social system".* The diffusion of innovation theory is not only limited to study perceptions and adoption of innovation but can be used to drive and influence social construction and social change (Rogers, 2003). For the present study, this theory is most suitable to understand the perception

of digital banking within the informal economy, along with other theories, such as theories of informal economy, perception theories, and technology adoption model.

2.6.1 Digital banking adoption

Kaur, Ali, Hassan and Al-Emran (2021: 108) proposed a research framework which asserted that the digital skills of an individual perceived ease of use (user experience) influences digital banking adoption, whilst service quality and customer trust leads to trust in digital banking to influence digital banking adoption, as well as perceived usefulness (benefits) of digital banking. The framework signifies some of the literature review findings already discussed in this chapter, pertaining to skills, access, experience, trust, perceptions, and digital banking adoption.

It is up to the banking organisations to influence the adoption of digital banking and channels, providing seamless digital banking and omni-channel experience and constantly meeting changing needs of their customers whether it is for transactional, product application, informational, and advice purposes (Valenti & Alderman, 2021). Panno (2018) stated the increased adoption of digital banking can lead to banks acquiring and retaining more valuable clients over time, and that here is a high probability of customers taking up more than one banking product given that they feel that they can trust the bank and find it easy to transact with (Panno, 2016).

2.6.2 Digital banking perceptions

A study examining perceptions of digital banking in South Africa found that over 40% of internet users expressed feelings of safety and security with online banking, and a high proportions of internet users just over 60% expressed feelings of unsafety and vulnerability (Mujinga, Eloff, & Kroeze, 2016). Top seven perceived benefits, "*convenience, speed, easy to use, saves time, accessibility, secure, and transaction availability"* as dominant factors for digital banking adoption and usage, and these account for more than 80% amongst the internet users accessed in the study (Mujinga, Eloff, & Kroeze, 2016). Even though there are benefits it its worth that dissonant factors of digital banking outrank harmonisation of digital banking and

The research findings showed that over 60% of the dissonant factors was associated with security of digital banking, whilst 8% had to do with security concerns for internet users, and limited capability accounted for 6% (Mujinga, Eloff, & Kroeze, 2016). Furthermore, the lack of digital skills only accounted for 1% in the study, and this is since the target population of the study was mainly focused on the internet users (Mujinga, Eloff, & Kroeze, 2016).

At the time of the study no data could be found over the recent years looking at the South African banked, online, and digital banking population except for the one presented in **Figure 2.9-3,** from 2011 – 2015. Jenkin and Naude (2018:9) stated that "*approximately 25 million banked population between 2011-15, more than half (66%) had online access, of which 23% used digital banking*".

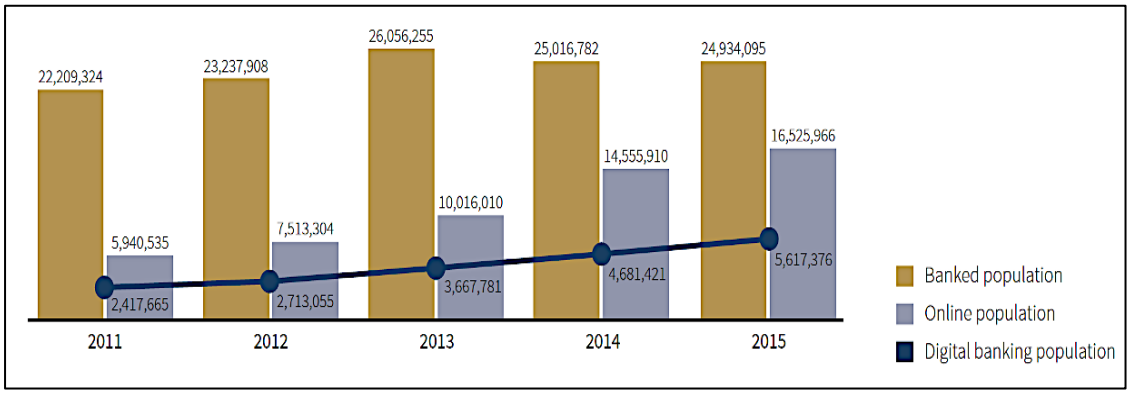


Figure 2-4: 2011-2015 of SA's banked, online, and digital banking population analysis (**Source:** Jenkin & Naude, 2018:

No literature was found looking at the informal economy or sector's perceptions of digital banking, however it can be assumed that since some of them used internet that they were part of the study. Technological disruptions are said to bring hope to the financial inclusion, and this is if barriers of digital transformation like access to accessibility, skills, and technology can be eliminated (Jenkin & Naude, 2018).

2.6.3 Hypotheses and research model

This section provides the hypotheses aimed at testing how different factors of diffusion of innovation theory such as process steps and beliefs influence the adoption of digital

banking, and how perception (self-perception, and dissonance theory) play part in the informal street traders' perceptions of digital banking within the City of Johannesburg. Two research questions were formulated for this study in **Chapter 1**, and the following hypotheses were also formulated:

- **Hypothesis 1**: adoption process positively influences the digital banking adoption beliefs amongst the informal street traders within the City of Johannesburg municipality.
- **Hypothesis 2**: Adoption process steps positively influence self-perceptions among informal street traders within the City of Johannesburg municipality.
- **Hypothesis 3**: Adoption process steps negatively impact the dissonance factors amongst the informal street traders within the City of Johannesburg municipality.
- **Hypothesis 4**: adoption process positively influences the harmonisation perceptions amongst the informal street traders within the City of Johannesburg municipality.

2.7 LITERATURE REVIEW CONCLUSION

There is a lot of literature on perceptions, digital banking, financial inclusion, and the informal economy. However, studies have not been conducted to examine and analyse the perceptions of digital banking, more specifically in the City of Johannesburg municipality. The literature review chapter discussed the theory of informal economy, digital banking, perception theories, the TAM model, and the research or conceptual framework.

The subsequent chapter, Research Methodology, focuses on the research methodology of the study and provides details on methods for data collection, research design, sampling procedure, limitations, data analysis and interpretation techniques, validity and reliability, and ethical considerations for this research study.

CHAPTER 3. RESEARCH METHODOLOGY

3.1 INTRODUCTION

The previous chapter looked at the literature review. This section introduces the methodology of the research study, which will be used to answer the research questions and validate or invalidate the hypotheses in Chapter 2. This chapter discusses the research approach, research design, data collection methods, population and sample, including population and sampling method, research instrument, procedure for data collection, data analysis and interpretation, limitations, validity and reliability, demographic profiles of respondents, and ethical considerations for the study.

3.2 RESEARCH APPROACH

The researcher had the autonomy of choosing the research approach suitable for the study, whether qualitative, quantitative, or mixed methods for the research study. This research study used a quantitative research approach to explore informal street traders' perceptions of digital banking in the City of Johannesburg municipality and describe the factors that drive those perceptions using the hypotheses and the research model proposed in **Chapter 2**, as well as classify the informal trader's level of informality according to the theories of informality, as well as theories of perceptions. Quantitative analysis and theories examined help the researcher to undertake a deep analysis from all data collected from the target population.

The explorative study was intended to preliminary explore the unidentified area of study by developing new research questions, ideas, and hypothetical assumptions and drawing speculative insights about the research problem (Stebbins , 2001). The researcher has assumed that over 50% of the informal street traders in the City of Johannesburg is unbanked and most, do not know what digital banking is and that those who know, do not trust the banks, and abstain from using banking systems because they fear banking charges, or detest paying these fees as they see no value in banking. As a result, the research believes that not using banking services, including

digital banking, they do not accept digital payments and facilitate strictly cash-only transactions on a day-to-day basis. The other assumption is that informal street traders lack of exposure of digital banking marketing, and banking products, and low levels of education are the key driver for financial exclusion and low confidence in banking, even though this may be the case they still face challenges such as gaining access to capital, procuring permanent space for their informal trade.

These assumptions are key to the study because they help us understand the key drivers of their perceptions of digital banking and why they chose to be informal instead of formalising their business. Sukamolson (2007, p2) defines the quantitative research approach as "*a type of research that is explaining phenomena by collecting data that are analysed using mathematically or numerical based methods and uses questions aimed at searching for quantities in something and to establish research numerically*". This study used predefined questions and broad statements derived from the research model and hypotheses. The findings of the study will either validate or invalidate the assumptions and hypotheses of the research problem.

3.3 RESEARCH DESIGN

Mouton and Marais (1988:33) exerted that "*research design aims to plan and structure a given research project in such a manner that the eventual validity of the research findings is maximised*". This research study adopted surveys as part of the research design to collect data, and predefined close-ended questions will be used whereby research findings will be used to quantify the research problem using measurable data that will also be qualitatively justified. The adoption survey research design aided the researcher in assessing the relationships of informality, diffusion of innovation (digital banking), and perceptions theories in a broader context, specifically for the City of Johannesburg informal traders' perceptions of digital banking.

Survey research design is a widely employed method in social sciences and beyond, valued for its ability to collect data efficiently from large and diverse populations (Du Plooy, 2009). Surveys offer researchers a structured approach to gathering

information on attitudes, beliefs, behaviours, and demographics using standardised questionnaires administered to participants (Babbie, 2016).

Furthermore, one of the primary benefits of survey research is its scalability, enabling researchers to reach a broad audience and generalise findings to larger populations. Surveys provide systematic means to gather empirical evidence that can inform decision-making and policy formulation (Babbie, 2016). Thus, survey research design remains a cornerstone of this research study due to its versatility, efficiency, and capacity to yield valuable insights into various components of informal street traders' perceptions of digital banking within the City of Johannesburg municipality.

3.4 DATA COLLECTION METHODS

Data was collected through a self-administered online survey shared via a link to informal street traders in the City of Johannesburg. According to Du Plooy (2009:169) a survey "*can be used for researching sampled population and is not limited by geographical boundaries using close ended questions to avoid bias, and large volumes of data can be gathered and segmented accordingly to uncover hidden variables of the study*". This method ensured the anonymity of the respondents and summed up findings into numerical data presented in the subsequent chapter.

Moreover, surveys helped collect quantitative data, allowing for statistical analysis and the identification of patterns and trends within the data sets. This research method helped in understanding informal street traders' perceptions of digital banking services and their preferences when it comes to making payments and receiving payments, understanding their demographics and motivations, and assessing digital banking effectiveness (acceptance and usage) within this market.

3.5 POPULATION AND SAMPLE

There are various populations that exist for researchers depending on the type of research, and research approach adopted by researchers, and these populations

consists of target and accessible population with own parameters which guide the sampling procedures for the research study (Du Plooy, 2009).

3.5.1 Population

This research study uses target population which findings will be aggregated and generalised on. Du Plooy (2009:56) The target population for this study comprised informal street traders operating within the City of Johannesburg (CoJ) Municipality. Informal street traders are defined as survivalist or dualists, self-employed individuals who sell goods or services in public spaces without formal registration or adherence to local tax regulations (Vos, Vos, Nonjeke-Dlanjwa, Chauke, & Fakazi, 2018). The CoJ is home to a significant number of informal traders, estimated to account for over 30% of South Africa's informal trade (Meyer, 2015). This population is diverse in terms of gender, age, income, education level, and origin (local vs. foreign nationals), making it critical to capture a broad cross-section to understand their perceptions of digital banking.

3.5.2 Sample and sampling method

When conducting research, researchers can choose between probability, non-probability, and quasi-probability methods. This study adopts probability sampling. Probability sampling methods, such as simple random sampling, stratified sampling, and cluster sampling, are highly considered in academic research for their methodological robustness and ability to ensure representative samples from larger population (Trochim & Donnelly, 2008). These methods provide researchers with a systematic approach to selecting participants, wherein each member of the population has a known and non-zero probability of being included, thereby minimising selection bias and enhancing the generalisability of study findings (Babbie, 2016).

In this research study, the stratified random sample was adopted. Stratified random sampling, specifically, divides the population into homogeneous subgroups or strata based on relevant characteristics (e.g., age, gender, income), ensuring proportional representation from each stratum in the sample (Du Plooy, 2009). This sampling

technique not only improves the precision of estimates by accounting for diversity within the population but also allows for meaningful comparisons between subgroups, thereby enriching the depth and validity of research outcomes. Probability sampling methods, including stratified random sampling, thus play a critical role in producing reliable and valid empirical evidence across various research disciplines.

While there are advantages to this sampling technique, it is important to note that this is not without limitations, and some of these limitations may include increased complexity and cost associated with implementation, especially in large-scale research studies requiring extensive resources and expertise (Neuman , 2014).

Therefore, since the sampling primarily revolves around their applicability and potential constraints in research contexts. One major delimitation for the study was the reliance on the accuracy of the population information and the feasibility of identifying and accessing all elements within the population. These delimitations required a careful consideration of the appropriateness of probability sampling methods based on study objectives, available resources, and the nature of the target population. The table below outlines the population of the research study sampled.

Table 3-1: Profile of respondents by location and gender

Location ***Of respondent' trade***	**Total Males**	**Total Females**	**Total Number to be sampled**
Johannesburg CBD	30	30	60
SOWETO (Jabulani Mall)	10	10	20
Randburg Taxi Rank	10	10	20
Midrand Taxi Rank	10	10	20
Lenasia	10	10	20
Sandton Taxi Rank	10	10	20
Alexandra	10	10	20
Total Sampled	90	90	180

Respondents were selected from seven key trading areas within the CoJ; Johannesburg CBD, SOWETO (Jabulani Mall), Randburg Taxi Rank, Midrand Taxi Rank, Lenasia, Sandton Taxi Rank, and Alexandra. These locations were purposively

chosen to reflect a variety of socio-economic contexts, trader demographics, and trading environments (e.g., urban commercial hubs, township settings, and transport nodes). The selection of multiple sites aimed to capture a diverse sample, as informal traders in different areas may have varying access to digital infrastructure, financial services, and exposure to digital banking.

The researcher approached traders directly at their trading stalls during operational hours, typically between 8:00 AM and 5:00 PM, to maximise participation. Traders were invited to participate if they met the inclusion criteria; (1) actively engaged in informal street trading (selling goods or services in public spaces), (2) operating within one of the selected CoJ locations, and (3) willing to complete the survey. To ensure clarity, the researcher explained the study's purpose and obtained verbal consent, as outlined in the ethical considerations in section 3.11. Surveys were administered electronically via a mini-tablet (iPad), with the researcher assisting respondents who faced difficulties due to language barriers or digital illiteracy.

A total of 191 respondents, informal street traders participated in the study. The sample size was determined based on the need for sufficient statistical power to conduct quantitative analyses, such as chi-square tests and regression, while remaining feasible within the study's scope**.**

3.6 THE RESEARCH INSTRUMENT

As already discussed, this research study adopted a quantitative research approach, and a questionnaire was selected as the most suitable research instrument for gathering all the research data.
The questionnaire comprises of five sections, see outline below:

a) **Demographics –** to segment the informal street traders using demographical parameters such as gender, geographical data, income and socio-economic status, employer status (to determine whether they have staff or not, etcetera.

b) **Nature of informal street traders & educational levels –** to understand whether the informal street traders according to informality perspectives are dualists, legalists, structuralists, or voluntarist. Also collect data about the respondent's educational levels in order determine the link between education and chances of starting an informal trade, as well as the investigate how education-levels correlate with the type of informality these traders fall under.

c) **Diffusion of innovation, digital banking adoption, and innovation categorisation -** this section attempts to find out respondent's level to the five step processes, and if the belies of innovations adoption influenced their adoption or rejection of digital banking from a "*relative advantage, compatibility, complexity, trialability, and observability".* Furthermore, the categorisation of innovation adoption according to five profiles is explored and will be determined from this section whether the informal street traders are "*innovators, early adopters, early majority, late majority, and laggards"* with specific reference to digital banking innovations.

d) **Perceptions and drivers of digital banking -** this section in the questionnaire will explore the self-perceptions, dissonant and harmonisation factors for digital banking using ambiguous statements with specific reference to the TAM model. Predefined statements will be used to aggregate the data from the population.

e) **Needs and challenges –** the respondents will be asked to provide select from the list of possible needs and challenges, and how they if at all mitigating these.

