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2023

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Digital payments adoption of informal small and medium enterprises in South Africa's township economy

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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, 2023

ABSTRACT

The use of cash for making and receiving payments in South Africa's townships continues to grow, despite the proliferation of alternative payment methods. Merchants operating informal businesses are reluctant to accept payments digitally, which further contributes to the socio-economic burdens experienced in townships.

This study investigated merchants' intention to use digital payment acceptance methods, specifically in the informal sector. The UTAUT2 was employed, extended with the Perceived Risk Theory.

The study adopted a quantitative research approach. A questionnaire was used to collect data from 120 respondents online and face-to-face. The questionnaire was based on previously researched and theorised literature. Factor analysis, particularly Principal Components Analysis, was used to analyse the results. Correlation analysis was conducted to test the hypothesis, followed by multiple regression.

The findings revealed that the independent variables Performance Expectancy, Effort Expectancy, Price Value and Perceived Trust all positively influenced the behavioural intention of informal merchants to use digital payment acceptance methods. Performance Expectancy had the strongest influence, whilst Perceived Risk was not found to have a negative influence on the behavioural intention of informal merchants to adopt.

KEYWORDS

Digital payments; township economy; informal sector; SME

DECLARATION

I, Nompilo Mabaso, 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: Nompilo Mabaso **Signature:**

Signed at Johannesburg

On the 19th of June 2023

ACKNOWLEDGEMENTS

Thank you Jesus! It has been by the grace of God that this paper came together. I dedicate it to my late father, Don Mahlangu, who instilled the love of learning in me. I'm grateful to my wonderful husband, Hlayiseka, for his endless support, love and understanding. Thank you for all the prayers and keeping me sane along this journey. To my brilliant kids, Kitso and Rito, thank you for being patient with me – when you had supper late and when I couldn't give you the attention you so needed. Let this be your inspiration as you create your own paths in life. Thank you to my mother, sisters Thuxie and Ndubs for their words of encouragement when I needed it most. I'm so grateful to the Mabaso family for always being there for me.

I thank my employer for seeing enough potential in me to provide financial support for this degree. Last but never least, to my supervisor whose direction and guidance has been most appreciated.

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LIST OF ACRONYMS

Table 0.1: Acronyms

API	Application programming Interface
A2A	Account to account
BNPL	Buy Now Pay Later
EFT	Electronic Funds Transfer
NFC	Near Field Technology
POS	Point of Sale
P2B	Person to business payments
P2P	Person to Person payments
QR	Quick Response
SWIFT	Society for the Worldwide Interbank Financial Telecommunication
UPI	Unified Payment Interface
USSD	Unstructured Supplementary Service Data

CHAPTER 1. INTRODUCTION

1.1 Statement of purpose

This quantitative study examines the factors contributing to digital payments adoption within an informal small to medium-sized business in a South African township economy. A research model is developed through extending the Unified Theory of Acceptance and Use of Technology (UTAUT2) to include risk and trust. The model was tested using primary data collected through an online or paper-based survey. The sample population is limited to respondents who operate informal businesses in Pretoria townships.

1.2 Background of the study

The study takes place in the context of South African townships: underdeveloped residential areas that came about under the Apartheid regime (Cant, 2017). Townships were initially reserved for Black, Coloured and Indian people until 1994, who were then classified as 'historically disadvantaged' (Gauteng Provincial Legislature, 2022). In 2017, it was estimated that 50% of South Africa's urban population resided in townships, with approximately 38% being part of the country's workforce (Cant, 2017).

1.2.1 *South Africa's township economy*

The township economy refers to the market in which small, medium and micro-sized enterprises (SMMEs) operate in townships (Gauteng Provincial Legislature, 2022). The most common activities carried out by SMMEs in townships, also referred to as small- to-medium enterprises or SMEs here onwards, include retail trade, personal and household services and transport (Cant, 2017). Within the township economy, businesses are classified as formal or informal. The former constitutes businesses registered with the Companies and Intellectual Property Commission (CIPC), the agency which governs different types of companies including private and public, in terms of the Companies Act 71 of 2008 (South

African Government, 2023). These businesses typically pay taxes, provide fixed-term employment and are regulated.

The informal sector comprised approximately 30% of the township economy in South Africa in 2017 (Mathibe, Mochenje, & Masonta, 2021). The businesses are usually run by people who are not employed by the formal sector, who may not be paying taxes and are possibly not monitored by the government. Examples include spaza shops, street vendors and businesses operated out of people's homes. In 2021, the informal sector accounted for approximately 6% of SA's GDP and contributed 17% to overall employment (Edey Van Wyk & Van Gaalen, 2021). In 2022, contribution to GDP grew to nearly 18% and over 3 million people were employed in the sector (SME South Africa, 2022).

1.2.2 *Challenges faced by SMEs in the township economy*

SMEs, particularly those operating in the informal township sector, face several challenges. The Covid-19 pandemic threatened informal traders' ability to earn a living income and further exacerbated poverty and financial exclusion (UNDP, 2021). This coupled with the country's rising unemployment rate, at 34.5% in the first quarter of 2022 (Trading Economics, 2022), lack of business infrastructure, lack of capital and funding and crimes such as stock theft have impacted township enterprises (Cant, 2017). Women and youth are at a disadvantage in terms of business ownership and are most affected by unemployment (UNDP, 2021).

1.3 Research problem

A study by Genesis Analytics (2016) has revealed that, although the country's population who possess bank accounts has risen, translating to higher card usage, the use of cash in the informal economy has continued to grow, albeit at a slower pace (Genesis Analytics, 2016). SA's informal SMEs still prefer cash as a means of payment acceptance, despite there being increasing options of low-cost digital payment methods (such as QR-code payments and mobile wallets) in marginalised economies (PASA, 2019). SMEs in townships or rural areas have not been presented with enough low cost options to accept digital payments. The

merchant fees associated with POS devices and QR-code solutions and high data are amongst the biggest impediments for informal merchants when it comes to digital payments (PASA, 2019).

The amount of cash in circulation has posed numerous problems for both consumers and merchants. The costs incurred with handling cash have been mainly driven down the value chain and passed to merchants and consumers, therefore further contributing to socio-economic burdens of the township economy (Genesis Analytics, 2016). Informal merchants have contributed to the prevalent cash usage by not accepting digital payment methods as they perceived these to be costly, susceptible to fraud and unreliable (Genesis Analytics, 2016). Furthermore, adoption of alternative payment methods to cash, i.e. digital payments, has been slowed by the technological inadequacy to match the characteristics of cash (such as interoperability and universal acceptance) (PASA, 2019).

Through the observations mentioned, the problem under investigation was the lack of adoption of digital payment solutions by informal merchants. Against the aforementioned problem, the study aimed to empirically investigate the factors driving informal merchant's intention to use digital payment methods.

1.4 Research objectives

Based on the aforementioned problem the following objectives were assessed:

- Determining the factors that influence informal merchant digital payments adoption through the lens of Unified Theory of Acceptance and Use of Technology (UTAUT2).
- Extending the UTAUT2 model to also determine merchant digital payments adoption with perceived risk and perceived trust constructs using the Perceived Risk Theory.

1.5 Rationale

Previous research has been conducted on the prevalent usage of cash from a consumer perspective and how this has driven direct and indirect socio-economic costs (Genesis Analytics, 2016). Limited research is available on the merchant's perspective particularly in the informal sector.

1.5.1 *Significance of the study*

Post Covid, South African policymakers introduced measures to evolve payment systems through initiatives such as those outlined in SARB's Vision 2025 (South African Reserve Bank, 2018). Modernisation of payments through low-cost, convenient and easy to use payment platforms provides opportunities to grow small businesses and possibly bring formality to the informal economy (PASA, 2019).

Given the opportunity size of digital payment acceptance in the country's informal sector, which was estimated at 1.7 million SMEs (International Finance Corporation, 2018), this study sought to provide payment service providers with insight into the behavioural intention of SMEs to adopt digital payments, which would help them capture a share of the market as they embark on their modernisation efforts.

Studies on SME adoption of digital payments are generally underdeveloped in Africa, let alone South Africa. Studies which have similar objectives in like-markets are even rarer; an example is the study which was conducted in Nigeria, where SMEs constitute close to 87% of all businesses (Igudia, 2017). Similar to SA's Vision 2025, Nigeria's government had initiated policies to create a cashless society, and the study was undertaken to explore the factors influencing electronic payment systems adoption so as to support government with the insight on how to better encourage SME adoption. This study sought to contribute to SA's government efforts in the same way, although with a heightened focus on informal SMEs, considering that the important role of SMEs in the SA informal economy might not differ much to that of Nigeria. Furthermore, future growth of informal merchant adoption could be measured more effectively.

It is believed that there is potential for informal businesses to accept payment through digital pay points (UNDP, 2021). This research has added to the existing studies conducted, providing refreshed data on shifts toward digital payments which may have occurred in recent years pertaining specifically to the township economy. The results have indicated the portion of the township economy who had the potential to adopt digital payments and the extent thereof, which may help organisations to understand where support is needed in growing digital payments adoption in the long term (UNDP, 2021).

1.6 Delimitations of the study

The study focused on South African townships Soshanguve, Mamelodi and Atteridgeville. The following was included in the scope:

a. Small retail businesses, namely spaza shops, fast food outlets and bakeries
b. Other businesses such as backroom rentals, childcare services, hair and nail salons which were based in people's homes
c. Banked and unbanked businesses
d. P2P and P2B payments

The following exclusions were applied:

e. Transportation industry: minibus taxi operations
f. Liquor industry
g. Foreign-owned businesses
h. Distributors/ representatives of businesses in the formal sector, e.g. Avon
i. Financial or earnings information
j. Age and gender demographics

1.7 Definition of terms

Table 1.1: Definition of terms

Terminology	Definition
Digital/ Electronic payments	A means of making or receiving payment through digital or electronic channels where no cash is used (Franciska & Sahayaselvi, 2017).
Direct cost	Monetary costs associated with a particular cash related transaction and visible to the user (Genesis Analytics, 2016).
Indirect cost	Opportunity costs as a result of unplanned actions (theft, interest foregone, timing) (Genesis Analytics, 2016).
Mobile POS Payments	Electronic payments made at the point of purchase using a mobile terminal (Franciska & Sahayaselvi, 2017).
Township	A settlement located outside of city centres, away from commercial and industrial activities (Mathibe, Mochenje, & Masonta, 2021).