The questionnaire is presented in **Appendix A.** The shortcomings of this research instrument are that it might be lengthy and take too much time from the informal street traders to complete, and language berries is also anticipated.

3.7 PROCEDURE FOR DATA COLLECTION

The researcher will distribute the printed questionnaires to consenting respondents who have been sensitised of the purpose of the questionnaire and advise them of time. During the time of completing the questionnaire the researcher will be present to do

the translation or decipher any points not understood by the respondents in the questionnaire. Pencils will also be given to the available respondents. Once all the questionnaires have been filled out and given back to the researcher, the researcher will record all responses electronically before drawing the conclusions from the data collected at sampled locations and target population.

Sukamolson (2007) stated that questionnaires provide researchers with several advantages such as inexpensive and give respondents the ability to provide responses anonymously. It is important not that one of the key disadvantages is bias and may take time to gather all the responses.

3.8 DATA ANALYSIS AND INTERPRETATION

The analysis of the data collected in this study followed a systematic process to ensure accuracy, reliability, and validity. These research data college underwent collection and cleaning to provide descriptive analysis, correlation analysis, and regression analysis. The data provided insights into the perceptions of informal street traders that influence the adoption of digital banking within the City of Johannesburg. This section outlines the steps that will be taken to analyse the data and interpret the findings.

3.8.1 Data cleaning and preparation

Prior to conducting data analysis, data was cleaned and prepared to ensure that all data is accurate and has completeness by question. This involved looking into issues like missing values, the outliers, and inconsistencies in the research responses. Missing data was flagged and replaced with means while some missing responses were excluded. Then the data was organised to be ready for analysis.

3.8.2 Intepretation of findings

Once the data was completed, the findings were interpreted to find answers to research question to either validate and invalidate the research hypotheses and answer research questions presented in both **Chapter 1** and **Chapter 2.** All the data was interpreted as demographic insights for the informal street traders, perceptions of

digital banking, and factors driving the adoption of digital banking in the form of correlation and regression analysis, as well as the challenges faced by informal street traders for adopting digital banking.

3.8.3 Descriptive analysis

The descriptive statistics in this section summarise the adoption of digital banking, beliefs and influence, harmonisation, and dissonance variables. The descriptive analysis shows the distribution or frequency of responses, mean, standard deviations.

3.8.4 Cross-tabulation and Chi-square Test

To understand the relationship between two categorical variables, cross-tabulation was used to further explore how they interact to uncover patterns within subgroups in the sample. Further to this, Chi-square test is used to measure the statistical significance of the relationships between these variables, as well as to further evaluate whether the observed frequences differed significantly from the expected frequented based on the null hypotheses of no relationship between the variables. A significant result (p-value < 0.05) would suggest that a variable has an impact on the other variables compared with in the category.

3.8.5 Correlation analysis

Correlation analysis in the study was carried out to understand the relationships between variables (adoption, beliefs, and influence a self-perception, Dissonance, as well as harmonisation). The research employed a Pearson correlation coefficient to measure the strength and direction of the relationships between variables. The outcome of the correlation helped to determine informal street traders' perceptions, towards the adoption of digital banking.

3.8.6 Regression analysis

The regressions in the research are used to examine the influence of independent variables (beliefs and influence, self-perception, dissonance, and harmonisation) on

the dependent variable (adoption of digital banking). The regression analysis helped the researcher identify significant predictors of digital banking adoption as well as understanding which the independent variables strongly influence adoption or rejection of digital banking solutions amongst informal street traders. Regressions are outlined below, with R1 as a dependent variable, and R2, R3, R4, and R5 as independent variables.

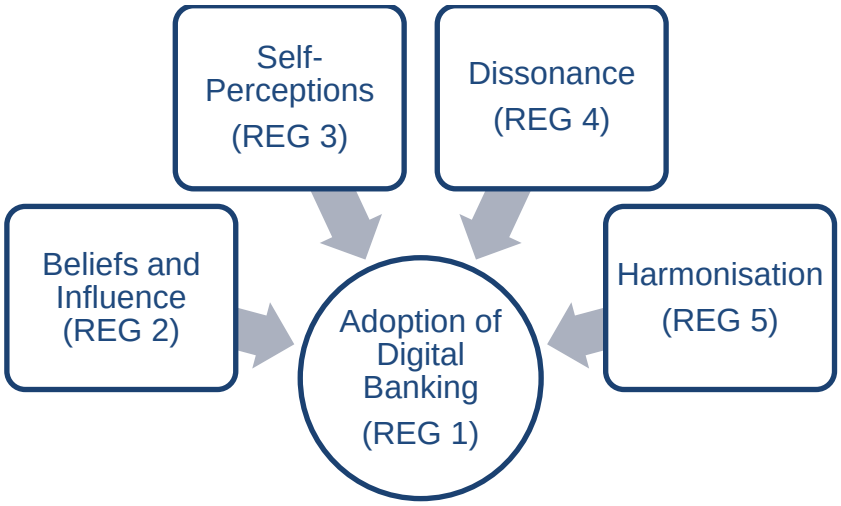


Figure 3-1: Regression and variables

3.9 LIMITATIONS OF THE STUDY

The study had quite a few limitations, such as sampling which was stratified random sampling which posed risks such as not accessing all elements within the population which could have led to the inaccuracies in the sampling frame. In addition to sampling limitations was population information accuracy and limited geographic scope. Another limitation was the data collection method, surveys were online and offered respondents anonymity but some street traders did not have access and lacked digital skills, faced language barriers, and response biases; to mitigate this limitation the research carried out the surveys in his own iPad and laptop in a form of questions and presenting predefined selection of responses and translating for those who might have not understood questions thoroughly.

Another key limitation to the study was the survey length, time and commitment which might have discouraged the respondents in completing the survey, and the complexity of questions, therefore these were considered to encourage full completion of the research and assistance was provided. Other limitations that were considered was the time to engage respondents, ethical considerations such as anonymity and getting consent and the researcher obtained the University ethical clearance, asked for permission from respondents as well as their time and gave a background and context of the study, and also guaranteed their anonymity.

3.10 INTERNAL VALIDITY, RELIABILITY, AND EXTERNAL VALIDITY

During the data analysis phase of the research study, various methodologies were employed, including confirmatory factor analysis (CFA), testing internal consistency reliability using Cronbach's Alpha across different variables, examining relationships between variables through Chi Square tests, and calculating means and standard deviations. This section addresses the internal validity, reliability, and external validity are dispersed in the research study.

3.10.1 Internal validity

Internal validity refers to how the research study measures the causal relationship between variables without interference from other factors (Shadish, Cook, & Campbell, 2002). Internal validity guarantees that variations in the dependent variable are attributable to the manipulation of the independent variable rather than to other variables or external influences (Campbell & Stanley, 1963).

Strategies employed in the research design, data collection method, and sampling techniques helped to enhance the study's internal validity, ensuring that the research findings accurately reflect the perceptions and attitudes of informal street traders within the City of Johannesburg Municipality towards digital banking.

In addition, internal validity of the research assessed whether the relationships between the informal street traders' perceptions, and digital banking adoption are truly causal or influenced each other. Hypotheses tested enhanced the internal of the study

by providing a client focus. Correlation and regressions helped to control for certain variables, making it simpler to access the strength and direction of relationships for both dependent and independent variables of the research. Data was cleaned and prepared to minimise errors and improve the integrity of the research findings.

3.10.2 Reliability

Reliability addresses research results' consistency, stability, and repeatability (Trochim & Donnelly, 2008). Reliability is concerned with making sure that the research findings are dependable and free from random error or variability, enhancing the credibility of the study outcomes (Trochim & Donnelly, 2008). High reliability suggests that the results are replicable and trustworthy, allowing researchers to draw valid conclusions and make meaningful interpretations from their research data (Trochim, 2006). Research data showing high reliability enhanced the reliability of the research study on informal street traders' perceptions of digital banking in Johannesburg, ensuring consistency and accuracy in the data collected and analysed.

The close-ended questions and the standardised procedures employed for data collection helped to endure consistency across responses, improving reliability on the findings. Also, the sample used produces reliable results to help with yielding more consistent and generalisable data in the research. The research instrument and potential biases in the study were considered as having potential to reduce reliability of the findings.

In this study, the researcher used coefficient alphas for each construct to measure the reliability of the research findings as an indicator of internal reliability, where applicable. Notably, this does not pertain to the EF measure, which serves as an index. The Cronbach alphas demonstrate acceptable levels, indicating sufficient reliability

3.10.3 External validity

External validity looks at the extent to which the findings of the research study can be generalised to other populations, settings, and times beyond the specific conditions under which the research was conducted (Campbell & Stanley, 1963). External validity

deals with the applicability and relevance of study results to real-world contexts and diverse groups, thus influencing the generalisability of findings beyond the sample studied (Shadish, Cook, & Campbell, 2002).

The methods employed through sampling and the data collection balance with the internal validity minimising selection bias and enhancing the generalisability of study findings. The sampling strategy, definition of the population, contextual information, transparency in the data collection, and other strategies helped to ensure consistency and replicate the study in different settings for generalisability. These can be applied beyond the study sample in future research. Although, factors such as geographic limitations, cultural context, and internet access were considered as limitations for external validity of the research study.

3.11 ETHICAL CONSIDERATIONS

The researcher ensured that ethical standards and requirements of the university were always adhered to before collecting the data and thereby:

- Obtaining permission from the respondents involved, introducing them to the survey, informing them about the research objectives, and emphasising that participation was voluntary. It was clarified that no personal or sensitive information would be collected, and participants would not receive compensation for their participation. The participation information sheet was read and explained to respondents before collecting the research data.
- Obtained ethical clearance from the Wits Business School (WBS) Post Graduate Committee (PGC) prior to collecting the research.

3.12 CONCLUSION

Chapter 3 outlined the research approach and design for studying informal street traders' perceptions of digital banking in the City of Johannesburg. A quantitative research approach was discussed, as well as data collection methods. Stratified random sampling was used to ensure a representative sample, and data analysis

techniques such as correlation and regression were discussed to test hypotheses. The chapter also addressed the various steps taken to ensure validity and reliability, as well as the ethical considerations followed throughout the study.

The subsequent chapter, **Chapter 4** focuses on the presentation of findings, where the results from the data analysis will be discussed in detail, highlighting key patterns, correlations, and insights related to the perceptions influencing the adoption of digital banking among informal street traders.

CHAPTER 4. PRESENTATION OF FINDINGS

4.1 INTRODUCTION

This chapter discusses different quantitative approaches that were applied to analyse the research findings to test the hypotheses of the research study. It also provides the demographic variables of respondents, their perception on digital banking, and their experience with digital banking. All the statistical results of the study are also presented to test the hypotheses of the current study.

4.2 RESPONDENTS PROFILE

The demographic profile indicated a balanced representation of both male and female respondents, with an equal split of 50% each, totalling 180 participants. This gender-balanced approach ensures that insights drawn from the study are representative and inclusive of perspectives from both men and women engaged in informal trading activities. Geographically, the study covered multiple locations within Johannesburg, reflecting the diverse trading environments where informal street traders operate.

The sampling strategy included significant hubs such as Johannesburg CBD, Soweto (Jabulani Mall), Randburg Taxi Rank, Midrand Taxi Rank, Lenasia, Sandton Taxi Rank, and Alexandra. Each location was selected to capture a range of perspectives and experiences related to digital banking adoption among street traders across different socio-economic contexts within the city. By targeting a diverse range of locations and ensuring gender balance and other demographical factors in the sample, the study aimed to provide a comprehensive understanding of how informal street traders perceive and engage with digital banking services. This approach enhances the external validity of the findings, allowing for broader generalisations and insights into the potential barriers and facilitators to digital financial inclusion in urban informal economies like Johannesburg. A sample of 27 questionnaires was prepared and tested on randomly selected informal street traders. A total of 191 respondents were interviewed and considered for further analysis. The respondents responded to all of the questions, even though some were reluctant to disclose some of the information they felt should only stay private to them.

4.2.1 Informal street traders' socio demographic information

Table 4.1 shows the socio-demographic profile of 191 informal street traders participating in the current study. Many of the respondents were males (51.83%) compared with females (42.93%), non-binary (4.71%), and those who preferred not to disclose their gender (0.52%). The most informal street traders (35.60%) were between 25-34 years old. Most traders (73.30%) had people who depended on them financially, while 1.05% of the traders chose not to disclose this information. While more than 5 employees employed 1.59% of the respondents, the highest number of the respondents (59.79%) were self-employed.

More than (28%) of the informal street generate up to Three Hundred and Fifty Rands (R350.00) or less, and the highest number (53%) of the informal street traders generate an income of up to Five Hundred Rands (R500.00) or less. The minority (<10%) of the informal street traders generate daily income exceeding Two Thousand Rands (>R2000.00) daily. Most of the informal street traders (96%) spend more than 5-7 days selling, and more than 75% of these informal street traders originate outside of the City of Johannesburg.

Table 4-1: Demography of informal street traders in Johannesburg municipality

Category	Items	Frequency (n=191)	Frequency (%)
Gender			
	Male	99	51.83
	Female	82	42.93
	Non-binary	9	4.71
	Undisclosed	1	0.52
Age			
	18-24	19	9.95
	25-34	68	35.60
	35-44	64	33.51
	45-54	27	14.14
	55-64	12	6.28
	64+	1	0.52
Has dependent			
	Yes	140	73.30
	No	49	35.65
	Undisclosed	2	1.05
Employment			
	Employed	78	40.84
	Self-employed	113	59.79

Category	Items	Frequency (n=191)	Frequency (%)
Daily income			
	R350 or less	54	28.27
	R350 - R500	48	25.13
	R501 - R1000	38	19.90
	R1001 - R1500	24	12.57
	R1501 - R2000	12	6.28
	R2001 - R2500	6	3.14
	R2501 - R3000	4	2.09
	R3001 - R3500	1	0.52
	R3500+	4	2.09
Number of working days			
	1 day	1	0.52
	2 days	1	0.52
	3 days	2	1.05
	4 days	3	1.57
	5 days	43	22.51
	6 days	51	26.70
	7 days	90	47.12
Total		**191**	**100**

4.2.2 Informal traders' banking institutions, their perceptions on digital banking, and their payment methods

The traders' responses to bank institutions they use, digital banking channels they use. Over thirty-eight percent of the informal traders use Capitec bank with few informal traders using Absa bank (8.75%) and Tyme bank (6.25%). Banking app was the most used (58.75%) banking method by the informal traders, while the least number of the respondents (3.75%) agreed to using online banking.

Table 4-2: Banking institution and digital banking channels used

Bank's name	Count (%)	Digital banking channels used			
		Internet banking	Banking app	Both	None
Absa	14/160 (8.75%)	1/14 (7.14%)	5/14 (35.71%)	2/14 (14.29%)	6/14 (42.86%)
Capitec	62/160 (38.75%)	3/62 (4.84%)	41/62 (66.13%)	14/62 (22.58%)	4/62 (6.45%)
FNB	29/160 (18.13%)	0/29 (0.00%)	15/29 (51.72%)	13/29 (44.83%)	1/29 (3.45%)
Nedbank	23/160 (14.38%)	1/23 (4.35%)	16/23 (69.57%)	4/23 (17.39%)	2/23 (8.61%)
Standard bank	22/160 (13.75%)	1/22 (4.55%)	12/22 (54.55%)	3/22 (13.64%)	6/22 (27.27%)

Tyme bank	10/160 (6.25%)	0/10 (0.00%)	5/10 (50.00%)	5/10 (50.00%)	0/10 (0.00%)
Grand total (%)	**160/160 (100%)**	**6/160 (3.75%)**	**94/160 (58.75%)**	**41/160 (25.63%)**	**19/160 (11.88%)**

The highest number (61%) of the informal street traders do not pay any salaries. Most of the salary payers (27.21%), disclosed that they pay their workers weekly – See **Figure 4- 1** below.