1.8 Assumptions

The study assumed that:

1. Respondents were aware of other means of payment acceptance other than cash
2. Respondents had previous experience in accepting digital means of payment
3. Respondents were knowledgeable on the types of payment acceptance methods and the cost thereof
4. Respondents had sufficient knowledge on how to operate payment acceptance devices

1.9 Chapter Outline

Chapter one has introduced the global digital payment landscape and outlined the research problem which this study has sought to address. The contribution to previous studies has been discussed and research objectives stated. The boundaries and assumptions to which the study was confined have been elaborated.

Chapter two discusses the empirical and theoretical research that has been conducted, with relevance to this study. The theoretical and conceptual frameworks which were applied to the study are presented.

In Chapter three, the quantitative research methodology applied in the study (including the research approach, design and instrument) is discussed. The chapter also presents the data collection method and data analysis techniques used.

Chapter four presents the results of the data collected, and chapter five discusses the results referenced in chapter four, relating these to the research objectives stated in chapter one. Chapter six concludes the study, discussing the extent to which the research results answered the objectives. Recommendations and suggestions for further research are presented.

CHAPTER 2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This chapter outlined the concept of digital payments and the categories thereof that exist. Global trends and use cases were discussed and an overview of studies conducted in developing countries, including South Africa, was provided. Several studies have previously been conducted in the topic of adoption of digital payments in SA's informal businesses, such as (International Finance Corporation, 2018). This literature review has been conducted to identify previous literature and understand what has been researched, the methodologies which were used, the findings, conclusions and recommendations for further research. Following the literature review, the theoretical framework was outlined where the constructs of the UTAUT2 were adopted and combined with constructs from the Perceived Risk Theory, to form six hypotheses on the behavioural intention to adopt digital payment acceptance.

2.2 Defining digital payments

The digital payment landscape has broadened as technologies have evolved. As digital payments are expected to grow worldwide, it is imperative that informal players are not left behind in the emerging market's development of the payment ecosystem. Digital Payments (also known as electronic payments) refer to payments made through digital means with no cash involved in the transfer of funds from the payer to the payee (and vice versa) (Franciska & Sahayaselvi, 2017).

In SA, the number of electronic payment transactions per capita grew by 26%, dwarfed by China's growth of 260%, from 2014 to 2017. Card payments had a 63% share of electronic payment transactions, higher than other developing countries such as India and Mexico (PASA, 2019). The global landscape of mobile money, using mobile phones to perform financial transactions, continues

to grow, bridging the gap between banked and unbanked businesses (GSMA, 2021). Offered on USSD and QR payment channels, more merchants are accepting mobile money as payment because of its interoperability. Of the USD70 billion global mobile money transaction value realised in December 2020, merchant payments accounted 4% (GSMA, 2021). In Southern Africa, transaction volumes grew 43% and transaction value reached R3 billion (a 24% growth) in 2020. Considering that the SA payment system is premised on the principles of a two-sided market, where supply from merchants is driven by demand from customers, it is expected that as customers adopt digital payments, so will merchants adopt more ways to accept these payments (SARB, 2022).

2.2.1 Digital Payment categories in scope

Various types of digital payments exist, including card payments – the most common being debit and credit cards (Franciska & Sahayaselvi, 2017). The types that were in scope for this study have been defined below. Contactless and online payment can sometimes be used simultaneously; mobile payment can be conceptualised by way of making payment on a device or channel. The types of digital payments and their use cases are described:

Category 1: Contactless Payments

A contactless payment is one in which a payer makes payment to a payee without there being any direct contact (such as entering a PIN or providing a signature) between the payee or terminal accepting the payment and the payee (Kılınç & Vaudenay, 2018). The payment can occur by debit or credit card, through a mobile application or wallet. A mobile smartphone can act in place of a card (the card is stored on an application in the phone), which can be placed in close proximity to a card payment reader in the same way (Crail & Adams, 2021).

Category 2: Online Payments

Online payments (or digital commerce) in the retail sector are transactions made on the internet in exchange for good and services. Payments can occur using

different methods such as debit or credit cards, credit transfers (such as e-commerce EFTs) or debit orders/ direct debits (PASA, 2019).

Category 3: Mobile Payments

Mobile payments refer to transactions which can be processed using mobile devices (such as smartphones), through mobile applications (such as mobile wallets) or at POS. Other mobile payments include money transfer services which can be accessed via a banking app, ATM, online banking retail store or bank branch (Nkaelang, Ojo, & Mbarika, 2012).

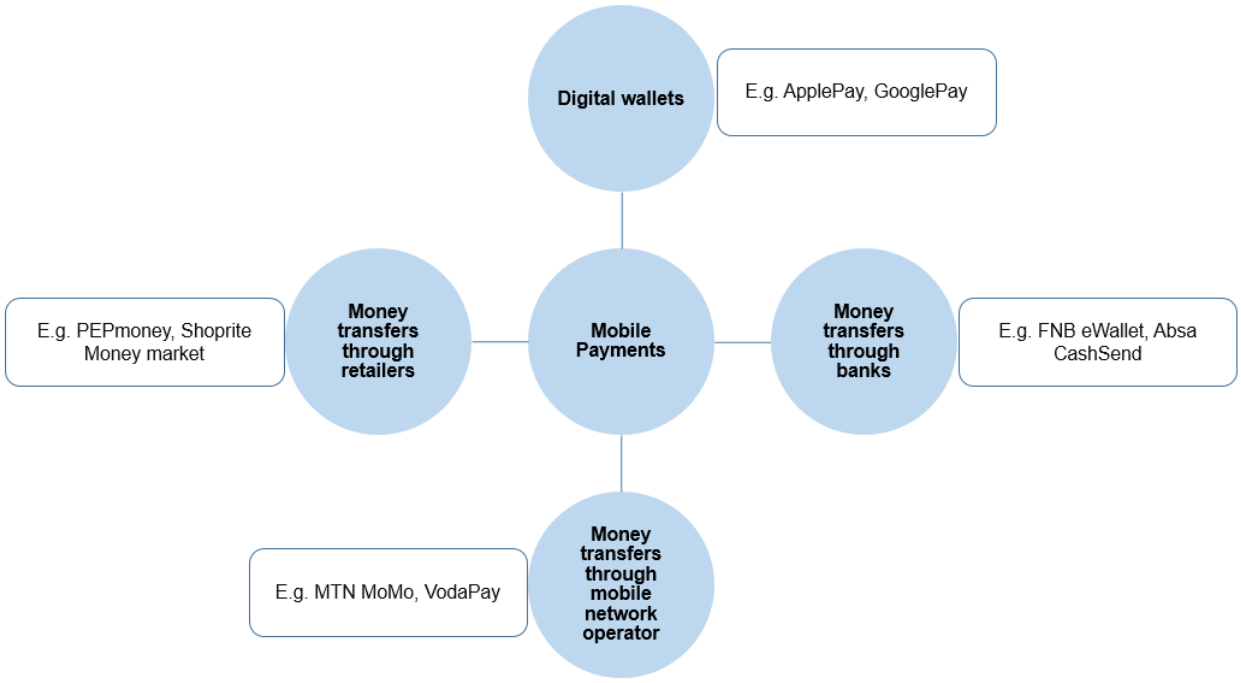

Figure 2.1: Mobile payment types (source: researcher's illustration)

2.3 Digital Payment trends

Societies are transitioning to cashless means of payment. The emergence of new technologies (and thus new methods of payment options) and changing consumer behaviours and expectations are amongst the top factors driving payments disruption globally (Agarwal, Weichert, & Burr, 2022). Customers'

expectations for seamless and safer payment experiences have led to disruptive solutions such as BNPL and instant (A2A) transfers. There are heightened levels of innovations that are taking place in the payments landscape by emerging digital banks, compressing traditional institutions' ability to compete.

Telecommunications companies across Africa are offering mobile payment solutions (such as MTN's MoMo) which continues to grow in the informal sector through agency networks where the agents are usually informal merchants (GSMA, 2021). Funding for payments fintechs in particular more than tripled from 2018 to 2020 thus creating even more opportunities for disruptive payments models (Agarwal, Weichert, & Burr, 2022). The ability to provide new methods of payment for SMEs is driving payment revenue growth in organisations (Agarwal, Weichert, & Burr, 2022). In South Africa, digital banks such as TymeBank are developing solutions for SMEs which can be easily accessed at a low cost in order to drive digital payment acceptance (UNDP, 2021).

2.3.1 *Application of digital payment systems by merchants in developing countries*

Electronic payments greatly reduce the cost of cash incurred by merchants, thus benefitting society as a whole (Genesis Analytics, 2016). India implemented UPI in 2016, an instant payment platform, in order to drive demonetisation, financial inclusion and socio-economic development through the use of APIs (Rastogi, Sharma, Panse, & Bhimavarapu, 2021). Since UPI's introduction of the low cost, easily accessible solution, electronic payments adoption increased by 50% (PASA, 2019). It has been stated that further research is required to understand the impact of UPI in the informal sector (Rastogi, Sharma, Panse, & Bhimavarapu, 2021).