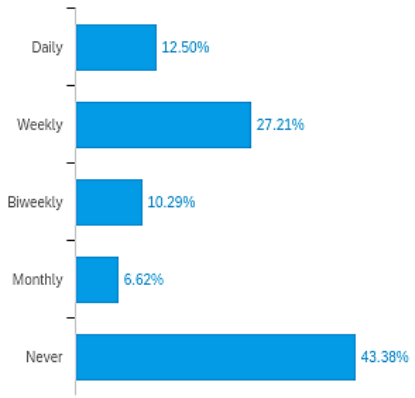


Figure 4-1: Frequency of salary payments

Most workers (53.49%) are getting paid in cash as compared to other methods of payment. The respondents were further asked how their customers pay them when buying goods from them. The responses on the traders are shown in table 4.3.1-2. The highest number of responses (53.33%) were that the customers use cash as their preferred method of payment, followed by those who swipe their cards (16.67%).

Informal street traders sell wide range of goods and services such as food products, domestic goods, electronics and gadgets, consumables, jewellery, fashion, chemicals, cosmetics, etcetera. In addition, services such as car wash, hair styling, photography, artistry, car washing, etcetera., are rendered to customers across the City of Johannesburg – See **Figure 4-2**.



Figure 4-2: Word cloud of informal traders' goods and services

The respondents were also given options on different payment methods they use to pay their suppliers, and they were allowed to choose more than one payment method if possible. Even though some traders had more than one method of payment as their choice, each method was independently counted, which resulted in a total of 310 and 330 answers from the 191 informal street traders, respectively. The responses of the respondents are shown in **Table 4.3**. From their responses, paying with ***cash*** was the most dominant way of paying suppliers followed by card swipes. About 14.52% accounted for digital banking channels as some methods used to pay suppliers.

Table 4-3. Payment methods used by informal sector traders

	Payment to suppliers	**Payment from customers**	**Payment to employees**
Answer	**Count (%)**	**Count (%)**	**Count (%)**
Strictly in cash	159/310 (51.29%)	176/330 (55.33%)	(53.49%)
Digital banking channels	45/310 (14.52%)	99/330 (16.67%)	(19.77%)
Swipe my card	93/310 (30.00%)	55/330 (30.00%)	(0.00%)
Other (incl. cash and banking)	13/310 (4.19%)	0/330 (0.00%)	(26.74%)
Prefer not to say	0/310 (0.00%)	0/330 (0.00%)	(0.00%)
%Total	**100%**	**100%**	**100%**

Moreover, to get the respondents' perceptions on safe keeping their money, they were asked how they make sure that their money or commission is safe. Figure 4.3.1-1

shows the responses of the informal street traders. From the responses, 68.42% stated that they bank their money, and 20.53% keep it to themselves. 11.05% of the responded preferred not to disclose this information.

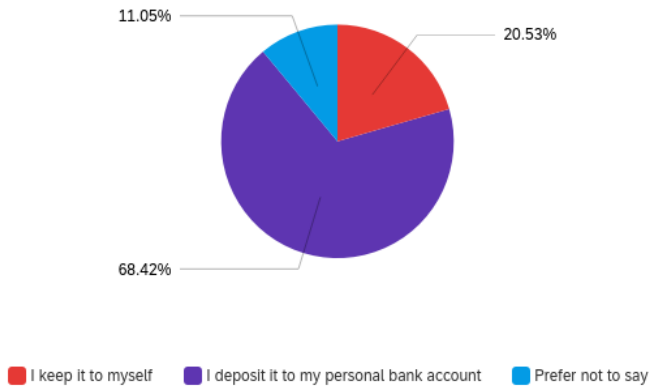


Figure 4-3: How informal street traders keep their money safe.

4.2.3 Informal traders' perception of digital banking experience and the help they might need

The responses of informal street traders on rating their digital banking experience are shown in figure 4.3.2-1. The highest number of traders (50%) were promoters of digital banking experience, whilst more than a quarter, at 27% were detractors of digital banking experience denoting poor experience and preference.

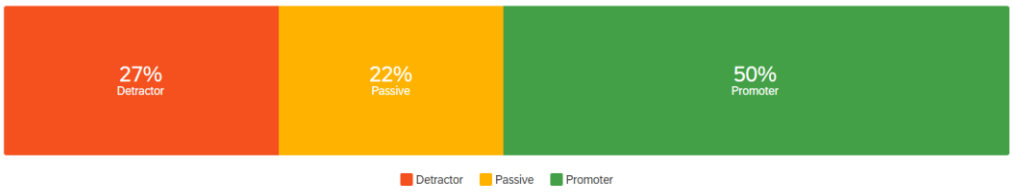


Figure 4-4: Informal traders' ratings on their digital banking experience.

To gain a comprehensive understanding of the challenges and needs faced by informal street traders, respondents were asked to indicate whether they required any specific type of assistance to support the growth of their businesses. They were given a set of predefined statements to choose from, reflecting common issues faced by street traders. Additionally, they were encouraged to contribute any other challenges or needs that might not have been covered by the provided statements. The responses, which are illustrated in Figure 4.3.2-2, reveal a range of concerns and areas for improvement.

Most respondents, accounting for 69%, identified safety and security as the most pressing issue that must be addressed for their businesses to thrive. This indicates that ensuring a safe and secure environment is a critical factor for the success of informal street trading. Furthermore, 50% of the traders pointed out that gaining access to financial services is the second most significant barrier they face. This highlights a crucial need for financial support and resources to help these businesses grow. In addition to safety, security, and financial access, respondents also mentioned other challenges such as protection against police harassment, which impacts their ability to operate smoothly. They also noted the need for assistance in various areas including business growth strategies, hygiene standards, and effective marketing techniques. These additional difficulties underscore the complex landscape that informal street traders navigate and the diverse forms of support that could help them overcome these challenges.

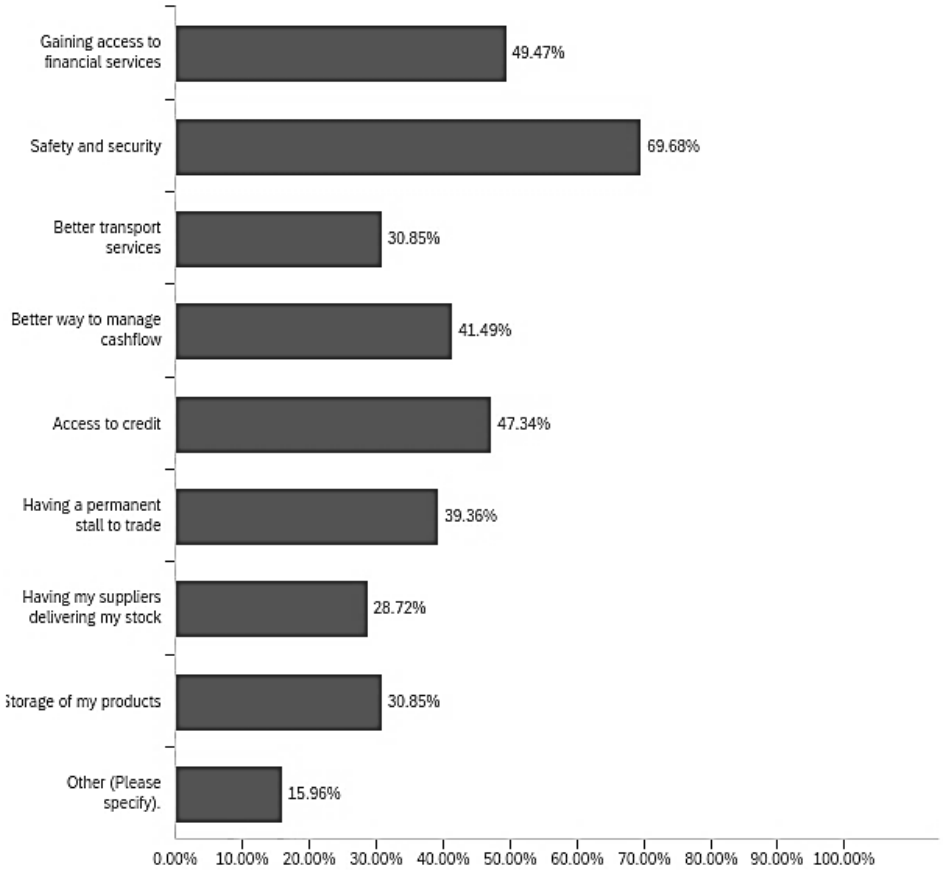


Figure 4-5: Ratios of help needed in the informal trade.

4.3 Descriptive statistics

The descriptive statistics in this section summarise the adoption of digital banking, beliefs and influence, harmonisation, and dissonance variables. Each part of the descriptive analytics shows the distribution or frequency of responses, mean, standard deviations.

4.3.1 Descriptive statistics

Table 4-4: Descriptive statistics of dependent and independent variables

ADOPTION	**Mean**	**Std. Deviation**	**N**
Adoption_I know of digital banking	3.77	.709	186
Adoption_My bank has done some convincing	3.30	1.038	186
Adoption_My bank influenced my decision about digital banking	3.06	1.154	186
Adoption_I am aware of all the changes and updates of my digital banking platform	3.13	1.059	186
Adoption_I use digital banking quite often	3.11	1.236	186
BELIEFS & INFLUENCE	**Mean**	**Std. Deviation**	**N**
Beliefs & influence_I am aware of the digital banking benefits	3.43	1.039	188
Beliefs & influence_Digital banking is compatible with my needs	3.20	1.127	188
Beliefs & influence_Digital banking is easy	3.07	1.204	188
Beliefs & influence_I tested digital banking before making my decision	2.92	1.300	188
Beliefs & influence_I have noticed how digital banking benefits other traders and this has made me want to have it	3.12	1.209	188
HARMONISATION	**Mean**	**Std. Deviation**	**N**
Harmonisation_It is easy and convenient to use	4.05	1.193	182
Harmonisation_It is safer way of banking	4.00	1.008	182
Harmonisation_It is affordable	3.91	1.063	182
Harmonisation_It saves me so much time	4.20	.949	182
Harmonisation_I trust digital banking	3.79	1.200	182
Harmonisation_It gives me 24_7 access to my money	4.11	1.024	182
Harmonisation_It makes me feel safe because I don't have to carry cash	4.05	1.047	182
DISSONANCE	**Mean**	**Std. Deviation**	**N**
Dissonance_It is not easy to use	2.41	1.389	186
Dissonance_Data privacy and security concerns	2.77	1.358	186
Dissonance_I have been scammed before	2.08	1.397	186

Dissonance_It costs too much money	2.39	1.287	186
Dissonance_It takes too much time	2.05	1.041	186
Dissonance_I don't know how to use it	2.22	1.456	186
Dissonance_I do not trust digital banking	2.47	1.384	186
Dissonance_It is not reliable	2.24	1.167	186

4.4 Cross-tabulation and chi-square test

To understand the relationships between two categorical variables, a crosstab and chi-square statistical test was conducted. Also, to measure the strength of the relationship between variables, Cramer's V value was used. The relationship between the two variables is statistically significant given a p-value <.001, an indication that in the hypothesis there is a relationship between the two variables. To understand the interpretation of the values in the test, the illustration guides us in interpreting Phi and Cramer's V statistical test.

Phi and Cramer's V	Interpretation
> 0.25	Very strong
> 0.15	Strong
> 0.10	Moderate
> 0.05	Weak
> 0	No or very weak

Figure 4-6: Interpretation of Phi and Cramer's V (Source: Akoglu, 2018).

This section measures informal street traders' relationships between *levels of education and informality reasons, trading location and place of origin, age and daily income, gender and dependants, age and dependants, age and digital banking channels, trading location and digital banking channels, trading location versus banked and unbanked informal street traders, and origin versus banked and unbanked informal street traders.*

Levels of education and informality reasons

The relationship between level of education and informality reasons is measured through the use the Chi-square statistical test. The relationship between the two variables is statistically significant given a p-value <.001, an indication that the in the hypothesis there is a relationship between the two variables will hold for more than 95% of the observed cases. To understand the strength of the relationship between the two variables, we use the Cramer's V value. A Cramer's value of 0.549 indicates a very strong relationship between the two variables. Furthermore, we observe from the contingency table that traders that hold Grade 12 (High School graduates) or Tertiary education have the highest proportion of responses that relate to structuralism and legalism, and dualism is more dominant in the high school education and Grade 12 as well as for those with primary school education, and voluntarism is mostly for those with tertiary education and Grade 12.

Table 4-5: Levels of education and informality reasons crosstab

		Informality reasons				
		Structuralism	Legalism	Dualism	Voluntarism	N
Levels of education	Grade 12 (Matric)	5	6	37	8	
	High School education	3	5	39	4	
	None	0	0	8	0	
	Primary School education	0	3	32	0	
	Tertiary education	4	14	14	9	
Total		12	28	130	21	191

Table 4-6: Levels of education and informality reasons Chi-Square Test

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	230.621[a]	9	<.001
Likelihood Ratio	57.773	9	<.001
N of Valid Cases	191		

a. 9 cells (45%) have expected count less than 5. The minimum expected count is .01

Table 4-7: Levels of education and informality reasons symmetric measures

		Value	Approximate Significance
	Cramer's V	.549	<.001
N of Valid Cases		191	

Trading location and place of origin

The relationship between trading location and place of origin is measured through the use the Chi-square statistical test. The relationship between the two variables is statistically significant given a p-value <0.05, an indication that in the hypothesis a relationship between the two variables will hold for more than 95% of the observed cases. To understand the strength of the relationship between the two variables, we use the Cramer's V value.

A Cramer's value of 0.216 indicates a strong relationship between the two variables. Furthermore, we observe from the contingency table that traders who originate from the Urban Area, in South Africa outside of Gauteng province have the lowest proportion of traders based in either Soweto or the Johannesburg CBD, and across all regions respectively whilst Johannesburg CBD has the highest proportion of foreign nationals who are street traders followed by those originating from rural parts of South African outside of Gauteng province signifying the influence of immigration to a big city for a better life and job opportunities.

Table 4-8: Trading location and place of origin crosstabulation

		Origin						
		City of Johannesburg	Foreign national	Gauteng, but not in the city of Johannesburg	Prefer not to say	Rural Area, in South Africa outside of Gauteng province	Urban Area, in South Africa outside of Gauteng province	**Total**
Location	Alexandra	0	3	9	0	5	3	**20**
	Johannesburg CBD	17	19	7	1	14	3	**61**
	Lenasia	8	0	4	1	4	3	**20**
	Midrand Area	4	8	5	0	9	4	**30**
	Randburg area	3	3	7	0	4	3	**20**
	Sandton	7	1	5	0	4	3	**20**
	SOWETO	6	6	3	0	5	0	**20**
Total		**45**	**40**	**40**	**2**	**45**	**19**	**191**

Table 4-9: Trading location and place of origin Chi-Square tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	44.446[a]	26	.043
Likelihood Ratio	54.271	26	.004
N of Valid Cases	191		

a. 26 cells (61.9%) have expected count less than 5. The minimum expected count is .21.

Table 4-10: Trading location and place of origin symmetric measures		Value	Approximate Significance
	Cramer's V	.216	.043
N of Valid Cases		191	

Age and daily income

The relationship between age and daily income is measured through the use the Chi-square statistical test. The relationship between the two variables is not statistically significant given a p-value=0.810, therefore we fail to reject the null hypothesis that there is no relationship between the two variables. We observe that informal street traders aged between 25-34 years old make the most money with those making more than R3500+ a day whilst the highest proportion informal street traders make R350 or less per day.

Table 4-11: Age and income crosstabulation

		Daily income									
		R350 or less	R350 - R500	R501 - R1000	R1001 - R1500	R1501 - R2000	R2001 - R2500	R2501 - R3000	R3001 - R3500	R3500+	Total
Age	15-24 years old	9	4	1	2	2	0	0	0	1	**19**
	25 - 34 years old	21	14	14	9	3	3	1	1	2	**68**
	35 - 44 years old	14	20	14	8	4	1	3	0	0	**64**
	45 - 54 years old	5	6	7	5	1	2	0	0	1	**27**
	55 - 64 years old	5	4	1	0	2	0	0	0	0	**12**
	64+ years old	0	0	1	0	0	0	0	0	0	**1**
Total		**54**	**48**	**38**	**24**	**12**	**6**	**4**	**1**	**4**	**191**

Table 4-12: Age and income Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	32.064[a]	40	.810
Likelihood Ratio	35.489	40	.673
N of Valid Cases	191		

a. 40 cells (70.07%) have expected count less than 5. The minimum expected count is .01.