Thailand's PromptPay to facilitate faster (real-time) payments was a government-led initiative which took off in 2017 (Ladkoom & Thanasopon, 2020). PromptPay makes use of proxies (identity numbers and mobile phone numbers) to make payments from consumers to businesses. In 2018, transaction values reached R240 billion with 40.4 million consumers and business enlisted. Although

PromptPay can be accessed at ATMs, bank branches and online, customers' transactions mainly took place (95%) over mobile phones (PASA, 2019).

Most recently, South Africa launched its own bank-led real-time A2A payment system, PayShap (previously Rapid Payments). Currently available through Absa, Nedbank, Standard Bank and FNB, PayShap provides the ability to send and receive payments which are instantly reflected in accounts, using a cell phone number or bank account details.

2.3.2 *Digital Payments in SA's informal sector*

South Africa's township businesses contribute approximately R1.5 trillion to the economy and employ approximately 5.7 million people (Finscope, 2021). South Africa's township economy consist of formal and informal businesses. In 2021 informal business contributed approximately 58% to the township economy (Finscope, 2021). A study was conducted to assess the extent in which SMEs had access to financial services. It was found that 34% of SMEs had accounts registered in their business' names which they mainly used for transactional purposes (Finscope, 2021). Despite an increase in adults with bank accounts and, therefore, more usage of cards, cash usage continues to increase (Genesis Analytics, 2016). About 95% of customers involved in P2B payments do so in cash whereas 54% of clients pay using digital financial services (Finscope, 2021). Access to credit is mostly afforded to formal businesses. Informal businesses' uptake of loans is low and mainly comes from government and institutions providing micro-loans (UNDP, 2021).

SMEs are challenged in many fronts regarding their business operations. The 'social unrest' which recently took place in 2022 further worsened the townships' economic situation. Among the biggest risks which township businesses face, structural damage and stock theft affected them the most (Finscope, 2021). Although government and business support programmes have been set up to assist township businesses, the majority of SMEs are not aware of these efforts (Finscope, 2021).

2.3.3 *Previous studies on digital payments adoption*

Several studies have been conducted on the determinants of digital payments adoption across the globe. Tables 2.1 and 2.2 provide a brief outline of these studies:

Table 2.1: Digital payment adoption studies (1 of 2)

Country of research	**Author**	**Topic**	**Framework**	**Most influential construct**
South Africa	(Jenkins & Ophoff, 2016)	Factors influencing the intention to adopt NFC mobile payments – A South African perspective	PLS approach to structural equation modelling (SEM)	**Perceived value** is the only significant factor influencing the intention to adopt
South Africa	(Kalan, 2016)	Understanding merchant adoption of m-payments in South Africa	Perceived Characteristics of Innovation (PCI)	**Ease of use** and **results demonstrability** are the most significant variables
South Africa	(Eksteen & Humbani, 2021)	Understanding Proximity Mobile Payments Adoption in South Africa: A Perceived Risk Perspective	Perceived Risk Theory	**Financial security** and **performance risk** are predictors of proximity mobile payment adoption
US	(Featherman & Pavlou, 2003)	Predicting e-services adoption: a Perceived Risk facets perspective	Technology Acceptance Model (TAM) Perceived Risk Theory	e-Services adoption is adversely affected primarily by **performance-based risk** perceptions, and **perceived ease of use** of the e-service reduced these risk concerns
Ghana	(Tuffour, Akuffo, Kofi, Frimpong, & Sasu, 2018)	Adoption of Mobile Commerce and Service in Adentan Municipality of Ghana: An Examination of Factors Influencing Small Scale Enterprises	Structural Equation Model	**Educational level**, followed by **experience**, were observed to have the best positive influence on the attitude towards adoption of mobile commerce and mobile service

Table 2.2: Digital payment adoption studies (2 of 2)

Country of research	Author	Topic	Framework	Most influential construct
Nigeria	(Anyaeneh & Nkamnebe, 2021)	Extent of Mobile Payment adoption among informal sector in Anambra State of Nigeria	Technology Acceptance Model (TAM)	**Perceived risk** and **Perceived cost** have a negative influence on Behavioural Intention to adopt mobile payment among the informal sector
Kenya	(Sokobe, 2015)	Factors Influencing Adoption of Electronic Payment by Small and Medium Hotel Enterprises in Kisii Town, Kisii County, Kenya	Unified Theory of Acceptance and Use of technology (UTAUT)	**Entrepreneur background characteristics** and **ease of use** of electronic gadgets are the main factors that influence adoption of electronic payments
Ethiopia	(Abebe & Lessa, 2020)	Factors that affect merchants' adoption of mobile payment in Ethiopia	Technology Acceptance Model (TAM)	Relative advantage, **ease of use**, usefulness, attitude, **trust**, **risk/security** and **cost** are factors that affect mobile payment adoption positively and significantly
Oman	(Al-Saedi, Al-Emran, Ramayah, & Abusham, 2020)	To determine the most frequent factors that extended the Unified Theory of Acceptance and Use of Technology (UTAUT) in the context of Mobile payment (M-payment) adoption	Extension of the Unified Theory of Acceptance and Use of technology (UTAUT)	Best predictor of M-payment users' intention to use the M-payment system is **performance expectancy**
Indonesia; Sweden	(Kartiwi & MacGregor, 2007)	Electronic commerce Adoption barriers in SMEs in Developed and Developing countries: A cross-country comparison	An empirical study conducted through in-depth interviews and a survey was distributed to 1170 respondents	Findings indicated that while Swedish respondents were more concerned with **technical** issues; the Indonesian respondents were more concerned with **organisational** barriers
Indonesia	(Nur & Panggabean, 2021)	Factors influencing the adoption of mobile payment method among generation Z: the extended UTAUT approach	Extended Unified Theory of Acceptance and Use of Technology (UTAUT)	**Performance Expectancy, Social Influences, Facilitating Conditions, Perceived Enjoyment, and Trust** significantly affect the behavioural Intention to use mobile payments to conduct online transactions. **Effort Expectancy** shows no significant effect.

The literature review covered research which was relevant for this study in terms of the digital payment methods listed in chapter one (mostly NFC and mobile payments) and covered different jurisdictions, mostly in emerging markets. It is understood that there are differences with the rate at which technologies are

diffused in developed markets such as the US and emerging markets such as Indonesia (Najib & Fahma, 2020). Moreover, SME adoption tends to take place much slower than adoption by large businesses (Kartiwi & MacGregor, 2007). It has been acknowledged by researchers that although there has been increasing adoption of digital payments by large businesses and consumer uptake of smart phones has grown, SME adoption growth has been slow (Sokobe, 2015; Abebe & Lessa, 2020; Anyaeneh & Nkamnebe, 2021).

When it comes to Gen-Zs, the generation born after 1995, their technology usage is almost 'second-nature', and consumer demand is for newer, more advanced and convenient ways to pay. However, further studies from a merchant perspective are warranted as Gen-Z's intention to adopt digital payment services depended on the ability of merchants to provide these alternative payment methods (Nur & Panggabean, 2021). Educational level, as well as experience in using the technology, were featured in another study and proven to be important and positive determinants of adoption of mobile commerce by Ghanaian merchants (Tuffour, Akuffo, Kofi, Frimpong, & Sasu, 2018). Another study came to a similar conclusion, with education, skill, age and gender combined as the entrepreneurial background of merchants proved to influence adoption of merchants who run hotels in Kenya (Sokobe, 2015). These posed interesting observations where, in this case, the informal merchant may not have had formal education but possessed the skills to operate an informal business.

Although different theories were applied, a majority of researchers have agreed that security and risk are predictors of adoption, although in varying degrees of significance (Jenkins & Ophoff, 2016; Anyaeneh & Nkamnebe, 2021; Eksteen & Humbani, 2021; Abebe & Lessa, 2020). In conducting the literature review, it was found that, where the Technology Acceptance Model (TAM) was generally used to determine acceptance of information systems, when applied in combination with the Perceived Risk Theory, it revealed consumer behaviour as it relates to perceived levels of uncertainty and potential loss when technology adoption decisions were made (Featherman & Pavlou, 2003).

Considering the sources that used the UTAUT in relation to the research objective of factors influencing merchant's adoption, researchers, however, had opposing

views on which factors were most influential in determining adoption of these technologies. Where some research agreed on some factors such as ease of use (Sokobe, 2015; Abebe & Lessa, 2020), their views were contradicted (Al-Saedi, Al-Emran, Ramayah, & Abusham, 2020) leading to the importance of this study. Furthermore, it was apparent that limited research exists on digital payment adoption studies pertaining to the informal sector. This study aimed to extend research to the informal sector where observations have been limited.

2.4 Analytical Framework

2.4.1 *Theoretical Framework - Determining informal merchant digital payments adoption through the lens of Unified Theory of Acceptance and Use of Technology (UTAUT2)*

Research theories around technology acceptance have evolved significantly over the past three decades. In the 2000s, a body of research on technological adoption influenced by user behaviour had been established. By then, various theories had been developed and, where shortcomings were observed, extensions were proposed.

The Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980) provided a good base in predicting user behavioural intention to actual behaviour and was useful in formulating strategies for when there was a change in user behaviour (Madden, Ellen, & Ajzen, 1992). As an extension of the model, the Theory of Planned Behaviour (TPB) (Ajzen, 1991) incorporated the construct of perceived behavioural control (Madden, Ellen, & Ajzen, 1992). Both theories provided valuable insights around users' behaviour but lacked user intentions as it relates to technology acceptance (Cruz, Neto, Muñoz-Gallego, & Laukkanen, 2010). In having observed the shortcomings of TRA and TPB, the Technology Acceptance Model (TAM) was developed (Davis, 1985). The TAM was an extension of the TRA and considered additional factors which linked to the TPB, being Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). These constructs were helpful in determining users' attitude towards acceptance of the technology, making the TAM a popular reference framework for studies on the adoption of

the internet or mobile technology (Asongu, 2018; Cruz, Neto, Muñoz-Gallego, & Laukkanen, 2010; Sharma, Govindaluri, Al-Muharrami, & Tarhini, 2017).

An extension to the TAM model (TAM2) was proposed (Venkatesh & Davis, 2000) to include social influence and cognitive instrumental processes, however, there were limitations to the model in that it failed to consider the cost of the technology and only addressed technology acceptance within the organizational context. In contrast, the Diffusion of Theory looked at factors which determined user's behaviour regarding technology adoption, with an innovation focus (Marikyan & Papagiannidis, 2021). Due to the constraints in application of the models individually, it was observed that a more cohesive approach which incorporated the different views and could be applied in broader contexts was needed (Marikyan & Papagiannidis, 2021).

The Unified Theory of Acceptance of Use of Technology (UTAUT) (Venkatesh, Morris, Davis, & Davis, 2003) was established to bring together the key constructs from the various disciplines of social psychology, information system management and behavioural psychology in understanding how these relate to technology acceptance and adoption (Marikyan & Papagiannidis, 2021). The UTAUT assumed four main constructs (direct determinants) of technology acceptance which determine usage behaviour: social influence, effort expectancy, performance expectancy, facilitating conditions.

In addition, the moderating factors which determine the strength of these constructs on behavioural intention and use behaviour, being age, gender, experience and voluntariness were included (Marikyan & Papagiannidis, 2021). Much like the TAM, the UTAUT had limitations in that it did not include technology costs and its primary focus was on the organisational context, hence the UTAUT2 was proposed (Venkatesh, Thong, & Xu, 2012). The UTAUT model was extended to include three additional constructs: hedonic motivation, price value and habit.

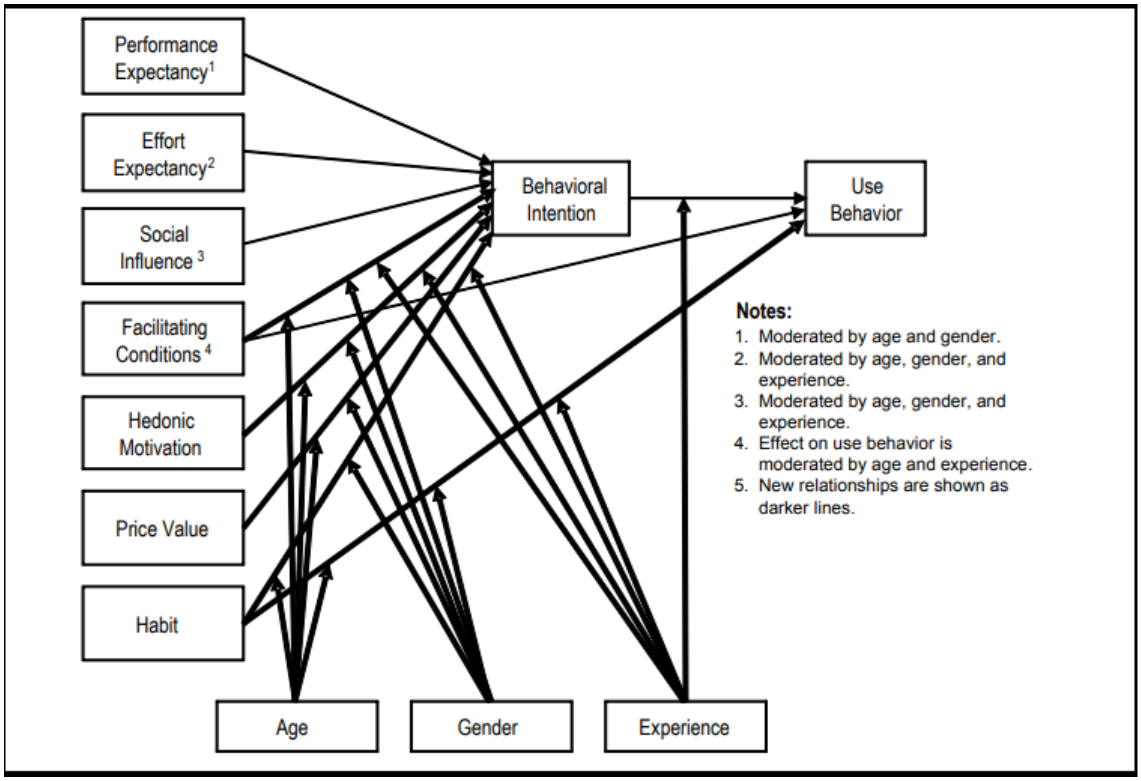

Figure 2.2: UTAUT (Venkatesh, Thong, & Xu, 2012)

The UTAUT2 was the preferred model in determining the factors influencing digital payments adoption in the informal sector, although its application had not been found in the context of the South African economy's informal sector. Furthermore, in order to obtain a holistic understanding to the factors influencing digital payment adoption by informal merchants, the UTAUT2 was extended to include the constructs of perceived risk and perceived trust using the Perceived Risk Theory (Bauer, 1960). The perceived risk theory states that when making purchase decisions, the perceived level of risk that a consumer has is directly related to whether or not they make the purchase (Tian-Que, 2012). For this study, the theory was appropriate in that it had not been included in UTAUT and preceding frameworks. Also, risk-based literature has indicated perceive risk as a deterrent to the use of mobile payments, however, further research in this area was warranted (Eksteen & Humbani, 2021). Limited studies exist in determining risk as a factor to adoption of digital payments in SA's informal sector, in particular.

2.4.2 *Extending the UTAUT2 model to also determine merchant digital payments adoption with perceived risk and perceived trust constructs using the Perceived Risk Theory*

Perceived Risk

Perceived risk is concerned with the idea of feeling uncertain about the potential negative outcome that may be experienced as a result of the use of a product or service (Featherman & Pavlou, 2003). Studies show that perceived risk is a barrier to the adoption of mobile payment systems (Pidugu, 2015), (Featherman & Pavlou, 2003). There are many aspects to perceived risk (Featherman & Pavlou, 2003), although three are relevant in the adoption of digital payment technology by informal merchants, namely security, privacy and financial risks (Abebe & Lessa, 2020):

Security risk is the sense of control over a payment transaction that a user experiences which makes them feel secure and confident to carry out the transaction (Pidugu, 2015). Privacy risk is the perception that businesses may misuse customer's personal information, including bank account information, when authorizing payments (Abebe & Lessa, 2020). Financial risk is the perception that users could suffer financial loss as a result of using the mobile payment technology (Featherman & Pavlou, 2003).

South African merchants in mobile payments are generally wary of fraud risk (among others), especially where large payments are made (Pidugu, 2015). Merchants may be concerned about potential misuse of financial and personal information that may get exposed, resulting in financial losses for their businesses (Abebe & Lessa, 2020).

Perceived Trust

Perceived trust is defined as the user's perception of the product or service being reliable and safe to use and is an influencing factor to the adoption of payments technology (Al-Saedi, Al-Emran, Ramayah, & Abusham, 2020). Informal merchants who may not be familiar with mobile payment technology may have doubts around who they are transacting with and may not deem the technology

as reliable especially where errors may be present (Jenkins & Ophoff, 2016). In another study, merchant's concerns were around reliability of network connectivity which made them unconfident in using new mobile payment methods (Kalan, 2016). The same study which used the PCI model contradicts previous studies in that it suggests trust to be a barrier to mobile payment adoption in South Africa (Kalan, 2016).

2.4.3 *Conceptual Framework*

Taking the above into consideration, the figure below depicts the proposed conceptual framework of the determinants of adoption of merchant digital payment acceptance in an informal economy. The study, which utilises the UTAUT2 model, extended to include constructs of perceived risk and perceived trust, proposes that merchants' behavioural intention to accept digital payments is influenced by the following independent variables: performance expectancy, effort expectancy, price value, perceived risk and perceived trust.

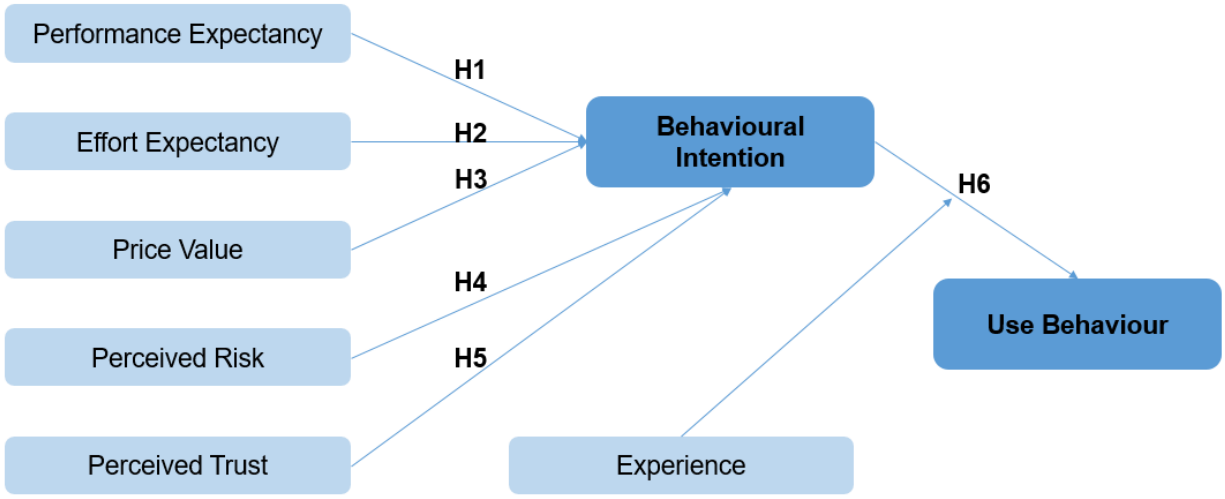

Figure 2.3: Proposed Research Model

Performance Expectancy

Performance expectancy is defined as the benefit which the user believes they will attain from using the payment system (Venkatesh, Morris, Davis, & Davis, 2003). An Indonesian study measured performance expectancy as the belief by Gen-Zs that mobile payment improved their online transactional behaviour (Nur & Panggabean, 2021). Although existing research has explored this construct as the most frequent construct in determining the intention to adopt through the extension of UTAUT, the study encourages further research to determine its application in other countries (Al-Saedi, Al-Emran, Ramayah, & Abusham, 2020). Also, it is not specific to merchants in the informal sector. Thus following is hypothesized:

> H1: Performance Expectancy has a positive influence on the behavioural intention of informal merchants to use digital payment acceptance methods.