Table 4-13: Age and income symmetric measures

		Value	Approximate Significance
	Cramer's V	.183	.810
N of Valid Cases		191	

Gender and dependants

The relationship between gender and dependants is measured through the use the Chi-square statistical test. The relationship between the two variables is statistically significant given a p-value <0.05 an indication that in the hypothesis there is a relationship between the two variables will hold for more than 95% of the observed cases. To understand the strength of the relationship between the two variables, we use the Cramer's V value. A Cramer's value of 0.216 indicates a strong relationship between the two variables. Furthermore, we observe from the contingency table that male informal street traders have the highest proportion of respondents with dependants.

Table 4-14: Gender and dependants crosstabulation

		Dependants			
		Skipped	No	Yes	Total
Gender	Female	1	18	63	82
	Male	1	24	74	99
	Non-binary / third gender	0	7	2	9
	Prefer not to say	0	1	0	1
Total		2	50	139	191

Table 4-15: Gender and dependants Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.193[a]	7	.013
Likelihood Ratio	14.176	7	.028
N of Valid Cases	191		

a. 6 cells (58.3%) have expected count less than 5. The minimum expected count is .01.

Table 4-16: Gender and dependants symmetric measures

		Value	Approximate Significance
	Cramer's V	.206	.013
N of Valid Cases		191	

Age and dependants

The relationship between age and dependants is measured using Chi-square statistical test. The relationship between the two variables is statistically significant given a p-value <.001 an indication that in the hypothesis there is a relationship between the two variables will hold for more than 95% of the observed cases. To understand the strength of the relationship between the two variables, we use the Cramer's V value. A Cramer's value of 0.368 indicates a very strong relationship between the two variables. Furthermore, we observe from the contingency table that from the age 25 – 34 years, more than 50% of the respondents have dependants, and those aged between 35-44 years old account to more than 85%, and 100% for respondents aged between 45-54 years old.

Table 4-17: Age and dependants crosstabulation

		Dependants			
		Skipped	No	Yes	Total
Age	15-24 years old	0	12	7	19
	25 - 34 years old	0	30	38	68
	35 - 44 years old	1	8	55	64
	45 - 54 years old	0	0	27	27
	55 - 64 years old	1	0	11	12
	64+ years old	0	0	1	1
Total		2	50	139	191

Table 4-18: Age and dependants Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	51.782[a]	10	<.001
Likelihood Ratio	57.134	10	<.001
N of Valid Cases	191		

a. 10 cells (55.6%) have expected count less than 5. The minimum expected count is .01.

Table 4-19: Age and dependants symmetrical measures

		Value	Approximate Significance
	Cramer's V	.368	<.001
N of Valid Cases		191	

Age and digital banking channels

The relationship between age and digital banking channels is measured through the use the Chi-square statistical test. The relationship between the two variables is statistically significant given a p-value <.001 an indication that in the hypothesis there is a relationship between the two variables will hold for more than 95% of the observed cases. To understand the strength of the relationship between the two variables, we use the Cramer's V value. A Cramer's value of 0.267 indicates a very strong relationship between the two variables. Furthermore, we observe from the contingency table that respondents younger than 35 years, has the highest proportion of respondents that have both a banking App and use Internet banking.

Table 4-20: Age and digital banking channels crosstabulation

		Digital Banking Channels				Total
		Skipped	Banking App	Both	Internet Banking	
Age	15-24 years old	1	8	10	0	19
	25 - 34 years old	15	33	19	1	68
	35 - 44 years old	15	39	8	2	64
	45 - 54 years old	10	11	3	3	27
	55 - 64 years old	8	3	1	0	12
	64+ years old	1	0	0	0	1
Total		50	94	41	6	191

Table 4-21: Age and digital banking channels Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	40.835[a]	13	<.001
Likelihood Ratio	37.438	13	.001
N of Valid Cases	191		

a. 13 cells (54.2%) have expected count less than 5. The minimum expected count is .03.

Table 4-22: Age and digital banking channels symmetrical measures

		Value	Approximate Significance
	Cramer's V	.267	<.001
N of Valid Cases		191	

Trading location and digital banking channels

The relationship between trading location and digital banking channels used is measured using Chi-square statistical test. The relationship between the two variables is statistically significant given a p-value <.001, an indication that in the hypothesis there is a relationship between the two variables will hold for more than 95% of the observed cases. To understand the strength of the relationship between the two variables, we use the Cramer's V value. A Cramer's value of 0.333 indicates a very strong relationship between the two variables. Furthermore, we observe from the contingency table that respondents from Alexandra and Lenasia have the highest proportion of respondents who use both a banking App and Internet banking channels.

Table 4-23: Trading location and digital banking channels crosstabulation

		Digital Banking Channels				
		Skipped	Banking App	Both	Internet Banking	Total
Trading Location	Alexandra	9	3	8	0	20
	Johannesburg CBD	17	25	14	5	61
	Lenasia	1	6	13	0	20
	Midrand Area	11	19	0	0	30
	Randburg area	4	13	2	1	20
	Sandton	4	12	4	0	20
	SOWETO	4	16	0	0	20
Total		50	94	41	6	191

Table 4-24: Trading location and digital banking channels Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	63.522[a]	15	<.001
Likelihood Ratio	71.957	15	<.001
N of Valid Cases	191		

a. 15 cells (53.57%) have expected count less than 5. The minimum expected count is .63.

Table 4-25: Trading location and digital banking channels symmetric measures

		Value	Approximate Significance
	Cramer's V	.333	<.001
N of Valid Cases		191	

Trading location and banked versus unbanked informal street traders

The relationship between trading location and bank vs. unbanked informal street traders is measured through the use the Chi-square statistical test. The relationship

between the two variables is not statistically significant given a p-value=0.145, therefore we fail to reject the null hypothesis that there is no relationship between the two variables. We observe that there is a big proportion of banked informal street traders in Randburg area of about 95% and Midrand area of about 90%, whilst Alexandra has the highest proportion of unbanked informal street traders.

Table 4-26: Trading location and banked vs. unbanked crosstabulation

		Banked vs. Unbanked			
		No	Prefer not to say	Yes	Total
Trading Location	Alexandra	7	0	13	20
	Johannesburg CBD	11	2	48	61
	Lenasia	0	0	20	20
	Midrand Area	3	0	27	30
	Randburg area	1	0	19	20
	Sandton	3	0	17	20
	Soweto	4	0	16	20
Total		29	2	160	191

Table 4-27: Trading location and banked vs. unbanked Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	17.137[a]	12	.145
Likelihood Ratio	19.604	12	.075
N of Valid Cases	191		

a. 12 cells (57.14%) have expected count less than 5. The minimum expected count is .21.

Table 4-28: Trading location and banked vs. unbanked symmetric measures

		Value	Approximate Significance
	Cramer's V	.212	.145
N of Valid Cases		191	

Origin and banked vs. unbanked informal street traders

The relationship between Origin and Bank vs Unbanked is measured using Chi-square statistical test. The relationship between the two variables is statistically significant given a p-value <.001 an indication that the hypothesis that there is a relationship between the two variables will hold for more than 95% of the observed cases. To understand the strength of the relationship between the two variables, we use the Cramer's V value. A Cramer's value of 0.290 indicates a very strong relationship between the two variables. Furthermore, we observe from the contingency table that

respondents of foreign origin have the highest proportion of a “No” response to the Bank vs Unbanked variable, signifying that they are the most unbanked of the informal street traders. However, most informal street traders are banked, and highest proportion being of those informal street traders originate from the City of Johannesburg.

Table 4-29: Origin and banked vs. unbanked crosstabulation.

Origin and banked vs. unbanked		Banked vs. Unbanked			
		No	Prefer not to say	Yes	Total
Origin	City of Johannesburg	1	0	44	45
	Foreign national	15	2	23	40
	Gauteng, but not in the city of Johannesburg	5	0	35	40
	Prefer not to say	0	0	2	2
	Rural Area, in South Africa outside of Gauteng province	7	0	38	45
	Urban Area, in South Africa outside of Gauteng province	1	0	18	19
Total		29	2	160	191

Table 4-30: Origin and banked vs. unbanked Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	32.132[a]	10	<.001
Likelihood Ratio	30.905	10	<.001
N of Valid Cases	191		

a. 10 cells (55.56%) have expected count less than 5. The minimum expected count is .02

Table 4-31: Origin and banked vs. unbanked symmetric measures

		Value	Approximate Significance
	Cramer's V	.290	<.001
N of Valid Cases		191	

4.5 ANALYSIS OF MEASUREMENT SCALE

4.5.1 Reliability assessment

The reliability of the responses from the five questions that were asked to understand the adoption process has a Cronbach’s alpha value of 0.678. The literature indicates

that the strength of the reliability is survey. Furthermore, an intraclass correlation coefficient within the five questions is statistically significant given the p-value <0.001 which indicates that the responses will be consistent for over 95% of the cases. However, given the lower Cronbach's alpha, we conclude that the responses from these five questions are not sufficient to accept their reliability.

Table 4-32: Reliability statistics

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Adoption Process	.678	.660	5
Digital banking beliefs and influence	765	.771	5
Self-perception factors	.927	.927	2
Dissonance factors	.927	.927	2
Harmonisation factors	.927	.927	2

As part of analysing the data, different steps were followed in the research study, such as (1) confirmatory factor analysis (CFA), (2) internal consistency reliability test using Cronbach's Alpha coefficient across different research variables, (3) crosstabs through Chi Square test to measure relationships between variables, and (4) means and standard deviations.

According to the Statistical Package for Social Sciences (SPSS) workbook, the extraction under the communalities indicates the proportion of variance that can be explained by the factors if values are above 0.0300. In the context of this research paper, all the values are above 0.500 which indicates that the Principal Component Analysis (PCA) is a suitable test for our data. See data extractions in the table below in **Table 4.4-1**. SP Factors in the tables below stand for *Self-Perception*.

Table 4-33: Communalities of perceptions

	Initial	Extraction
Adoption_I know of digital banking	1.000	.634
Adoption_My bank has done some convincing	1.000	.796
Adoption_My bank influenced my decision about digital banking	1.000	.825

Adoption_I am aware of all the changes and updates of my digital banking platform	1.000	.544
Adoption_I use digital banking quite often	1.000	.725
Beliefs & influence_I am aware of the digital banking benefits	1.000	.640
Beliefs & influence_Digital banking is compatible with my needs	1.000	.692
Beliefs & influence_Digital banking is easy	1.000	.562
Beliefs & influence_I tested digital banking before making my decision	1.000	.599
Beliefs & influence_I have noticed how digital banking benefits other traders, and this has made me want to have it	1.000	.727
SP_Factors_I have digital banking skills	1.000	.819
SP_Factors_I am confident with digital technologies	1.000	.763
Dissonance_It is not easy to use	1.000	.687
Dissonance_Data privacy and security concerns	1.000	.629
Dissonance_I have been scammed before	1.000	.598
Dissonance_It costs too much money	1.000	.681
Dissonance_It takes too much time	1.000	.764
Dissonance_I don't know how to use it	1.000	.827
Dissonance_I do not trust digital banking	1.000	.772
Dissonance_It is not reliable	1.000	.686
Harmonisation_It is easy and convenient to use	1.000	.813
Harmonisation_It is safer way of banking	1.000	.684
Harmonisation_It is affordable	1.000	.791
Harmonisation_It saves me so much time	1.000	.825
Harmonisation_I trust digital banking	1.000	.704
Harmonisation_It gives me 24_7 access to my money	1.000	.825
Harmonisation_It makes me feel safe because I don’t have to carry cash	1.000	.749

The study has twenty-seven components, and five components were extracted, and they explain 71.708% of the variance, minimum is 60%. See **Table 4.33** for total variance explained data on the subsequent page.

Table 4-34: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.549	50.182	50.182	13.549	50.182	50.182	10.511	38.929	38.929
2	1.898	7.028	57.210	1.898	7.028	57.210	2.657	9.840	48.769
3	1.492	5.525	62.735	1.492	5.525	62.735	2.287	8.472	57.241
4	1.285	4.759	67.494	1.285	4.759	67.494	2.148	7.957	65.198
5	1.138	4.214	71.708	1.138	4.214	71.708	1.758	6.510	71.708
6	.776	2.872	74.580						
7	.723	2.679	77.259						
8	.690	2.557	79.816						
9	.638	2.362	82.178						
10	.530	1.962	84.140						
11	.501	1.854	85.994						
12	.447	1.656	87.650						
13	.420	1.557	89.207						
14	.390	1.445	90.652						
15	.354	1.312	91.963						
16	.310	1.149	93.112						
17	.302	1.117	94.230						
18	.259	.958	95.188						
19	.236	.874	96.062						
20	.199	.737	96.799						
21	.159	.590	97.389						
22	.146	.540	97.928						
23	.136	.504	98.432						
24	.121	.449	98.881						
25	.115	.427	99.307						
26	.103	.380	99.687						
27	.084	.313	100.000						

Five components explaining a majority of variance were extracted.

Under **component 5**, the Dissonance questions (*Data privacy and security concerns* and *I have been scammed before*) have been grouped together. This makes sense since they relate to the security of using digital platforms and the previous experience of the customers that have been scammed before. However, the Dissonance questions *(It costs too much money, It takes too much time, I don't know how to use it, I do not trust digital banking* and *It is not reliable*) are grouped together in component 1. This indicates that in future research, these five questions need not be grouped with the two questions allocated to component 5.

Component 4 is made up of Adoption factors related to the following statements.

- My bank has done some convincing.
- My bank influenced my decision about digital banking.

An indication that the bank has a role to play in increasing the adoption of digital platforms use by customers. However, the following Adoption questions are not part of component 4:

- I know of digital banking.
- I am aware of all the changes and updates of my digital banking platform.
- I use digital banking quite often.

Under **component 3**, the factors that have the highest loadings are:

- Dissonance: I don't know how to use it.
- SP_Factors: I have digital banking skills.
- SP_Factors: I am confident with digital technologies.
- Beliefs & influence: I am aware of the digital banking benefits.
- Adoption: I know of digital banking

Even though these factors have different groups (Dissonance, SP Factors, Beliefs & influence and Adoption), it makes sense that they are part of the same component given the minimum loading threshold of 0.400. They mostly relate to awareness of digital banking. Furthermore, it makes sense that the Dissonance question (I don't know how to use it) has a negative loading in this component since under the Dissonance question most customers disagreed that they do not how to use digital

banking. In addition, under the SP Factors most customers agreed that they have digital banking skills and are confident with digital technologies. In relation to the Beliefs and influence most customers indicated that they are aware of the benefits of digital banking. Last, under Adoption, most customers indicated that they know of digital banking.

Under **component 2**, the factors that have loading greater than 0.4000 are:

- Adoption: I am aware of all the changes and updates of my digital banking platform
- Adoption: I use digital banking quite often
- Beliefs & influence: Digital banking is compatible with my needs.
- Beliefs & influence: I tested digital banking before making my decision.
- Beliefs & influence: I have noticed how digital banking benefits other traders, and this has made me want to have it

Except for the Belief & influence factors (*I am aware of the digital banking benefits* and *Digital banking is easy*) the other three Beliefs & influence factors have loading greater than 0.4000 under component 2. Furthermore, two Adoption factors are represented in component 2, however, the other three Adoption factors (*I know of digital banking, My bank has done some convincing* and *My bank influenced my decision about digital banking*) have a loading less than 0.400 under component 2.

Under **component 1**, the following factors have a loading less than 0.400:

- Adoption: I know of digital banking
- Adoption: My bank has done some convincing
- Adoption: My bank influenced my decision about digital banking
- Beliefs & influence: I tested digital banking before making my decision.
- Beliefs & influence: I have noticed how digital banking benefits other traders, and this has made me want to have it.
- Dissonance: Data privacy and security concerns
- Dissonance: I have been scammed before

All the other factors have a loading greater than 0.400 under the component 1.