Effort Expectancy

Effort expectancy indicates merchants' belief that the payment technology is easy to use (Venkatesh, Thong, & Xu, 2012). Studies have found ease of use to be a determining factor of SME adoption in the hotel industry in Kenya (Sokobe, 2015). More relevantly, research conducted in South Africa acknowledged the difficulty in measuring merchant's real perception of the mobile payment system since the merchant under study had not attempted to use the technology (Kalan, 2016). Effort expectancy in the Gen-Z consumer context, however, was found not to have a significant effect on behavioural intention (Nur & Panggabean, 2021). This study will make a contribution in its inclusion of the informal merchant who has tried to make use of the technology. Thus the following is hypothesized:

> H2: Effort Expectancy has a positive influence on the behavioural intention of informal merchants to use digital payment acceptance methods.

Price Value

Price value refers to the monetary cost-benefit trade-off from using the technology (Venkatesh, Thong, & Xu, 2012). In an empirical study where perceived value is determined as a cost-benefit assessment, it was found that this was the only factor which influenced adoption of NFC payments; this can be argued as the study was focused on consumer adoption as opposed to merchant adoption (Jenkins & Ophoff, 2016). Other studies have found cost to have a negative influence in adoption (Abebe & Lessa, 2020), particularly in the informal sector (Anyaeneh & Nkamnebe, 2021). Limited research exists which takes into account the overall value which is deemed to be more beneficial than other individual factors of adoption (Jenkins & Ophoff, 2016). Thus, the following is hypothesized:

> H3: Price value has a positive influence on the behavioural intention of informal merchants to use digital payment acceptance methods.

Perceived Risk

For the purpose of this study, perceived risk will address security, privacy and financial risk as one construct. In one study, perceived risk was found to have an insignificant negative impact on behavioural intention which contradicts to previous studies (Al-Saedi, Al-Emran, Ramayah, & Abusham, 2020). It purported that, due to being unfamiliar with proximity payments in emerging countries such as South Africa, consumer adoption would be affected by their perception of risk (Eksteen & Humbani, 2021).

Thus, the following is hypothesized:

> H4: Perceived Risk has a negative influence on the behavioural intention of informal merchants to use digital payment acceptance methods.

Perceived Trust

The informal sector is a trust-based community, hence perceived trust is included as a determining factor of digital payments adoption in this context (UNDP, 2021). A previous study found that the more trust a user has in a service provider, the higher the intention to use the mobile payment system (Anyaeneh & Nkamnebe,

2021). Another study has proved that the more Gen-Z consumers believe that online payments are safe and reliable, there more they would use them (Nur & Panggabean, 2021).

Thus, the following is hypothesized:

> H5: Perceived Trust has a positive influence on the behavioural intention of informal merchants to use digital payment acceptance methods.

Behavioural Intention

Behavioural intention, refers to the intention of the user of a technology to perform a specific behaviour and is used to determine whether the technology will be used (Venkatesh, Thong, & Xu, 2012). Previous studies have found that behavioural intention directly influences use behaviour (Anyaeneh & Nkamnebe, 2021). Thus, the following is hypothesized:

> H6: Behavioural Intention has a positive influence on the use behaviour of informal merchants to use digital payment acceptance methods.

Use behaviour

The dependent variable in the model which refers to the actual usage of digital payment acceptance methods by informal merchants.

Moderators

Experience is a moderating factor in the informal sector in understanding whether the informal merchant's previous usage of digital payments systems contributes to their behavioural intention to adopt the system.

2.5 Conclusion of Literature Review

Literature has revealed that further research work needs to be conducted in understanding the determinants of digital payment adoption in the informal sector from a merchant's perspective. Previous studies have indicated that performance expectancy, effort expectancy and price value have been strong determinants of

mobile payment adoption. In this study, perceived risk and perceived trust have been supplemented to the UTAUT2 model and the following is hypothesized:

Table 2.3: Hypotheses

No.	Hypothesis
H1	Performance Expectancy has a positive influence on the behavioural intention of informal merchants to use digital payment acceptance methods.
H2	Effort Expectancy has a positive influence on the behavioural intention of informal merchants to use digital payment acceptance methods.
H3	Price Value has a positive influence on the behavioural intention of informal merchants to use digital payment acceptance methods.
H4	Perceived Risk has a negative influence on the behavioural intention of informal merchants to use digital payment acceptance methods.
H5	Perceived Trust has a positive influence on the behavioural intention of informal merchants to use digital payment acceptance methods.
H6	Behavioural Intention has a positive influence on the use behaviour of informal merchants to use digital payment acceptance methods.

CHAPTER 3. RESEARCH METHODOLOGY

3.1 Research approach

This study aimed to identify the factors which influence digital payment adoption among informal merchants. For this reason, a quantitative, correlational approach was employed. The research approach describes the methodology that was followed in conducting the study, from the philosophical assumptions that are embedded within the methodology, research design and research methods of how data was collected, analysed and interpreted (Creswell, 2017). The selected approach is best when identifying factors that influence a certain outcome or trying to understand the strongest predictors of an outcome (Creswell, 2017).

By using a quantitative approach, the study can be repeated in a different setting or context because of its standardised way of data collection, thus enabling researchers to compare results statistically. The approach can also be applied to large samples and objectivity is critical (Apuke, 2017). The potential for missing data and the inability to obtain more elaborate responses on beliefs and perceptions, especially where the study is conducted in marginalised areas as is the case, is a weakness in the approach (Choy, 2014).

Correlational research is useful when trying to understand the causal relationship between two variables, without having to manipulate any of the variables. It is also useful for testing a tool's reliability or validity, and was an important element of this study when analysing the data collected (Bhandari, 2022). The positivist paradigm informed this study, with assumptions that a single reality exists and could be measured through empirical testing of hypotheses (Khazanchi & Munkvold, 2003). Positivists reflect the need to understand causes as they believe these to determine effects (Creswell, 2017).

3.2 Research design

A non-experimental research design was adopted for this study. The cross-sectional study was conducted through a survey. This approach was beneficial in

that data could be collected quickly – instead of approaching the same respondents more than once over a period of time to observe changes, responses could be recorded at a single point in time (Thompson & Panacek, 2007). This helped to lessen the amount spent in collecting data. Also, the possibility of respondents withdrawing their participation was lessened. The approach is also the simplest way to conduct data when compared to other methods such as case-control studies (Thompson & Panacek, 2007).

A survey is a research method for gathering directly from respondents by asking questions in a particular way (Queirós, Faria, & Almeida, 2017). This instrument is most appropriate for the study (Thompson & Panacek, 2007) and can be used to determine respondent's attitudes and behaviours (Leavy, 2017). This is particularly useful for this study in determining factors influencing informal merchant's digital payment adoption. The advantage in using a survey for the study is that it represents the data at a point in time, it could be distributed in different ways such as email or face to face to a large group of people in a cost-effective way and respondents could remain anonymous. Questionnaires are also generally inexpensive to design and offer versatility in terms of the types of questions that can be accommodated (Roopa & Rani, 2012). The disadvantage is that, if the questions are not structured correctly, this could give rise to researcher bias and/or responses being inaccurately captured, thus making it unreliable (Queirós, Faria, & Almeida, 2017).

3.3 Data collection methods

Primary data for this study was collected using a closed-ended questionnaire which was conducted through Qualtrics, an online survey tool, and face to face using paper-based questionnaires. The advantage of using a questionnaire as a primary data collection method is that questions can be in asked in a standard format, enabling consistency in data sets from which meaningful analysis can be conducted. The online survey could be accessed from any device, such as email, mobile phone or social application. Qualtrics is a secure and trusted platform that integrates data collection, analysis and automation. The paper-based questionnaires were to enable greater reach of respondents where they were not

comfortable accessing the online tool or network connectivity was poor. The disadvantage, however, of face-to-face surveys is that they take longer for responses to be captured, traveling to contact respondents is time consuming, printing of the questionnaires and consent forms can be costly.

3.4 Population and sample

3.4.1 *Population*

Research has revealed that approximately 2 689 000 South Africans were employed in the township economy in 2017 (Mathibe, Mochenje, & Masonta, 2021). The planned sample was 120 merchants. The target population was adults of South African origin who own or were employed at informal businesses in South African townships of Soshanguve, Mamelodi and Atteridgeville. They should have been selling a product or rendering a service for which payment was provided. They should either have had access to internet on their mobile phones or be available face to face.

3.4.2 *Sample and Sampling method*

Non-probability sampling techniques was applied. Convenience sampling was used as it is dependent on which channel is of convenience to the respondents as well as their availability (Suebtimrat & Vonguai, 2021). The sampling method was used as respondents would be easily accessed at the geographical locations that they operate, lowering the cost of transportation to many various locations, and would thus be available and probably willing to participate in the study. The disadvantage with this method is that it could expose the study to bias due to the manual nature of the data collection.

Snowball sampling was also conducted as participation relies on referrals from respondents (Leavy, 2017). Other respondents could be reached because they were referred by respondents who had taken the survey and thought their participation would be helpful. This makes it a cost-effective way to reach populations which may be unknown or would not be accessible (Goodman,

1961). The disadvantage to using this method, however, is that the study could be exposed to sampling bias as referred respondents would have already been identified and might share similarities with referrers.

The demographic profile was ideally small to medium businesses based in South African townships of Atteridgeville, Soshanguve and Mamelodi. The reason being that the township economy had a high number of informal enterprises which provided a good opportunity to measure the impact of the study.

3.5 The research instrument

An online software tool accessible on Qualtrics.com, as well as paper-based questionnaires were used. The survey was standard for both data collection methods. It was designed on Qualtics.com in English at no charge. A printed version was also be made available. The model consisted of six constructs with eighteen measurement items (see Appendix A). A 5-point Likert scale was used, with responses ranging from “strongly agree” to “strongly disagree” (Venkatesh, Thong, & Xu, 2012). Measurement items were based on existing literature that was reviewed; as indicated in the below table, for an example.

Table 3.1: Summarised research instrument

Variable	No. of items	Example Measurement Item	Scale	Literature source
Performance Expectancy	4	PE1. I believe using digital payment acceptance methods would be useful in my daily activities.	Likert 1-5	Adapted from (Venkatesh, Thong, & Xu, 2012),
Effort Expectancy	4	EE3. I believe it is easy to use digital payment acceptance methods.	Likert 1-5	Adapted from (Venkatesh, Thong, & Xu, 2012)
Price Value	3	PV1. I believe digital payment acceptance methods do not cost a lot of money.	Likert 1-5	Adapted from (Venkatesh, Thong, & Xu, 2012)
Perceived Risk	3	PR2. I'm concerned that others will have access to my personal data when using digital payment acceptance methods.	Likert 1-5	Adapted from (Featherman & Pavlou, 2003), (Abebe & Lessa, 2020)
Perceived Trust	1	PT1. I believe that digital payment acceptance methods are reliable.	Likert 1-5	Adapted from (Featherman & Pavlou, 2003), (Abebe & Lessa, 2020)
Behavioural Intention	3	BI1. I intend to use digital payment acceptance methods in the near future. BI2. If I had access to digital payment acceptance methods I would always try to use them in my daily activities. BI3. I plan to use digital payment acceptance methods frequently.	Likert 1-5	Adapted from (Venkatesh, Thong, & Xu, 2012)

3.6 Procedure for data collection

Data was collected online and face to face. An online survey link was sent to respondents by email and WhatsApp, a social application. There was no charge for accessing the tool for respondents. Where respondents were not able to access the online survey, paper-based questionnaires were provided as an alternative option and the responses gathered were later transposed into Qualtrics. Data was collected over a period of two months.

3.7 Data analysis strategies and interpretation

Initially, the questionnaire was analysed using descriptive statistics. Descriptive statistics is thought to be a good starting point on organizing and simplifying a data set (May, 2018). This included assessing completeness of data, obtaining the average mean of variables and distribution of responses. The data was presented using graphs and tables.

Thereafter, inferential statistics was applied using the SPSS tool. Inferential statistics uses the sample to make predictions about the population (Tominc & Čančer, 2020). The SPSS tool was easy to use, and no prior knowledge was needed in performing the data analysis, which is one of its most impressive features (Rahman & Muktadir, 2021). Factor analysis was used to examine the underlying factors measured by the observed variables. Factor analysis is used to identify underlying factors which have a driving effect on variables (Mukherjee, Sinha, & Chattopadhyay, 2018). More specifically, Principal Component Analysis, was used to establish the linear relationships that exist within the data – how each variable contributes to a component (Field, 2017). Afterwards, KMO and Bartlett's tests were conducted to evaluate sample adequacy and collinearity between variables. A KMO value closer to 1 would be ideal, indicating that, based on the data collected, factor analysis would produce reliable factors (Field, 2017).

3.7.1 *Validity*

Validity refers to whether the research instrument measures what it is meant to measure (Field, 2017). The discriminant validity of constructs was assessed in

the study. Discriminant validity refers to the extent to which constructs are conceptually and empirically distinct from one another i.e. they should not be correlated (Shaffer, DeGeest, & Li, 2016). This was important in ensuring that constructs are not redundant in terms of proving the correlation of behavioural intention to adoption. To ensure that the research met the validity criteria, the literature that was reviewed spanned a wide group of constructs associated with the research topic. Furthermore, the constructs were drawn from credible research methods which were widely accepted academically. Consequently, the survey questions were largely based on the UTAUT2 and Perceived Risk Theory frameworks.

3.7.2 *Reliability*

Reliability measures consistency in the questionnaire, i.e. the capacity produce the same results under the same conditions (Field, 2017). Cronbach's Alpha was used to measure reliability of the questionnaire as it is a commonly used measure to ensure internal consistency that is, assessing the extent to which multiple items in an instrument which measure the same construct produce similar scores. Values above 0.7 indicate good reliability (Field, 2017). This method was selected over interrater reliability, where people rate and assign the same score to the same variable and is mostly used in clinical settings (Anastasi & Urbina, 1997).

3.7.3 *Correlation analysis*

Correlation analysis is used to evaluating relationships between variables (Field, 2017). Pearson correlation was therefore conducted to test the hypotheses. Pearson's correlation coefficient was used to measure the linear association of two variables; correlation coefficient values range between -1 to +1 where positive values indicate one variable to increase or decrease in the same direction as the other value. Negative values indicate that when one variable is increasing the other is decreasing and vice versa. Furthermore, coefficient values closer to -1 or +1 indicate strong associations between the variables, and those closer to 0 indicate weak linear associations (Kirch, 2008).

3.7.4 *Multiple regression analysis*

Multiple regression was conducted following correlation analysis. It is the most commonly applied technique to evaluate the relation between two or more variables, more specifically, the linear relationship between two or more independent variables to explain their effect on the dependent variable. In this case, the analysis was suitable in testing the hypothesis further (Allen, 2004). Variance Inflation Factor (VIF) and tolerance (1/VIF), which are used to measure the degree of multicollinearity between independent variables, were applied. As per guidelines, values of VIF should not exceed 10 and tolerance should be greater than 0.2 (Field, 2017).

3.8 Ethical considerations

Ethics are important in social research and determine the way in which a study is conducted (Leavy, 2017). In order to ensure that this study was not harmful to respondents, University of Witwatersrand guidelines were followed. The WBS ethics form was completed, and ethics clearance obtained before the study was conducted. The survey included a consent section where it was stated that participation was voluntary, and respondents could withdraw at any time without penalty. The consent section also described what the study would be used for, how the results would be published and reported. Individual responses were kept anonymous and confidential at all times. No personal information was requested from the respondents.

CHAPTER 4. PRESENTATION OF RESULTS / FINDINGS

4.1 Introduction

This chapter presents and describes the results of questionnaire responses based on the data that was gathered. The chapter first presents the summary of responses to each survey question. This is followed by the analysis of the measurement tool. Lastly, the results from the bivariate Pearson correlation and multivariate regression results are presented. The total number of responses received was 120. The survey comprised 18 questions, of which 10 were answered in full. Each variable was linked to a measurement item as summarised below:

Table 4.1: Summary of research instrument

Variable	Survey question	Scale	Literature source
Performance Expectancy	PE1. I believe using digital payment acceptance methods would be useful in my daily activities. PE2. Using digital payment acceptance methods would help me conduct my business quicker. PE3. Using digital payment acceptance methods would save me time to do other daily business activities. PE4. Using digital payment acceptance methods is convenient for me	Likert 1-5	Adapted from (Venkatesh, Thong, & Xu, 2012),
Effort Expectancy	EE1. Learning how to use digital payment acceptance methods would be easy for me. EE2. My interaction with using digital payment acceptance methods would be clear and easy to understand. EE3. I believe it is easy to use digital payment acceptance methods. EE4. It would be easy for me to develop the skills to use digital payment acceptance methods.	Likert 1-5	Adapted from (Venkatesh, Thong, & Xu, 2012)
Price Value	PV1. I believe digital payment acceptance methods do not cost a lot of money. PV2. I believe the money that I would spend on digital payment acceptance methods would benefit me. PV3. I believe digital payment acceptance methods are a bargain at the current price.	Likert 1-5	Adapted from (Venkatesh, Thong, & Xu, 2012)
Perceived Risk	PR1. I would not feel safe providing my personal details when using digital payment acceptance methods. PR2. I'm concerned that others will have access to my personal data when using digital payment acceptance methods. PR3. Using digital payment acceptance methods would lead to financial loss for me	Likert 1-5	Adapted from (Featherman & Pavlou, 2003), (Abebe & Lessa, 2020)
Perceived Trust	PT1. I believe that digital payment acceptance methods are reliable.	Likert 1-5	Adapted from (Featherman & Pavlou, 2003), (Abebe & Lessa, 2020)
Behavioural Intention	BI1. I intend to use digital payment acceptance methods in the near future. BI2. If I had access to digital payment acceptance methods I would always try to use them in my daily activities. BI3. I plan to use digital payment acceptance methods frequently.	Likert 1-5	Adapted from (Venkatesh, Thong, & Xu, 2012)

4.2 Research survey responses

4.2.1 *Responses pertaining to Performance Expectancy*

Survey questions relating to the performance expectancy, the benefit that the user expects to gain from use of the technology, are stated in the table 4.2. The average mean for this hypothesis is 2.11. Questions 1 and 3 were answered by all respondents, whereas questions 2 and 4 are each missing response. Summaries of responses per question are provided in figure 4.1. Question 1 had the highest number of respondents, 48%, who 'strongly agree' with the belief that using digital payment acceptance methods would be useful in their daily activities, followed closely by questions 2 and 3 at 44% respectively. Question 4 had the highest mean of 2.18, above average, with almost 40% of respondents 'strongly agreeing' and 30% 'agreeing' with the belief that using digital acceptance methods would be convenient for them.