The result of this analysis indicates that the categories that we assigned to the questions in the survey do not always result in components that that are isolated for each of the resulting components. This indicates that there is an opportunity for future research to possibly reduce the number of questions and possibly re-assign some of the groups. For example, the results of the analysis for component 3 indicate that even though the resulting five factors in this component are extracted from four groups, namely, *Dissonance, SP Factors*, *Beliefs & influence* and *Adoption* there is an opportunity to create one group that relates to awareness of digital products.

4.6 CORRELATION ANALYSIS

This section presents the inter-item correlation of adoption process, beliefs and influence, self-perception factors, dissonance, and harmonisation factors for digital banking, to confirm research findings validity by measuring the same constructs in each section of the components of variables of the study. The means and standard deviation, as well as the interclass correlations are presented in this section.

4.6.1 Correlation of digital banking beliefs and influence

The reliability of the responses from the five questions that were used to understand the digital banking beliefs and influence has a Cronbach's alpha value of 0.765. The literature indicates that the strength of the reliability is acceptable. Furthermore, an intraclass correlation coefficient within the five questions is statistically significant given the p-value <0.001 which indicates that the responses will be consistent for over 95% of the cases. Given the observed Cronbach's alpha, we conclude that the responses from these five questions are sufficient to accept reliability. Furthermore, the two question that seek to establish *"I have noticed how digital banking benefits other traders, and this has made me want to have it"* and *"digital banking is compatible with my needs"* has the strongest relationship amongst the questions. Lastly, "*I tested digital banking before making my decision"* AND "*I am aware of the digital banking benefits*" indicate the weakest relationship. See data in tables below.

Table 4-35: Digital banking beliefs and influence item statistics

	Mean	Std. Deviation	N
Beliefs & influence_I am aware of the digital banking benefits	3.43	1.039	188
Beliefs & influence_Digital banking is compatible with my needs	3.20	1.127	188
Beliefs & influence_Digital banking is easy	3.07	1.204	188
Beliefs & influence_I tested digital banking before making my decision	2.92	1.300	188
Beliefs & influence_I have noticed how digital banking benefits other traders and this has made me want to have it	3.12	1.209	188

Table 4-36: Digital banking beliefs and influence inter-item correlation matrix

	Beliefs & influence_I am aware of the digital banking benefits	Beliefs & influence_Digital banking is compatible with my needs	Beliefs & influence_Digital banking is easy	Beliefs & influence_I tested digital banking before making my decision	Beliefs & influence_I have noticed how digital banking benefits other traders and this has made me want to have it
Beliefs & influence_I am aware of the digital banking benefits	1.000	.558	.342	.326	.445
Beliefs & influence_Digital banking is compatible with my needs	.558	1.000	.415	.405	.579
Beliefs & influence_Digital banking is easy	.342	.415	1.000	.161	.336
Beliefs & influence_I tested digital banking before making my decision	.326	.405	.161	1.000	.452
Beliefs & influence_I have noticed how digital banking benefits other traders and this has made me want to have it	.445	.579	.336	.452	1.000

Table 4-37: Digital banking beliefs and influence intraclass correlation coefficient

		95% Confidence Interval		F Test with True Value 0			
	Intraclass Correlation[b]	Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.276[a]	.208	.351	3.104	185	740	<.001
Average Measures	.656[c]	.568	.730	3.104	185	740	<.001

Two-way mixed effects model where people effects are random and measures effects are fixed.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

c. This estimate is computed assuming the interaction effect is absent because it is not estimable otherwise.

4.6.2 Correlation of self-perception on digital banking

The reliability of the responses from the two questions that were used to understand the self-perception factors has a Cronbach's alpha value of 0.927. The literature indicates that the strength of the reliability is excellent. Furthermore, an intraclass correlation coefficient within the two questions is statistically significant given the p-value <0.001 which indicates that the responses will be consistent for over 95% of the cases. Given the observed Cronbach's alpha, we conclude that the responses from these five questions are sufficient to accept reliability.

Table 4-38: reliability statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items

Table 4-39: Self-perception factors item statistics

	Mean	Std. Deviation	N
SP_Factors_I have digital banking skills	3.58	1.484	184
SP_Factors_I am confident with digital technologies	3.34	1.480	184

Table 4-40: Self-perception factors inter-item correlation matrix

	SP_Factors_I have digital banking skills	SP_Factors_I am confident with digital technologies
SP_Factors_I have digital banking skills	1.000	.863
SP_Factors_I am confident with digital technologies	.863	1.000

Table 4-41: Self-perception factors intraclass correlation coefficient

		95% Confidence Interval		F Test with True Value 0			
	Intraclass Correlation[b]	Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.852[a]	.792	.894	13.617	183	183	<.001
Average Measures	.920[c]	.884	.944	13.617	183	183	<.001

Two-way mixed effects model where people effects are random and measures effects are fixed.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

c. This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

4.6.3 Correlation of dissonance factors for digital banking

The reliability of the responses from the eight questions that were used to understand the dissonance factors has a Cronbach's alpha value of 0.879. The literature indicates

that the strength of the reliability is good. Furthermore, an intraclass correlation coefficient within the eight questions is statistically significant given the p-value <0.001 which indicates that the responses will be consistent for over 95% of the cases. Given the observed Cronbach's alpha, we conclude that the responses from these eight questions are sufficient to accept reliability. There is a strongest relationship exists between *"I do not trust digital banking"* and *"I don't know how to use it".* Furthermore, the weakest relationship exists between "*It is not reliable*" and "*I have been scammed before*".

Table 4-42: Dissonance factors for digital banking inter-item correlation matrix

	Dissonance_It is not easy to use	Dissonance_Data privacy and security concerns	Dissonance_I have been scammed before	Dissonance_It costs too much money	Dissonance_It takes too much time	Dissonance_I don't know how to use it	Dissonance_I do not trust digital banking	Dissonance_It is not reliable
Dissonance_It is not easy to use	1.000	.374	.324	.672	.614	.760	.664	.552
Dissonance_Data privacy and security concerns	.374	1.000	.311	.259	.256	.228	.409	.223
Dissonance_I have been scammed before	.324	.311	1.000	.254	.142	.199	.348	.171
Dissonance_It costs too much money	.672	.259	.254	1.000	.752	.701	.678	.599
Dissonance_It takes too much time	.614	.256	.142	.752	1.000	.703	.727	.657
Dissonance_I don't know how to use it	.760	.228	.199	.701	.703	1.000	.764	.605
Dissonance_I do not trust digital banking	.664	.409	.348	.678	.727	.764	1.000	.658
Dissonance_It is not reliable	.552	.223	.171	.599	.657	.605	.658	1.000

Table 4-43: Dissonance factors for digital banking intraclass correlation coefficient

		95% Confidence Interval		F Test with True Value 0			
	Intraclass Correlation[b]	Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.463[a]	.402	.528	8.272	185	1295	<.001
Average Measures	.873[c]	.843	.899	8.272	185	1295	<.001

Two-way mixed effects model where people effects are random and measures effects are fixed.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

c. This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

4.6.4 Correlation of harmonisation factors for digital banking

The reliability of the responses from the seven questions that were used to understand the harmonisation factors has a Cronbach's alpha value of 0.954. The literature indicates that the strength of the reliability is excellent. Furthermore, an intraclass correlation coefficient within the five questions is statistically significant given the p-value <0.001 which indicates that the responses will be consistent for over 95% of the cases. Given the observed Cronbach's alpha, we conclude that the responses from these seven questions are sufficient to accept reliability.

The strongest relationship exists between "*It gives me 24/7 access to my money*" and "*It saves me so much time*". Also, we observe that the relationships amongst all the variables is generally strong.

Table 4-44: Harmonisation factors inter-item correlation matrix

	Harmonisation_It is easy and convenient to use	Harmonisation_It is safer way of banking	Harmonisation_It is affordable	Harmonisation_It saves me so much time	Harmonisation_I trust digital banking	Harmonisation_It gives me 24_7 access to my money	Harmonisation_It makes me feel safe because I dont have to carry cash
Harmonisation_It is easy and convenient to use	1.000	.790	.749	.811	.730	.791	.767
Harmonisation_It is safer way of banking	.790	1.000	.727	.710	.735	.722	.675
Harmonisation_It is affordable	.749	.727	1.000	.784	.691	.790	.728
Harmonisation_It saves me so much time	.811	.710	.784	1.000	.698	.865	.835
Harmonisation_I trust digital banking	.730	.735	.691	.698	1.000	.757	.685
Harmonisation_It gives me 24_7 access to my money	.791	.722	.790	.865	.757	1.000	.814
Harmonisation_It makes me feel safe because I dont have to carry cash	.767	.675	.728	.835	.685	.814	1.000

		95% Confidence Interval		F Test with True Value 0			
	Intraclass Correlation[b]	Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.737[a]	.689	.782	21.737	181	1086	<.001
Average Measures	.952[c]	.939	.962	21.737	181	1086	<.001

Two-way mixed effects model where people effects are random and measures effects are fixed.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

c. This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

4.6 Regressions

The regression analysis helped the researcher identify significant predictors of digital banking adoption as well as understanding which the independent variables strongly influence adoption or rejection of digital banking solutions amongst informal street traders. Regressions for variables are defined as follows; **R1** as a dependent variable, and **R2, R3, R4**, and **R5** as independent variables.

Table 4-45: Descriptive statistics for variable regressions

	Mean	Std. Deviation	N
REGR factor score 1 for analysis 1	.0000000	1.00000000	170
REGR factor score 2 for analysis 1	.0000000	1.00000000	170
REGR factor score 3 for analysis 1	.0000000	1.00000000	170
REGR factor score 4 for analysis 1	.0000000	1.00000000	170
REGR factor score 5 for analysis 1	.0000000	1.00000000	170

Table 4-46: Correlations statistics for variable regressions

		REGR factor score 1 for analysis 1	REGR factor score 2 for analysis 1	REGR factor score 3 for analysis 1	REGR factor score 4 for analysis 1	REGR factor score 5 for analysis 1
Pearson Correlation	REGR factor score 1 for analysis 1	1.000	.000	.000	.000	.000
	REGR factor score 2 for analysis 1	.000	1.000	.000	.000	.000
	REGR factor score 3 for analysis 1	.000	.000	1.000	.000	.000
	REGR factor score 4 for analysis 1	.000	.000	.000	1.000	.000
	REGR factor score 5 for analysis 1	.000	.000	.000	.000	1.000
Sig. (1-tailed)	REGR factor score 1 for analysis 1	.	.500	.500	.500	.500
	REGR factor score 2 for analysis 1	.500	.	.500	.500	.500
	REGR factor score 3 for analysis 1	.500	.500	.	.500	.500
	REGR factor score 4 for analysis 1	.500	.500	.500	.	.500
	REGR factor score 5 for analysis 1	.500	.500	.500	.500	.

N	REGR factor score 1 for analysis 1	170	170	170	170	170
	REGR factor score 2 for analysis 1	170	170	170	170	170
	REGR factor score 3 for analysis 1	170	170	170	170	170
	REGR factor score 4 for analysis 1	170	170	170	170	170
	REGR factor score 5 for analysis 1	170	170	170	170	170

Table 4-47: Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	REGR factor score 5 for analysis 1, REGR factor score 4 for analysis 1, REGR factor score 3 for analysis 1, REGR factor score 2 for analysis 1[b]	.	Enter
a. Dependent Variable: REGR factor score 1 for analysis 1			
b. All requested variables entered.			

Table 4-48: Regression model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.000[a]	.000	-.024	1.01204863

a. Predictors: (Constant), REGR factor score 5 for analysis 1, REGR factor score 4 for analysis 1, REGR factor score 3 for analysis 1, REGR factor score 2 for analysis 1

Table 4-49: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	4	.000	.000	1.000[b]
	Residual	169.000	165	1.024		
	Total	169.000	169			

a. Dependent Variable: REGR factor score 1 for analysis 1

b. Predictors: (Constant), REGR factor score 5 for analysis 1, REGR factor score 4 for analysis 1, REGR factor score 3 for analysis 1, REGR factor score 2 for analysis 1

a. Dependent Variable: REGR factor score 1 for analysis 1

Table 4-50: Regressions coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-8.882E-17	.078		.000	1.000		
		.000	.078	.000	.000	1.000	1.000	1.000
		.000	.078	.000	.000	1.000	1.000	1.000
		.000	.078	.000	.000	1.000	1.000	1.000
		.000	.078	.000	.000	1.000	1.000	1.000

a. Dependent Variable: REGR factor score 1 for analysis 1

Table 4-51: Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	REGR factor score 2 for analysis 1	REGR factor score 3 for analysis 1	REGR factor score 4 for analysis 1	REGR factor score 5 for analysis 1
1	1	1.000	1.000	.17	.05	.02	.76	.00
	2	1.000	1.000	.23	.19	.53	.05	.00
	3	1.000	1.000	.00	.61	.31	.09	.00
	4	1.000	1.000	.00	.00	.00	.00	1.00
	5	1.000	1.000	.60	.15	.14	.10	.00

a. Dependent Variable: REGR factor score 1 for analysis 1

4.7 CONCLUSION

This section presented the data from research finding. The next chapter discusses the findings and links them to the hypotheses as outlined for the study, and research questions.

CHAPTER 5. DISCUSSION OF FINDINGS

5.1 INTRODUCTION

The previous chapter, **Chapter 4,** presented data findings and analysis. This chapter, however, focuses on interpreting these findings considering the existing literature and theoretical frameworks outlined in earlier sections of the study, as well as the research hypotheses.

5.2 RESEARCH QUESTIONS AND HYPOTHESES REVISITED

Research questions and hypotheses were discussed at the beginning of the research. **There were two research questions:**

a) Which diffusion of innovation constructs (awareness, persuasion, decision, implementation, and continuation) influence the adoption of digital banking amongst informal street traders within the City of Johannesburg Municipality?

b) Which characteristics of diffusion of innovation theory (relative advantage, compatibility, complexity, trialability, and observability) influence digital banking adoption and perceptions amongst informal street traders within the City of Johannesburg Municipality?

In additional there were also four hypotheses, see below:

H1: The adoption process positively influences the digital banking adoption beliefs amongst the informal street traders within the City of Johannesburg municipality.

H2: Adoption process steps positively influences self-perceptions among informal street traders within the City of Johannesburg municipality.

H3: The steps of the adoption process negatively impact the dissonance factors amongst the informal street traders within the City of Johannesburg municipality.

H4: Adoption process positively influences the harmonisation perceptions amongst the informal street traders within the City of Johannesburg municipality

5.3 INTERPRETATION OF DESCRIPTIVE STATISTICS

The descriptive analytics investigated adoption of digital banking, beliefs and influence, dissonance, and harmonisation.

5.3.1 Intepretation of adoption of digital banking

Based on the findings, on average, respondents “know about digital banking”. With a mean of 3.77 out of 5, this suggests that the majority are aware of digital banking, but it's not a universal or overwhelming level of awareness. The relatively low standard deviation of 0.709 indicates that most responses are clustered around the average. Respondents somewhat agree that their bank has “influenced them to adopt digital banking”. The mean of 3.30 indicates a neutral-to-positive sentiment. The higher standard deviation of 1.038 suggests a more varied response across participants, with some being strongly convinced while others less so.

Respondents are generally neutral or slightly positive about the “influence of their bank on their decision to adopt digital banking”. The mean of 3.06 indicates low to moderate influence. The high standard deviation of 1.154 indicates that there is considerable variation in how much influence participants feel their banks have had on their decision. Furthermore, respondents are moderately aware of the “changes and updates to their digital banking platforms”. The mean of 3.13 suggests a neutral response. The standard deviation of 1.059 indicates some variation in how aware people are of changes or updates. Lastly on adoption, respondents use digital banking “moderately often”. A mean of 3.11 shows a neutral stance, meaning some use it more often than others. The higher standard deviation of 1.236 reflects a diverse range of usage frequencies.

Therefore, the adoption of digital banking seems moderate, with most respondents aware of digital banking and using it occasionally, but the influence of banks and decisions to adopt seem to vary.

5.3.2 Interpretation of beliefs and influence of digital banking

Respondents have a moderate “awareness” of the benefits of digital banking. The mean of 3.43 suggests general awareness, though not universal. The standard deviation of 1.039 indicates variability in how aware people are of these benefits. Also, respondents feel that “digital banking is somewhat compatible with their needs”, though the sentiment is not overwhelmingly positive. The standard deviation equals 1.127 and this shows that responses vary, with some traders feeling it is very compatible, while others may not, and this may be due to them not having an account.

Under the beliefs and influence, digital banking is viewed as moderately “easy” by the respondents. The mean of 3.07 suggests that while some feel it's easy, others may find it difficult. The standard deviation of 1.204 indicates that opinions on ease of use are quite spread out. Furthermore, respondents are generally neutral to slightly negative about “testing” digital banking before adopting it. The mean of 2.92 shows that a majority may not have tested the platform before deciding to adopt it. The high standard deviation of 1.300 points to diverse experiences regarding the testing phase. Lastly, respondents are somewhat influenced by “seeing how digital banking benefits other traders”, with a mean of 3.12 indicating a moderate effect. The standard deviation of1.209 suggests variability in how much this factor influences individual decisions.

Therefore, beliefs and influence factors like the perceived benefits, compatibility, and ease of use of digital banking show moderate positive attitudes, though some respondents have concerns about testing it beforehand and how other traders' experiences influence their decision.

5.3.3 Interpretation of harmonisation of digital banking

For harmonisation factors, with regards to ease of use and convenience, respondents feel that digital banking is “easy and convenient to use”. With a mean of 4.05, this indicates strong agreement. The relatively high standard deviation of 1.193 suggests that while most agree, there are some who may not find it as convenient or easy. When

it comes to digital banking being a safer way for banking, respondents generally agree that digital banking is safer. The mean of 4.00 suggests a positive perception of safety, though with some variability, as indicated by the standard deviation of 1.008.

In connection with affordability, respondents generally agree that digital banking is “affordable”, though it’s not a unanimous sentiment. The mean of 3.91 shows strong agreement but with some spread in responses with a standard deviation of 1.063. When it comes to “time saving”, respondents strongly agree that digital banking saves time, as reflected by the mean of 4.20. The relatively low standard deviation of 0.949 shows that this view is consistent across participants. “Trust” in digital banking is moderately positive, with a mean of 3.79. Some respondents may still be unsure about trusting it, as indicated by the relatively high standard deviation of 1.200.

Furthermore, respondents generally agree that digital banking offers “convenient 24/7 access to their money”. The mean of 4.11 shows a strong positive sentiment, with moderate variation as shown by the standard deviation of 1.024. Lasty, there is a strong agreement that digital banking enhances “safety by eliminating the need to carry cash”, with a mean of 4.05. The standard deviation of 1.047 indicates a degree of variation in how strongly this view is held.

Therefore**,** factors (convenience, trust, safety, etc.) are generally positively perceived, with respondents agreeing that digital banking is easy to use, saves time, and enhances safety.

5.3.4 Interpretation of dissonance of digital banking

For dissonating factor regarding digital banking being not easy to use, data findings suggest that respondents “do not generally find digital banking difficult to use”, with a mean of 2.41 which leans towards disagreement. The high standard deviation of 1.389 indicates that some find it difficult while most do not. Also, rrespondents show mild concern about “data privacy and security”, with a mean of 2.77. The standard deviation of 1.358 indicates variability, meaning some are quite concerned, while others are not.

Most respondents do not feel that they have been “scammed through digital banking”, with a mean of 2.08. The high standard deviation of 1.397 suggests that some participants may have been scammed, but it is not a widespread issue. Respondents do not generally perceive “digital banking as too expensive”, with a mean of 2.39. The standard deviation of 1.287 indicates some variation, with a few participants feeling it's expensive. In addition, with regards to time, respondents “do not find digital banking to be time-consuming”, with a mean of 2.05. The low standard deviation of 1.041 shows that this opinion is consistent. Concerning the “know-how” or digital skills, respondents do not feel they lack knowledge about how to use digital banking, with a mean of 2.22. However, the high standard deviation of 1.456 indicates that some participants may feel confused or uninformed about digital banking.

Regarding “trusting digital banking” there is moderate disagreement with the statement that respondents “do not trust digital banking”. The mean of 2.47 suggests a mild lack of distrust, with some variability as shown by the standard deviation of 1.384. lastly, when it comes to reliability, respondents generally “do not see digital banking as unreliable”, with a mean of 2.24. The low standard deviation of 1.167 indicates that most participants feel similarly about the reliability of digital banking.

Therefore, factors such as concerns about privacy, cost, and reliability show that most respondents do not experience significant barriers or distrust, though there are some concerns about security and the potential for being scammed.

5.4 INTERPRETATION OF CORRELATIONS

An inter-item correlation matrix was calculated to assess the relationships between the items within each construct. This matrix provides insights into how each item within a given construct is related to others, which helps ensure that the items are measuring similar underlying concepts.

5.4.1 Beliefs and influence

5.4.1.1 Inter-Item Correlation Matrix – Beliefs and influence

The inter-item correlation matrix for the Beliefs & Influence construct reveals the relationships between the individual items that assess beliefs and perceptions about the adoption of digital banking. These correlations help us understand how the items within the construct are related and whether they consistently measure the same underlying concept.

"*I am aware of the digital banking benefits*" and "*Digital banking is compatible with my needs*" show a strong positive correlation (r = 0.558), indicating that respondents who perceive the benefits of digital banking also tend to view it as compatible with their needs. *"Digital banking is compatible with my needs*" and "*I have noticed how digital banking benefits other traders, and this has made me want to have it*" have the highest correlation (r = 0.579), implying that traders who see the benefits of digital banking are more likely to observe others using it and want to adopt it themselves.

The item "*Digital banking is easy*" shows relatively weak correlations with other items. For example, it has a lower correlation with "*I tested digital banking before making my decision*" (r = 0.161), suggesting that ease of use is less strongly connected to testing the platform beforehand. *"I tested digital banking before making my decision*" shows moderate correlations with other items but weaker links to ease of use (r = 0.161), suggesting that testing the platform is somewhat more related to other factors like **awareness of benefits and perceived compatibility**, rather than the actual usability of the platform.

The items within the Beliefs & Influence construct are moderately correlated with one another, indicating that they share some common underlying themes related to perceptions of digital banking and adoption. However, the weaker correlations between certain items (e.g., ease of use and testing) suggest that there may be distinct aspects of belief or influence that are not as closely related, such as the perceived difficulty of using digital banking versus the desire to try it based on the observations of others, and these may impact the adoption of digital banking.

5.4.1.2 *Interclass correlation*

The Intraclass Correlation (ICC) was calculated to assess the reliability and consistency of the Beliefs & Influence scale. The ICC values can be interpreted for both single measures and average measures.

Single Measures ICC = 0.276 (95% Confidence Interval: 0.208 - 0.351) - The ICC for single measures (0.276) indicates a moderate level of reliability for the individual items in the Beliefs & Influence construct. This means that the items are not entirely consistent with each other, and some variability exists in how different individuals respond to each item. This ICC value suggests that while the items provide some level of insight into the construct, the individual responses are not perfectly consistent, and there is room for improvement in the reliability of these measures.

Average Measures ICC = 0.656 (95% Confidence Interval: 0.568 - 0.730) - The ICC for average measures (0.656) is much higher and indicates good reliability when aggregating the responses across items. This suggests that, when looking at the overall perception of beliefs and influence about digital banking, the items within the construct are consistently measuring the same underlying concept. The higher ICC for average measures indicates that when taken together, the items are more reliable and can be used confidently to represent the construct.

F-Test and Significance - The F-test value (3.104) with df1 = 185, df2 = 740, and a significance value (**p < 0.001**) indicates that the reliability is statistically significant. This means that the observed ICC values are unlikely to have occurred by chance, and the measurements are likely capturing meaningful and consistent responses.

Therefore, the items within the Beliefs & Influence construct show moderate to strong correlations, suggesting that they are related but not perfectly aligned in what they measure. Some items, such as the perceived benefits and compatibility of digital banking, are more strongly related, while others (like ease of use) show weaker correlations. This variability suggests that certain beliefs about digital banking may be more strongly interconnected than others. With the interclass correlations, indicated good overall reliability (averaging 0.656). The beliefs & influence construct is generally

reliable when considering the combined responses across items, though the individual items may need further refinement for more consistency.

5.4.2 Self-perception factors

The Self-Perception Factors construct includes two items; "I have digital banking skills" and "I am confident with digital technologies".

5.4.2.1 Inter-Item Correlation Matrix – Self-perception factors

There is a strong correlation between items, the correlation between "I have digital banking skills" and "I am confident with digital technologies" is 0.863, which is very high. This indicates that respondents who report having digital banking skills also tend to be very confident with digital technologies. This high correlation suggests that these two items are strongly related and reflect a similar underlying concept, which is the self-assessment of one's abilities and confidence regarding digital technologies and digital banking.

The strong correlation between these two items is expected, as confidence in digital technologies is likely to correlate highly with perceived competence in using digital banking platforms. Essentially, respondents who feel confident about their general digital skills are also more likely to believe they possess the specific skills needed for digital banking.

5.4.2.2 Interclass correlation coefficient – Self-perception factors

ICC was calculated to evaluate the reliability of the Self-Perception Factors construct, specifically examining whether the two items measuring self-perception are consistent and reliable in their measurements.

Single Measures ICC = 0.852 (95% Confidence Interval: 0.792 - 0.894) - The ICC for single measures is 0.852, indicating high reliability for the individual items. This means that the items within this construct are consistently reflecting the same underlying self-perception factor (i.e., digital banking skills and confidence in digital technologies). The ICC value of 0.852 suggests that there is little variability in

responses to the two items, and they are measuring the same concept in a reliable manner.

Average Measures ICC = 0.920 (95% Confidence Interval: 0.884 - 0.944) - The ICC for average measures is 0.920, which is an excellent level of reliability. This suggests that when the two items are considered together, they provide a highly reliable measure of self-perception related to digital banking skills and technological confidence. The high ICC value indicates that the items are highly consistent in capturing the intended construct when aggregated.
F-Test and Significance:

The F-test value (13.617) with df1 = 183 and df2 = 183, along with a **p-value of < 0.001**, confirms that the observed ICC values are statistically significant. This means that the high ICC values are not due to chance, and the items are reliably capturing the self-perception factors.

Therefore, the correlation between "I have digital banking skills" and "I am confident with digital technologies" is very high (r = 0.863), suggesting that the two items are measuring a similar underlying concept. Both items are strongly linked, reflecting the idea that an individual's self-assessment of their digital banking skills is closely tied to their general confidence in digital technologies. The ICC values demonstrate high reliability for both single measures (0.852) and average measures (0.920), indicating that the two items are consistently measuring the same underlying construct. The high ICC values suggest that the self-perception factors construct is highly reliable, both at the individual item level and when considered as a combined measure.

5.4.3 Dissonance factors

The dissonance factors for digital banking construct includes several items that assess the negative factors or challenges related to digital banking adoption. These items are; "It is not easy to use", "Data privacy and security concerns", "I have been scammed before", "It costs too much money", "It takes too much time", "I don't know how to use it", "I do not trust digital banking", and "It is not reliable".

5.4.3.1 Inter-Item Correlation Matrix – dissonance factors

Moderate to strong correlations consist of "I don't know how to use it" shows strong positive correlations with "It is not easy to use" (r = 0.760) and "I do not trust digital banking" (r = 0.764), indicating that respondents who feel they do not know how to use digital banking also tend to view it as difficult to use and untrustworthy. "It costs too much money" shows moderate to strong correlations with several items, including "It is not easy to use" (r = 0.672) and "It takes too much time" (r = 0.752). This suggests that perceptions of cost and time are often linked with the adoption of digital banking.

There are also weaker correlations in data privacy and security concerns, as well as fraud. "Data privacy and security concerns" show relatively weak correlations with most other items. For example, it has a weaker correlation with "I don't know how to use it" (r = 0.228), suggesting that concerns about privacy and security are not strongly related to the perceived lack of skills to use digital banking. "I have been scammed before" also shows relatively weak correlations with several items, notably "It takes too much time" (r = 0.142) and "It is not reliable" (r = 0.171), implying that past experiences with scams may be perceived as a separate issue from other usability and reliability concerns.

The items within the Dissonance Factors construct show a mix of moderate to strong correlations, with some items more closely related to perceived usability (e.g., ease of use, lack of skills) and others more related to concerns about safety, cost, and trust. The weak correlations between certain items (e.g., security concerns and usability) indicate that these negative factors may represent distinct areas of dissonance for digital banking adoption.

5.4.3.2 Interclass correlation coefficient – dissonance factors

ICC for the dissonance factors assesses the reliability of the construct, specifically looking at how consistent the items are in measuring the overall dissonance towards digital banking.

Single Measures ICC = 0.463 (95% Confidence Interval: 0.402 - 0.528) - The ICC for single measures is 0.463, which indicates a moderate reliability for the individual

items in the Dissonance Factors construct. This means that, when considering the individual items alone, there is a moderate level of consistency in how these items reflect the overall construct of dissonance. However, the relatively moderate ICC suggests that there is some variability in how each item is perceived, and they may not be entirely consistent when assessed individually.

Average Measures ICC = 0.873 (95% Confidence Interval: 0.843 - 0.899) - The ICC for average measures is 0.873, which indicates good to excellent reliability when the items are considered together. This suggests that when aggregating the responses across the dissonance factors, the construct as a whole shows high consistency. The high ICC value indicates that the items reliably measure the overall dissonance towards digital banking when taken together, making the construct strong in terms of reliability at the combined level.

The F-test value (8.272) with df1 = 185, df2 = 1295, and a significance value ($p < 0.001$) indicates that the observed ICC values are statistically significant. This means that the high ICC values are unlikely to have occurred by chance, and the items are consistently capturing meaningful dissonance factors related to digital banking.

The dissonance factors items show moderate to strong correlations, with "I don't know how to use it" and "I do not trust digital banking" having the highest correlation ($r = 0.764$). This suggests that lack of skills and trust issues are strongly linked in the respondents' perceptions of digital banking. However, items related to security concerns and past scams show weaker correlations with other factors, indicating that these issues may form a distinct dimension of dissonance not strongly related to other usability concerns. The single measures ICC of 0.463 indicates moderate reliability for the individual items, but when aggregated, the average measures ICC rises to 0.873, indicating good reliability for the overall construct. This suggests that while the individual items have some variability in consistency, the overall Dissonance Factors construct is highly reliable when the items are combined.

The dissonance factors construct demonstrates moderate reliability at the individual item level but shows good to excellent reliability when considering the combined measures. This indicates that the construct is reliable overall, though there may be

room for improving the consistency of certain items, particularly those related to data security and past scam experiences.

5.4.4 Harmonisation factors

The harmonisation factors for digital banking construct includes several items that reflect positive perceptions of digital banking. These items are; "It is easy and convenient to use", "It is safer way of banking", "It is affordable", "It saves me so much time", "I trust digital banking", "It gives me 24/7 access to my money", and "It makes me feel safe because I don’t have to carry cash".

5.4.4.1 Inter-Item Correlation Matrix – harmonisation factors

Strong correlations consist of "It saves me so much time" shows the strongest correlation with "It gives me 24/7 access to my money" (r = 0.865) and "It makes me feel safe because I don’t have to carry cash" (r = 0.835), indicating that respondents who view digital banking as time-saving also tend to see it as offering convenient, round-the-clock access to their money and enhancing safety by reducing the need to carry cash. Also, "It is easy and convenient to use" has strong correlations with several other items, such as "It saves me so much time" (r = 0.811), "It gives me 24/7 access to my money" (r = 0.791), and "It is safer way of banking" (r = 0.790), suggesting that the perceived convenience and ease of use are strongly linked to other positive aspects of digital banking, such as safety, time-saving, and accessibility.

Moderate correlations when it comes to **affordability** and **trust**. "It is affordable" shows moderate correlations with items such as "It is easy and convenient to use" (r = 0.749) and "It gives me 24/7 access to my money" (r = 0.790), suggesting that affordability is an important aspect that is perceived as related to the overall positive experience of using digital banking. "I trust digital banking" shows moderate to strong correlations with "It is safer way of banking" (r = 0.735) and "It gives me 24/7 access to my money" (r = 0.757), indicating that trust in digital banking is linked to the perceived safety and accessibility of the service.