Table 4.2: Responses to performance expectancy

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	I believe using digital payment acceptance methods would be useful in my daily activities	1.00	5.00	2.07	1.33	1.78	120
2	Using digital payment acceptance methods would help me conduct my business quicker	1.00	5.00	2.06	1.25	1.56	117
3	Using digital payment acceptance methods would save me time to do other daily business activities	1.00	5.00	2.11	1.30	1.68	120
4	Using digital payment acceptance methods is convenient for me	1.00	5.00	2.18	1.27	1.62	119

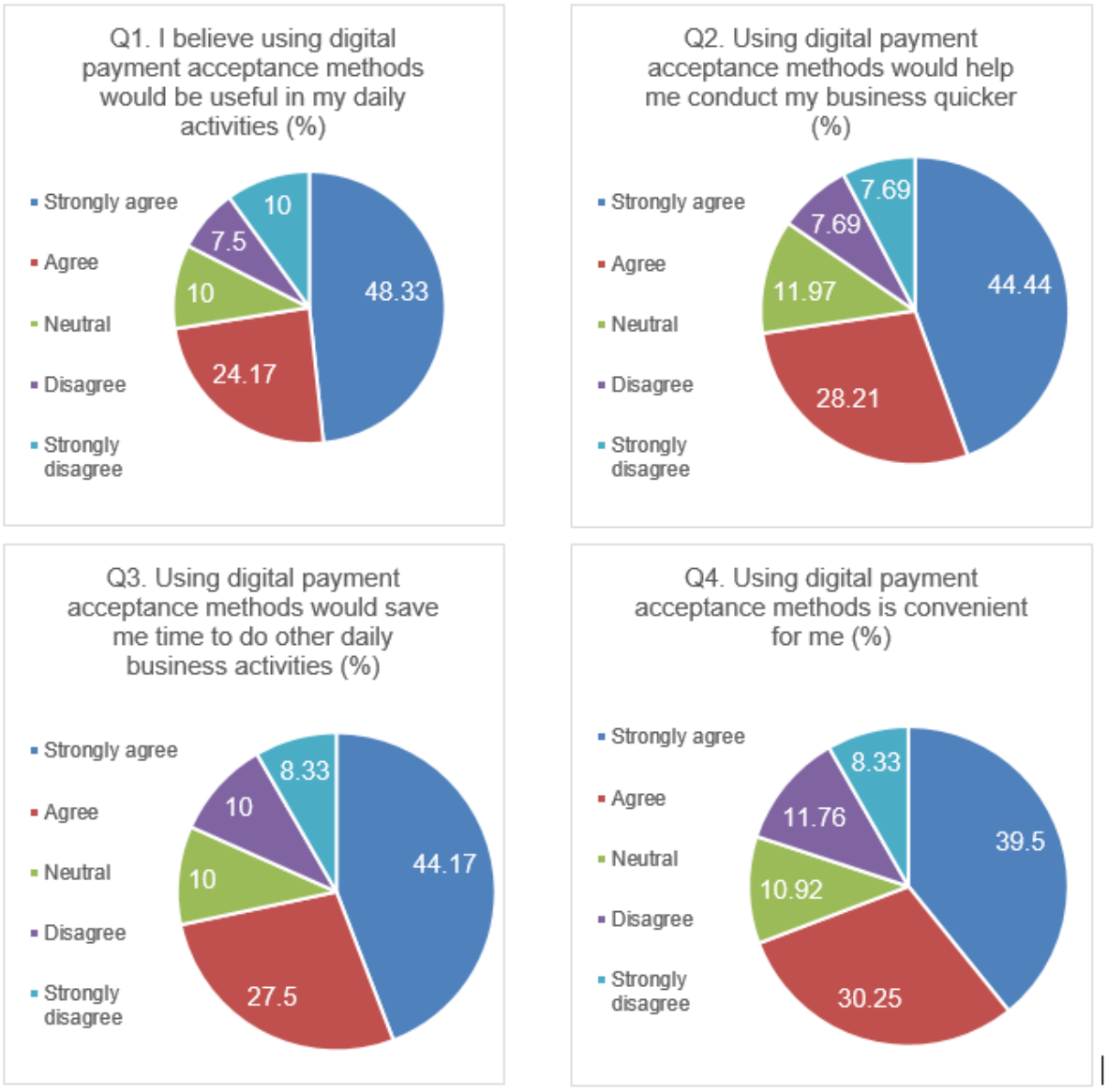

Figure 4.1: Performance expectancy responses

4.2.2 *Responses pertaining to Effort expectancy*

Questions 5 to 8 were used to measure effort expectancy, or the ease of technology use. Results are presented in table 4.3 as follows:

Table 4.3: Responses to effort expectancy

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
5	Learning how to use digital payment acceptance methods would be easy for me	1.00	5.00	2.11	1.17	1.37	119
6	My interaction with using digital payment acceptance methods would be clear and easy to understand	1.00	5.00	2.16	1.12	1.25	120
7	I believe it is easy to use digital payment acceptance methods	1.00	5.00	2.06	1.17	1.37	119
8	It would be easy for me to develop the skills to use digital payment acceptance methods	1.00	5.00	2.08	1.17	1.37	119

For this hypothesis, only question 6 was answered in full. The average mean of the four questions is 2.10. This indicates the majority of respondents tended to agree or strongly agree with the statements presented. 40% of respondents strongly agreed that it is easy to use digital payment acceptance methods, as shown in question 7 on the figure 4.2 below. Similarly, 39% strongly agreed that it would be easy for them to develop the skills to use digital payment acceptance methods, along with 37% of respondents who strongly agreed that learning to use digital payment acceptance methods would be easy for them.

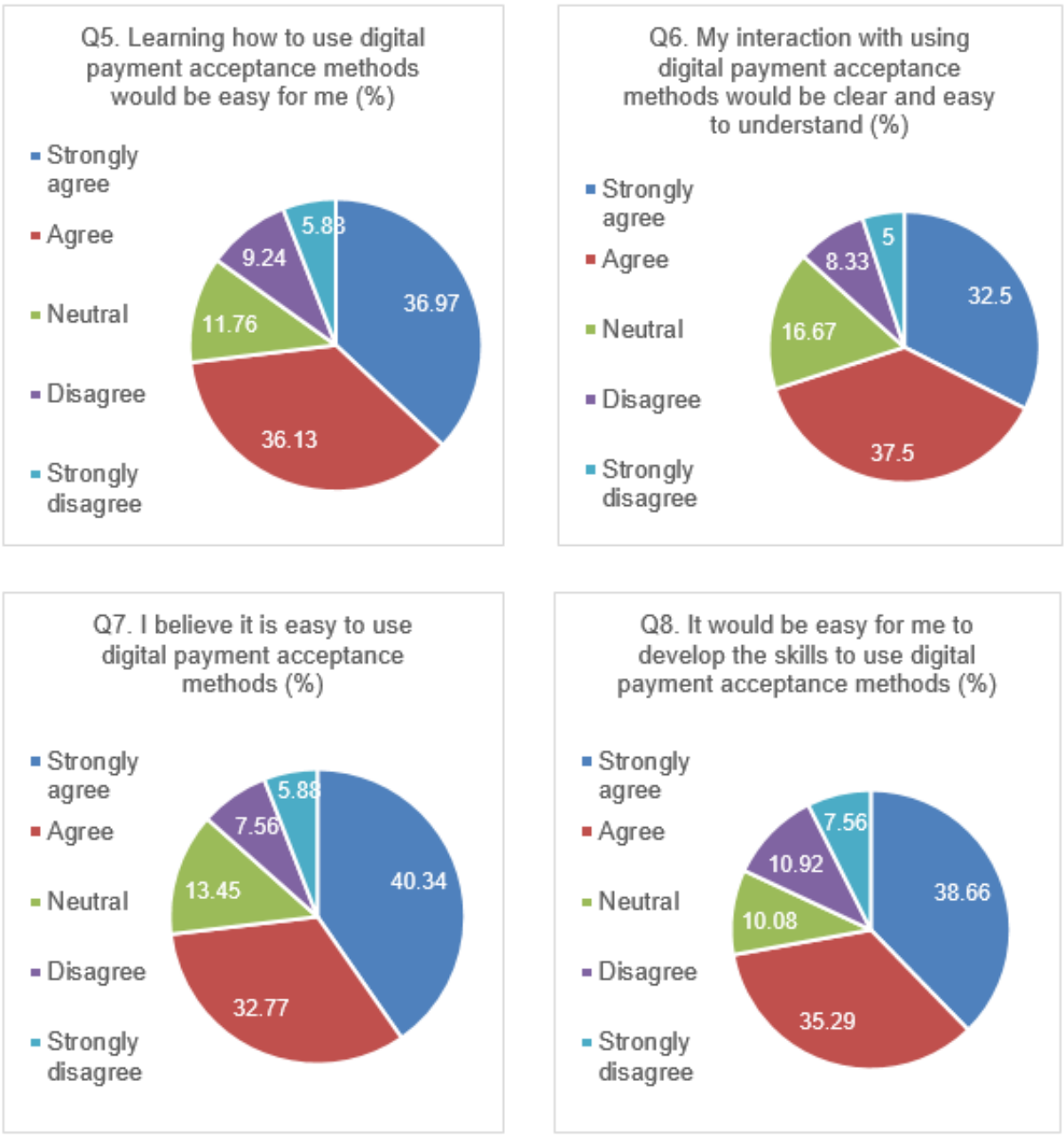

Figure 4.2: Effort expectancy responses

4.2.3 *Responses pertaining to Price Value*

Questions 9 to 11 were used to measure price value, or the monetary value (benefit minus cost) derived from using the technology. There were no missing responses for all three questions. The average mean is 2.59. Results are presented in table 4.4 as follows:

Table 4.4: Responses to price value

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
9	I believe digital payment acceptance methods do not cost a lot of money	1.00	5.00	2.63	1.18	1.40	120
10	I believe the money that I would spend on digital payment acceptance methods would benefit me	1.00	5.00	2.38	1.25	1.55	120
11	I believe digital payment acceptance methods are a bargain at the current price	1.00	5.00	2.77	1.22	1.49	120

Figure 4.3 which show responses to question 9 indicates that 30% of respondents agree with the belief that digital payment methods do not cost a lot of money, closely followed by 28% of respondents who neither agree nor disagree. 8% of respondents strongly disagree with the statement. Also shown in figure 4.3, question 10 indicates that 33% of respondents agree with the belief that the money they would spend on digital payment methods would benefit them. This is closely followed by 28.33% who strongly agree with the statement, whereas 7.5% disagree. Responses for question 11 indicating that 35% of respondents neither agree nor disagree with the belief that digital payment methods are a bargain at the current price. 20% of respondents agree and 19.17% strongly agree with the statement. However, 10.83% strongly disagree.