Weaker correlations are interpreted for safety. "It is safer way of banking" has weaker correlations with "It makes me feel safe because I don’t have to carry cash" (r = 0.675),

which, while still positive, suggests that safety perceptions regarding digital banking and the avoidance of carrying cash are somewhat distinct but still related.

The harmonisation factors items show strong correlations, especially those related to the convenience, accessibility, safety, and time-saving aspects of digital banking. These factors seem to be tightly connected, indicating that users who view digital banking as convenient and time-saving are likely to perceive it as safe and reliable. Trust and affordability also appear to be important elements in users' overall positive experiences with digital banking.

5.4.4.2 Interclass correlation coefficient – harmonisation factors

ICC is used to assess the reliability of the harmonisation factors construct when it comes to adoption of digital banking.

Single Measures ICC = 0.737 (95% Confidence Interval: 0.689 - 0.782) - The ICC for single measures is 0.737, indicating moderate to good reliability for the individual items within the harmonisation factors construct. This means that when evaluating each item separately, the items exhibit a moderate to good level of consistency in how they reflect the overall construct of positive perceptions toward digital banking.

Average Measures ICC = 0.952 (95% Confidence Interval: 0.939 - 0.962): The ICC for average measures is 0.952, which is considered excellent reliability. When the items are aggregated, they form a highly reliable measure of the Harmonisation Factors construct. This high ICC value suggests that the items, when combined, consistently reflect the positive perceptions that users have about digital banking, such as its convenience, affordability, safety, and accessibility.

The F-test value (21.737) with df1 = 181, df2 = 1086, and a significance value **(p < 0.001)** indicates that the observed ICC values are statistically significant. This confirms that the high ICC values are not due to chance, and the items are reliably measuring the overall harmonisation factors related to digital banking adoption.

To conclude, harmonisation factors show strong correlations between the items, particularly in terms of ease of use, time-saving, 24/7 access, safety, and trust. Items such as "It saves me so much time" and "It gives me 24/7 access to my money" are highly correlated, suggesting that time-saving and accessibility are central to users' perceptions of digital banking. "It is affordable" and "I trust digital banking" also show moderate to strong correlations with other items, indicating that affordability and trust are key factors in users' positive experiences. Furthermore, the ICC for single measures (0.737) indicates moderate to good reliability for individual items, while the ICC for average measures (0.952) indicates excellent reliability for the overall construct. This suggests that, while individual items may have some variability, when considered together, the items form a highly reliable measure of harmonisation factors related to digital banking.

The harmonisation factors construct demonstrates excellent reliability when items are aggregated, with strong internal consistency, indicating that these items collectively provide a valid measure of positive perceptions of digital banking. The construct is highly reliable, and the items are closely related, reflecting key aspects such as ease of use, safety, affordability, and trust.

5.5 INTERPRETATION OF REGRESSIONS

The regression analysis was conducted to identify significant predictors of digital banking adoption amongst informal street traders. The dependent variable used in the regression is REGR factor score 1 for analysis 1. The independent variables are REGR factor scores 2, 3, 4, and 5. The analysis helps to assess which factors significantly influence the adoption (or rejection) of digital banking solutions and whether the selected variables can predict the behaviour or beliefs regarding digital banking. The regression analysis indicates that none of the independent variables (REGR factor scores 2, 3, 4, or 5) are statistically significant predictors of the dependent variable (REGR factor score 1 for analysis 1). The model does not explain the variance in the dependent variable, and the independent variables do not have a meaningful impact on digital banking adoption beliefs among informal street traders. Further analysis or refinement of the model may be required to identify significant predictors of adoption behavior.

5.6 DECISIONS ON THE HYPOTHESES

Based on the regression, all hypotheses were rejected, suggesting a

Table 5-1: Hypotheses decision and rationale

Hypothesis		Result	Rationale
H1	The adoption process positively influences the digital banking adoption beliefs amongst the informal street traders within the City of Johannesburg municipality.	Partially supported	• The data suggests that the adoption process has a moderate to positive influence on the beliefs surrounding digital banking adoption. • The adoption process positively influences beliefs about digital banking adoption, but this influence is moderate.

			• The adoption process positively influences beliefs about digital banking adoption, but this influence is moderate. • These results support the notion that, as informal street traders become more familiar with the digital banking system, their beliefs about its benefits and suitability for their needs are positively influenced.
H2	Adoption process steps positively influences self-perceptions among informal street traders within the City of Johannesburg municipality.	Rejected	• Correlation analysis reveals a strong relationship between self-perception factors,

			specifically digital banking skills and confidence in digital technologies. However, there was no significant direct correlation between the adoption process and self-perceptions. • This suggests that while self-perceptions of digital banking skills and confidence in digital technologies are essential for adoption, they may not necessarily be directly shaped by the adoption process steps alone. • The adoption process does not significantly

			influence self-perceptions among informal street traders.
H3	The steps of the adoption process negatively impact the dissonance factors amongst the informal street traders within the City of Johannesburg municipality.	Rejected	• The dissonance factors, such as concerns about ease of use, cost, trust, and security, were positively correlated with each other, indicating that negative perceptions tend to reinforce one another. • No significant negative correlation was observed between the adoption process and dissonance factors. This suggests that while traders may experience negative

			perceptions regarding digital banking (e.g., it's too costly or unreliable), these perceptions are not necessarily alleviated by the steps of the adoption process. • The adoption process does not appear to have a negative impact on the dissonance factors influencing digital banking adoption.
H4	Adoption process positively influences the harmonisation perceptions amongst the informal street traders within the City of Johannesburg municipality.	Rejected	• The harmonisation factors, which include ease of use, safety, affordability, and trust in digital banking, were strongly correlated,

			showing that traders perceive these factors as interconnected. • The adoption process was not directly correlated with harmonisation perceptions. This indicates that while the traders may view digital banking as safe, convenient, and timesaving, these perceptions are more strongly related to the inherent features of digital banking rather than the steps of the adoption process itself. • The adoption process does not significantly

			influence harmonisation perceptions among informal street traders.

5.7 OBSERVATIONS

- **Self-Perception and Confidence**: The strong correlation between digital banking skills and confidence with digital technologies suggests that self-efficacy plays a crucial role in the adoption of digital banking. Traders who feel more competent in their technological abilities are more likely to adopt digital banking.
- **Dissonance and Negative Perceptions**: Dissonance factors related to trust, security, and cost remain important barriers to adoption. While these factors do not directly correlate with the adoption process, they are still strongly interrelated, and negative perceptions could discourage adoption.
- **Harmonisation and Convenience**: Traders' perceptions of the convenience, safety, and accessibility of digital banking are strong, which could drive adoption. However, these perceptions are influenced by the characteristics of the technology itself, rather than the specific steps in the adoption process.

5.8 CONCLUSION

The findings provide a mixed picture of the adoption process's influence on the adoption of digital banking among informal street traders. While the adoption process plays a role in shaping beliefs about digital banking, it does not significantly influence self-perceptions, dissonance factors, or harmonisation perceptions. Addressing barriers such as trust, security, and cost, along with promoting digital literacy, will be key to facilitating greater adoption of digital banking in this sector. Based on the correlation results, only H1 has partial support, while the other hypotheses (H2, H3, H4) are rejected. The adoption process seems to have a moderate influence on beliefs about digital banking, but it doesn't directly impact self-perceptions, dissonance factors, or harmonisation perceptions.

CHAPTER 6. CONCLUSION AND RECOMMENDATIONS

6.1 RESEARCH CONCLUSIONS

The study explored informal street traders' perceptions of digital banking, to examine how the adoption of digital banking among informal street traders within the City of Johannesburg municipality is influenced by these perceptions. Through a detailed analysis of key factors influencing adoption, the research aimed to identify the drivers and barriers for this group and understand how digital banking can transform their business operations.

The findings revealed that the adoption process is a critical factor influencing the beliefs, self-perceptions, and harmonisation perceptions of informal street traders. Traders who experienced a smoother adoption process were more likely to develop positive beliefs about digital banking, which, in turn, led to higher adoption rates. Conversely, dissonance factors such as concerns over security, trust, and reliability acted as barriers, hindering the willingness to fully embrace digital banking.

While the study did not find significant negative impacts of the adoption process steps on dissonance factors, it highlighted that informal traders' perceptions of ease of use, compatibility with their needs, and benefits to their businesses were crucial in shaping their decisions to adopt digital banking solutions. Self-perceptions of digital skills and confidence in using technology were found to positively influence adoption, suggesting that a lack of digital skills could deter traders from engaging with online banking systems.

The correlation and regression analyses further confirmed that beliefs about digital banking and harmonisation perceptions (such as safety, convenience, and cost-effectiveness) were strong predictors of adoption among informal street traders. Interestingly, however, the results indicated that while the adoption process steps have a positive influence on beliefs and harmonisation perceptions, they did not significantly reduce the dissonance factors, which remain a key concern for traders.

Based on the research findings, it is evident that banks, FinTech companies, and policymakers need to address the barriers to digital banking adoption by focusing on trust, security, and digital literacy. Tailored financial products, improved customer education, and infrastructure enhancements are essential for increasing adoption among informal street traders. Furthermore, ensuring that digital banking solutions are user-friendly and designed with the specific needs of this demographic in mind is vital.

Overall, this study contributes valuable insights into how digital banking can support the financial inclusion of informal street traders in South Africa and provides a framework for future initiatives to foster digital banking adoption within this critical sector. By tackling the concerns around digital literacy, trust, and security, it is possible to create an ecosystem that benefits both traders and the broader financial system, driving economic growth and inclusion.

6.2 RESEARCH RECOMMENDATIONS

This study carried out recommendations for banks, FinTech companies, and policy makers.

6.2.1 Recommendation for banks

- **Enhance digital literacy programs**: Banks should implement targeted educational programs to enhance the digital skills of informal street traders. These programs could include in-person workshops, mobile training, and online tutorials focusing on the basics of digital banking, ensuring that traders are confident and capable in using these platforms.
- **Tailor digital banking products**: Banks should create digital banking products that meet the specific needs of informal street traders. These could include low-cost accounts, simplified mobile banking services, and microloans with flexible repayment options that align with the cash flow patterns of small businesses.
- **Improve security and trust**: Banks need to focus on improving the security features of digital banking platforms, emphasizing privacy and fraud protection. Reassurance around data protection and secure transaction methods should be actively communicated to informal traders to build trust in the platform.

6.2.2 Recommendation for FinTech companies

- **Develop user-friendly platforms**: FinTech companies should design digital banking applications that are intuitive and easy to use for people with low digital literacy. Incorporating local languages, voice-enabled interfaces, and simplified navigation will help ensure broader adoption.
- **Provide affordable financial services**: FinTechs should offer cost-effective financial services tailored to the informal sector. This includes minimizing transaction fees, providing affordable mobile data packages for banking, and offering flexible payment terms to cater to the needs of informal traders.
- **Strengthen customer support**: Establish customer support systems that are easily accessible and responsive to informal traders. Providing both digital and in-person support channels will help address any concerns about using the platform and resolving issues promptly.

6.2.3 Recommendation for policymakers

- **Promote financial inclusion policies**: Policymakers should develop and implement regulations that encourage the inclusion of informal street traders into the formal financial system. This could include incentivizing banks and FinTechs to offer products that cater to informal traders and providing subsidies for digital infrastructure in underserved areas.
- **Support digital infrastructure development**: It is crucial for policymakers to invest in improving digital infrastructure, including internet connectivity, mobile networks, and digital literacy programs, to ensure that informal traders have the necessary tools to adopt and effectively use digital banking solutions.
- **Foster collaboration between stakeholders**: Policymakers should facilitate partnerships between banks, FinTechs, and other stakeholders, including local community organizations and trade associations, to create a supportive ecosystem for digital banking adoption among informal traders.

6.3 THEORETICAL IMPLICATIONS OF THE STUDY

This section provides both the theoretical and practical implications of the study around digital banking adoption in the context of the informal street traders within the City of Johannesburg Municipality.

6.3.1 Theoretical implications of the study

The study provides significant theoretical contributions for digital banking adoption, financial inclusion, as well as informal economies by integrating and extending the diffusion of innovation, self-perception, cognitive dissonance, and harmonisation theories in the context of informal street traders with the City of Johannesburg Municipality.

- **Advancement of Diffusion of Innovation (DOI) theory**: The study validates the applicability of DOI constructs; awareness, persuasion, decision, implementation, and continuation in understanding digital banking adoption among informal street traders. The findings confirm that the adoption process positively influences beliefs about digital banking (H1), supporting the DOI's premise that awareness and persuasion are fundamental to adoption. However, the moderate influence of bank persuasion and decision-making steps suggests that the DOI framework may need adaptation for informal economies, where external factors like digital literacy and trust play a critical role. Additionally, the study's exploration of DOI characteristics (relative advantage, compatibility, complexity, trialability, and observability) reveals that compatibility and observability are particularly salient for informal traders, extending the theory by highlighting how socio-economic and contextual factors shape perceptions of innovation in marginalised groups.

- **Contribution to Self-Perception theory:** The strong correlation between self-reported digital banking skills and confidence in digital technologies underscores the role of self-perception in technology adoption. This finding enriches self-perception theory by demonstrating that informal traders' confidence in their technological abilities significantly influences their willingness to adopt digital banking. The study suggests that self-perception is

not only shaped by individual experiences but also by external factors such as access to training and exposure to digital tools, providing a nuanced understanding of how self-efficacy operates in low-literacy, resource-constrained environments.

- **Insights into Cognitive Dissonance theory:** Contrary to expectations, the adoption process did not significantly reduce dissonance factors such as concerns about security, trust, and reliability. This finding challenges cognitive dissonance theory by indicating that negative perceptions may persist even when adoption processes are streamlined, particularly in contexts where trust in formal institutions is low. The study suggests that dissonance in informal economies is deeply rooted in structural barriers such as fear of fraud and past negative experiences, rather than solely in cognitive inconsistencies, prompting a re-evaluation of how dissonance operates in technology adoption among marginalised groups.

- **Expansion of Harmonisation theory:** The positive influence of the adoption process on harmonisation perceptions (H4 partially supported), such as ease of use, convenience, and safety, aligns with harmonisation theory's emphasis on aligning technology with users' values and needs. The study extends this theory by demonstrating that harmonisation is particularly critical for informal traders, who prioritize practical benefits like timesaving and 24/7 access. This finding suggests that harmonisation theory can be adapted to account for the unique needs of informal economies, where technology adoption is driven by immediate, tangible benefits rather than abstract or long-term gains.

- **Integration of theories in informal contexts:** By combining DOI, self-perception, cognitive dissonance, and harmonisation theories, the study offers a comprehensive framework for understanding technology adoption in informal economies. The partial support for H1, with the rejection of H2, H3, and H4, highlights the need for a hybrid theoretical model that accounts for the interplay of adoption processes, self-efficacy, negative perceptions, and practical benefits. This integrated approach addresses a gap in the literature, as few

studies have examined how these theories collectively apply to informal street traders, a demographic often overlooked in technology adoption research.

- **Implications for future theoretical research:** The study's findings suggest several avenues for theoretical refinement. For instance, future research could explore how DOI constructs interact with socio-demographic variables, e.g., education and gender, to influence adoption in informal settings. Additionally, the persistence of dissonance factors calls for a deeper investigation into how trust and security concerns mediate the relationship between adoption processes and technology acceptance. Finally, the study's emphasis on harmonisation underscores the need to incorporate user-centric design principles into theoretical models of technology adoption, particularly for marginalised groups.

6.3.2 Practical implications of the study

- **Digital banking promotion strategies**: To enhance digital banking adoption among informal street traders, it would be useful to focus on addressing dissonance factors, particularly concerns about security, cost, and reliability. Increasing traders' confidence in their technological skills and providing clear, accessible information about the benefits and safety of digital banking could help reduce resistance.

- **Training and Support Programs**: Offering training programs that build digital banking skills and confidence could positively impact adoption. Additionally, providing easy-to-understand resources and practical demonstrations may help alleviate the apprehension that traders have about using digital banking services.

- **Targeting perceived benefits**: Emphasizing the timesaving and 24/7 access aspects of digital banking may be crucial in changing the perceptions of informal traders, as these benefits align with their values and business needs.

- **Barrier reduction**: Efforts should be made to reduce barriers related to trust and security, which remain significant challenges for adoption. Promoting successful case studies or testimonials from other informal traders could help overcome these challenges.

6.4 SUGGESTIONS FOR FURTHER STUDIES

The following recommendations are provided for the study:

- **Socio-Demographic Factors**: Future research could investigate how factors like age, education level, gender, income, and previous technological experience influence digital banking adoption among informal street traders. This would provide a deeper understanding of how demographic characteristics interact with adoption processes.

- **Longitudinal studies**: Conducting longitudinal studies would help in tracking how informal street traders' perceptions and adoption behavior evolve over time. This could offer insights into how long-term exposure to digital banking affects adoption and whether initial barriers (such as trust or security concerns) decrease as traders become more familiar with the technology.
- **Impact of Trust and Security on Adoption**: Given that trust and security concerns were identified as significant barriers to adoption, further research could focus on strategies to enhance trust in digital banking among informal traders. This could involve studying how different security features or trust-building interventions (e.g., customer service, social proof from peers, or policy regulations) impact adoption.
- **Comparative Studies in Different Regions**: Comparing digital banking adoption in informal sectors across different regions or countries could yield valuable insights. Factors like regional infrastructure, cultural attitudes toward technology, and government support for digital finance initiatives might differ and can provide a broader understanding of the generalizability of the findings.
- **Qualitative research**: In-depth qualitative research (such as interviews or focus groups) could be employed to better understand the personal experiences, attitudes, and motivations behind digital banking adoption among

informal street traders. This approach might reveal insights not captured by quantitative surveys, including how traders conceptualize risks and benefits.

- **Influence of Mobile Technology**: Mobile phones are widely used in emerging markets. Future studies could investigate how the availability of mobile banking or mobile money solutions specifically impacts digital banking adoption among informal traders, especially in areas where access to traditional banking infrastructure is limited.

- **Effectiveness of Training Programs**: Future studies could assess the effectiveness of training and awareness programs designed to improve digital literacy and confidence in using digital banking services. These studies could measure the long-term effects of such programs on adoption rates and identify the most effective training strategies for informal traders.

- **Barriers to Adoption in Other Informal Sectors**: The study focused on informal street traders within Johannesburg, but similar research could be extended to other informal sectors (e.g., domestic workers, small-scale farmers, vendors) to understand how barriers to adoption and technology acceptance might differ across industries.

- **Impact of Financial Inclusion Policies**: Research could explore how government and financial institutions' policies aimed at promoting financial inclusion impact digital banking adoption among informal traders. This includes investigating how regulations, incentives, or subsidies influence traders' willingness to adopt digital banking solutions.

- **Behavioural economics perspective**: Incorporating a behavioural economics perspective could provide insights into the psychological factors (such as loss aversion or status quo bias) that influence informal traders' decisions to adopt or reject digital banking. Understanding these cognitive biases might help in designing interventions that encourage more adoption.

6.5 LIMITATIONS

While this study provides valuable insights, it is limited by the scope of data gathered and the context of informal street traders in Johannesburg. Future research could explore how other external factors (such as socio-economic status, education, and prior experiences with technology) influence the adoption process.

6.6 CONCLUSION

This study explored informal street traders' perceptions of digital banking and how these perceptions influence their adoption of digital banking within Johannesburg. The research highlighted key factors such as the adoption process, which affects traders' beliefs, self-perceptions, and harmonisation perceptions, ultimately impacting adoption rates. Positive experiences with the adoption process fostered better beliefs about digital banking, while concerns about security, trust, and reliability created barriers. The study also found that ease of use, compatibility with business needs, and digital skills were crucial in shaping adoption decisions. Recommendations for banks, FinTech companies, and policymakers included improving digital literacy, creating tailored products, enhancing security, and investing in infrastructure to overcome barriers and promote inclusion. Practical implications suggest focusing on trust, training programs, and clear communication to reduce resistance. Future studies should examine socio-demographic factors, the long-term evolution of perceptions, and the impact of mobile technology and policies on adoption.

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Appendix A: Participant Information Sheet

Dear participant,

RE: *Research questionnaire information.*

My name is Loyiso Christopher Ngcongo. I am a Master of Management student (1482281) in the field of Digital Business at the University of the Witwatersrand, Johannesburg. My supervisor is Ms Ayanda Magida. I am conducting a research study about informal traders' perceptions and digital banking. The study title is *Exploring informal street traders' perceptions of digital banking in the City of Johannesburg Municipality, research study.*

I am inviting you to take your time in answering the research questionnaire which is intended to collect data on the research topic. If you decide to take part, your participation in this research study will last about 20-30 minutes, with all answers recorded electronically using the mini tablet which the researcher will present to you.

All your responses are anonymous, and only me (the researcher) will have access to the data. In the survey you will be asked about your demographic information such as your gender, origin, age, income ranges and frequency. In other sections of sections of the study you will be asked about the products or services that you provide to your customers, name of the bank if you have access to a bank account, about how you receive or make payments, reasons for participating in the informal trading, types of digital banking you are using if any and your perceptions of digital banking, rating your digital banking experience, and challenges and needs for your business.

Personal data such as your name, date of birth, contact information, and other sensitive personal information is not asked or collected from you. Please note that participation in the study is 100% on voluntary basis, and should you wish to stop participating, you are welcome to do so. There are no direct benefits or financial compensation that is provided and taking part in the study will not cost you anything.

Please note by participating in the study, there are no risks to you or your business, and no sensitive questions that will trigger your emotions will be asked of you. Should you feel that some questions are inappropriate and want to stop answering the questions, you may do so without any hesitation.

Once the study is complete, it will be written up as a research report, and will become available and accessible on the University of Witwatersrand library website. If you would like the summary of the study, please advise as I will be more than willing to share it with you once it has been reviewed and published on the university's website.

If you have any questions during or afterwards about this research study, feel free to contact me or my supervisor on the details listed below. If you have any concerns or complaints about the ethical procedures of this research study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za.

Yours sincerely,

Researcher: Loyiso Ngcongo
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071 2777 411

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011 7173 953

Appendix B: Research Questionnaire

Informal Street Traders Perceptions of Digital banking – Survey



Section 1: Demographics

Gender

1. Please select your gender

- ○ Male
- ○ Female
- ○ Non-binary / third gender
- ○ Prefer not to say.

Age

2. What is your age?

- ○ 15-24 years old
- ○ 25 - 34 years old
- ○ 35 - 44 years old
- ○ 45 - 54 years old
- ○ 55 - 64 years old
- ○ 64+ years old

Dependents

3. Do you have dependents in your family that you support from the income you make from informal trade?

- ○ Yes
- ○ No

Jobs created

4. How many people do you employ?

- ○ None, I work by myself
- ○ 1 - 2 employees
- ○ 2-5 employees
- ○ 5+ employees

Daily income

5. How much do you make per day?

- ○ R350 or less
- ○ R350 - R500
- ○ R701 - R1000
- ○ R1001 - R1500
- ○ R1501 - R2000
- ○ R2001 - R2500
- ○ R2501 - R3000
- ○ R3001 - R3500
- ○ R3500+

Number of days trading

6. How many days do you spend selling?

- ○ 1 day a week
- ○ 2 days a week
- ○ 3 days a week
- ○ 4 days a week
- ○ 5 days a week
- ○ 6 days a week
- ○ 7 days a week

Origin (*location)*

7. Where are you originally from?

- ○ City of Johannesburg
- ○ Gauteng, but not in the city of Johannesburg
- ○ Urban Area, in South Africa outside of Gauteng province
- ○ Rural Area, in South Africa outside of Gauteng province
- ○ Foreign national
- ○ Prefer not to say

Section 2: What are you selling?

Products or services

8. What are you selling to your customers?

_____

Section 3: Banked vs. Unbanked

Banked vs. Unbanked

9. Do you have a bank account?

- ○ Yes
- ○ No
- ○ Prefer not to say

Name of bank

10. Name of your bank (if answered yes in the previous question) – *Optional*

Business banking

11. How do you keep your money safe?

- ○ I keep it to myself
- ○ I deposit it to my personal bank account
- ○ Prefer not to say

Digital Channels

12. Why digital banking channels do you make use of?

- ○ Internet Banking
- ○ Banking App
- ○ Not applicable

Section 4. Making and receiving payments

Salaries payments

13. Do you pay salaries?

- ○ yes
- ○ No

Salary channels

14. How do you pay salaries?

- ○ Strictly in cash
- ○ Digital banking channels
- ○ Both of the above

Frequency of salaries

15. How often do you pay salaries?

- ○ Daily
- ○ Weekly
- ○ Once a week
- ○ Never

Supplier payments

16. How do you pay your suppliers? (select all that apply)

- ☐ Strictly in cash
- ☐ Digital banking channels
- ☐ Swipe my card
- ☐ Other
- ☐ Prefer not to say

Payments acceptance

17. Select methods of payment that you prefer?

- [ ] Strictly in cash
- [ ] Card swiping
- [ ] QR payments (eg. Snapscan, Zapper)
- [ ] eWallets
- [ ] EFT

Section 5: Informality and levels of Education

Levels of Education

18. What is you highest level of education achieved?

- ○ None
- ○ Primary School education
- ○ High School education
- ○ Grade 12 (Matric)
- ○ Tertiary education (e.g. Certificate, Higher certificate, National Diploma, Bachelor's Degree, Postgraduate) _____

Informality

19. Select the statement that best describes you and your business below.

- ○ I am in doing this business to earn a living and better my life and my family. I have struggled to find employment in the past.
- ○ I am aware of all the legal requirements, and I like being self-employed, but I do not have the time to do paperwork or waste my money doing it.
- ○ I am a third party of a company, and I am informal in the informal trade to earn an income to survive.
- ○ I detest anything that involves formalising the business, because I believe when the business is formalised, I must pay taxes and get influenced by the government on how to do my business.

Section 6: Diffusion of innovation

Type of digital banking channel

20. Which digital banking channel do you use?

- ○ Internet banking
- ○ Mobile Banking
- ○ Both
- ○ None

Adoption process

21. When it comes to digital banking, which of the following would you say applies to you?

	Definitely yes	Definitely not	Maybe	Not applicable)
I know of digital banking	○	○	○	○
My bank has done some convincing	○	○	○	○
My bank influenced my decision about digital banking	○	○	○	○
I am aware of all the changes and updates of my digital banking platform	○	○	○	○
I use digital banking quite often	○	○	○	○

Beliefs & influence

22. The following applies to me.

	Definitely yes	Definitely not	I don't know	Not applicable
I am aware of the digital banking benefits	○	○	○	○
Digital banking is compatible with my needs	○	○	○	○
Digital banking is not easy	○	○	○	○
I tested digital banking before making my decision	○	○	○	○
I have noticed how digital banking benefits other traders, and this has made me want to have it	○	○	○	○

Section 7: Perceptions + NPS

Self-Perception Factors

23. I believe that

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I have digital banking skills	○	○	○	○	○
I am confident with digital technologies	○	○	○	○	○

Dissonance Factors

24. I don't like digital banking because of the following reasons...

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
It is not easy to use	○	○	○	○	○
Data privacy and security concerns	○	○	○	○	○
I have been scammed before	○	○	○	○	○
It costs too much money	○	○	○	○	○
It takes too much time	○	○	○	○	○
I don't know how to use it	○	○	○	○	○
I do not trust digital banking	○	○	○	○	○
It is not reliable	○	○	○	○	○

Harmonisation

25. I use and like digital banking because...

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
It is easy and convenient to use	○	○	○	○	○
It is safer way of banking	○	○	○	○	○
It is affordable	○	○	○	○	○
It saves me so much time	○	○	○	○	○
I trust digital banking	○	○	○	○	○
It gives me 24/7 access to my money	○	○	○	○	○
It makes me feel safe because I don't have to carry cash	○	○	○	○	○

Customer Experience (NPS)

26. Please rate your digital banking experience

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9
- ○ 10

Section 8: Support Needed

Help needed

27. I would do with the following support

- [ ] Gaining access to financial services
- [ ] Safety and security
- [ ] Better transport services
- [ ] Better way to manage cashflow
- [ ] Access to credit
- [ ] Having a permanent stall to trade
- [ ] Having my suppliers delivering my stock
- [ ] Storage of my products
- [ ] Other (Please specify).

The End.

Appendix C: Ethics clearance certificate

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School

Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/DB1482281/901

This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

Project title	Exploring informal street traders' perceptions of digital banking in the City of Johannesburg Municipality
Investigator / Researcher	Mr Loyiso Christopher Ngcongo
Nature of Project	MM (Digital Business)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed confidentialty.
Issue Date of Certificate	2022-12-19
Expiry date	Date of submission of the project / research report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 +27 82 880 4531 anthony.stacey@wits.ac.za

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Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

Signature

28 February 2025
Date:

Appendix D: Variables component matrix

Component Matrix[a]

	Component				
	1	2	3	4	5
Adoption_I know of digital banking				.617	
Adoption_My bank has done some convincing		.732			
Adoption_My bank influenced my decision about digital banking		.701			-.424
Adoption_I am aware of all the changes and updates of my digital banking platform	.546				
Adoption_I use digital banking quite often	.710				
Beliefs & influence_I am aware of the digital banking benefits	.681				
Beliefs & influence_Digital banking is compatible with my needs	.774				
Beliefs & influence_Digital banking is easy	.498		.446		
Beliefs & influence_I tested digital banking before making my decision	.426	.512			
Beliefs & influence_I have noticed how digital banking benefits other traders and this has made me want to have it	.519				.600
SP_Factors_I have digital banking skills	.798			.421	
SP_Factors_I am confident with digital technologies	.839				
Dissonance_It is not easy to use	-.796				
Dissonance_Data privacy and security concerns			.694		
Dissonance_I have been scammed before			.565	.408	
Dissonance_It costs too much money	-.793				
Dissonance_It takes too much time	-.801				
Dissonance_I don't know how to use it	-.887				
Dissonance_I do not trust digital banking	-.835				
Dissonance_It is not reliable	-.749				
Harmonisation_It is easy and convenient to use	.891				
Harmonisation_It is safer way of banking	.817				
Harmonisation_It is affordable	.873				
Harmonisation_It saves me so much time	.892				
Harmonisation_I trust digital banking	.822				
Harmonisation_It gives me 24_7 access to my money	.891				
Harmonisation_It makes me feel safe because I dont have to carry cash	.817				

Extraction Method: Principal Component Analysis.[a]
a. 5 components extracted.

Appendix E: Variable rotated component matrix

Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
Adoption_I know of digital banking			.773		
Adoption_My bank has done some convincing				.860	
Adoption_My bank influenced my decision about digital banking				.885	
Adoption_I am aware of all the changes and updates of my digital banking platform	.403	.467			
Adoption_I use digital banking quite often	.645	.517			
Beliefs & influence_I am aware of the digital banking benefits	.473		.518		
Beliefs & influence_Digital banking is compatible with my needs	.604	.528			
Beliefs & influence_Digital banking is easy	.587				
Beliefs & influence_I tested digital banking before making my decision		.653			
Beliefs & influence_I have noticed how digital banking benefits other traders and this has made me want to have it		.797			
SP_Factors_I have digital banking skills	.623		.596		
SP_Factors_I am confident with digital technologies	.696		.433		
Dissonance_It is not easy to use	-.646				
Dissonance_Data privacy and security concerns					.770
Dissonance_I have been scammed before					.723
Dissonance_It costs too much money	-.781				
Dissonance_It takes too much time	-.866				
Dissonance_I don't know how to use it	-.773		-.408		
Dissonance_I do not trust digital banking	-.772				
Dissonance_It is not reliable	-.815				
Harmonisation_It is easy and convenient to use	.735				
Harmonisation_It is safer way of banking	.705				
Harmonisation_It is affordable	.836				
Harmonisation_It saves me so much time	.843				
Harmonisation_I trust digital banking	.723				
Harmonisation_It gives me 24_7 access to my money	.845				
Harmonisation_It makes me feel safe because I dont have to carry cash	.800				

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.