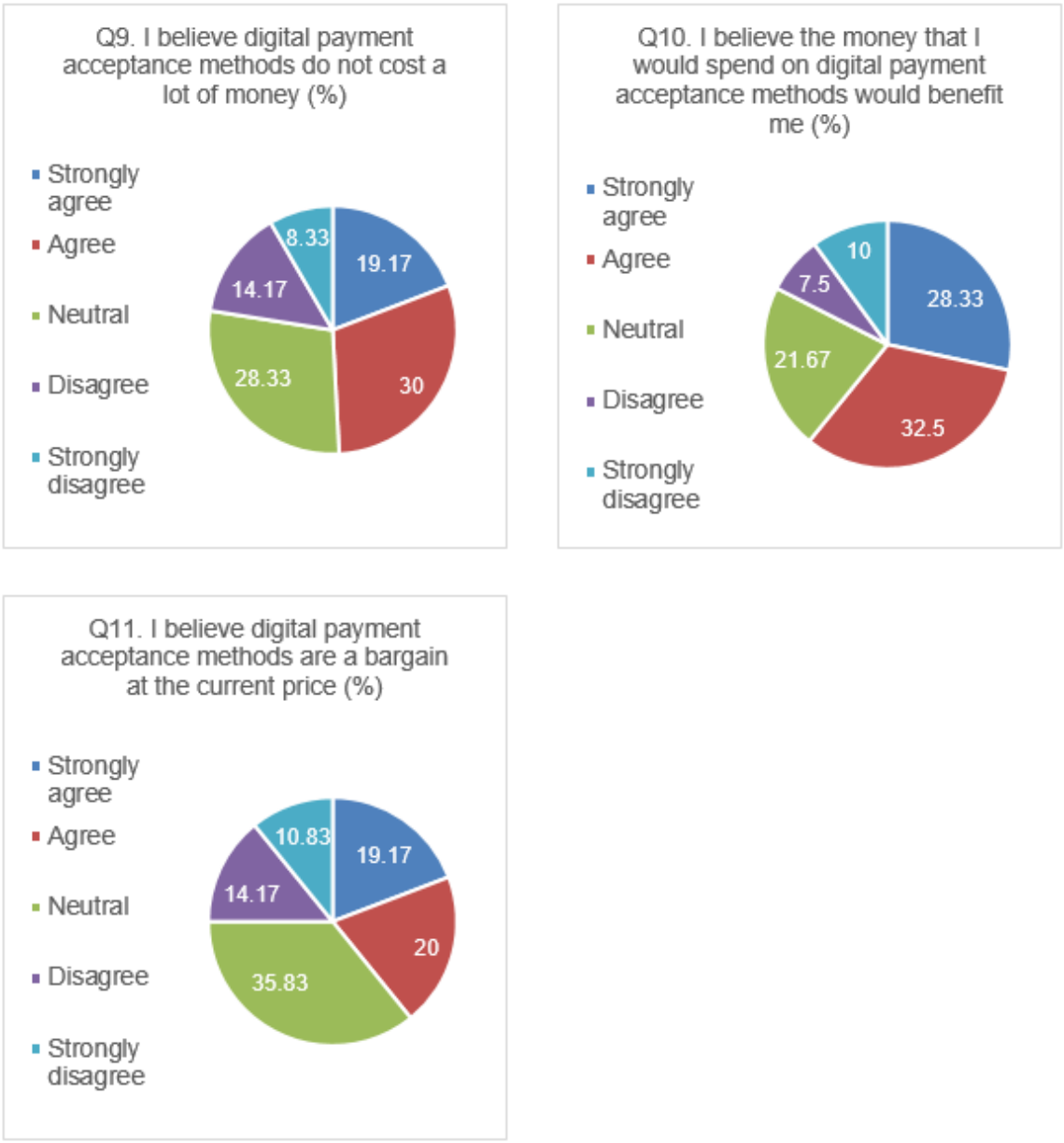

Figure 4.3: Price value responses

4.2.4 *Responses pertaining to Perceived Risk*

Perceived risk, in the context of the survey undertaken, was in relation to questions 12 to 14. In reference to table 4.5, Question 14 had one missing response. The average mean is 2.89.

Table 4.5: Responses to perceived risk

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
12	I would not feel safe providing my personal details when using digital payment acceptance methods	1.00	5.00	2.65	1.33	1.76	120
13	I'm concerned that others will have access to my personal data when using digital payment acceptance methods	1.00	5.00	2.71	1.30	1.69	120
14	Using digital payment acceptance methods would lead to financial loss for me	1.00	5.00	3.33	1.34	1.78	119

Based on figure 4.4, responses to question 12 indicate that 26.67% of respondents strongly agree that they would not feel safe using digital payment acceptance methods, the same number were neutral. In response to question 13, 30% of respondents were neutral to being concerned about access to their personal data through the use of digital payment methods.

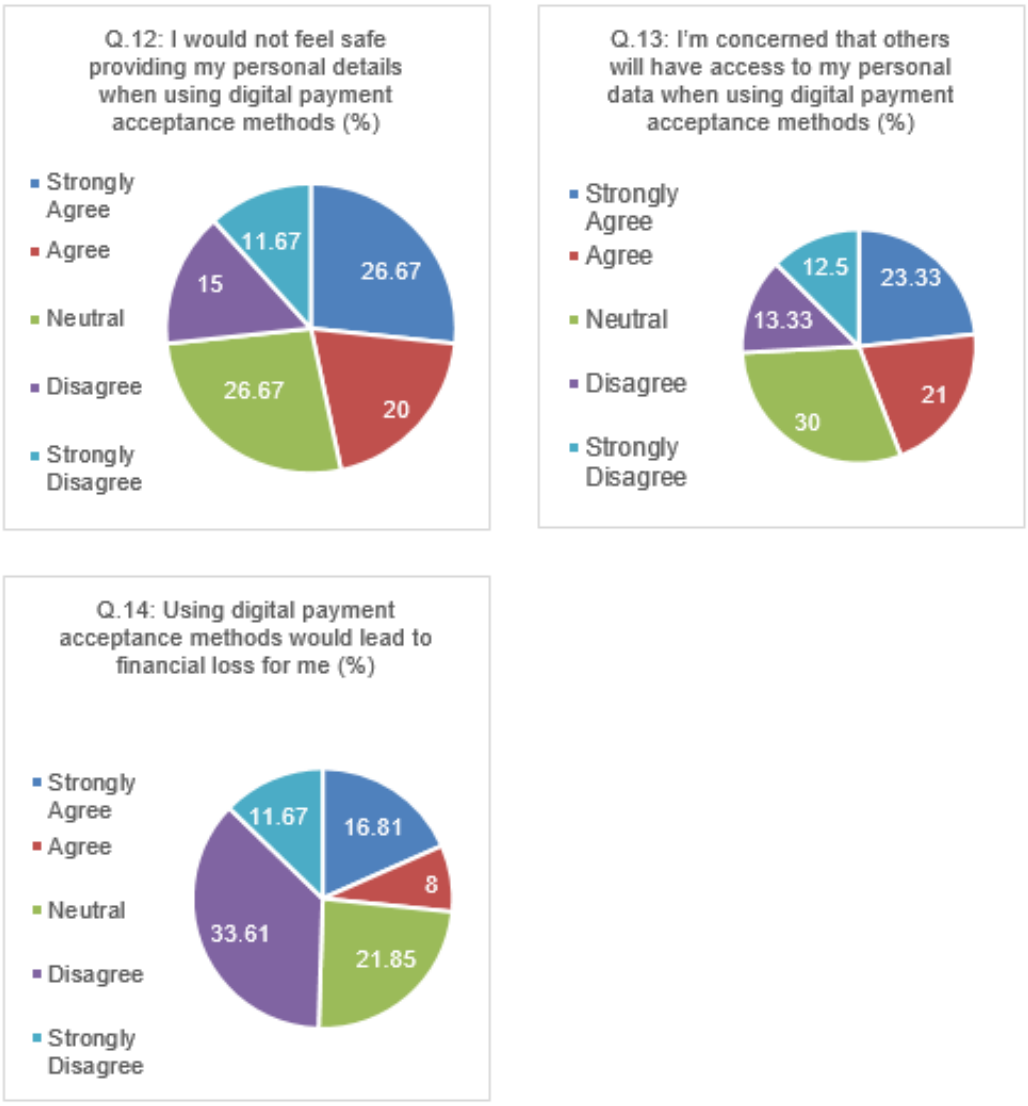

Figure 4.4: Perceived risk responses

In response to question 14, 33.61% of respondents disagreed that using payment acceptance methods would lead to financial loss for them. On the contrary, 8% were in agreement.

4.2.5 *Responses pertaining to Perceived Trust*

Referring to Question 15, table 4.6 indicates a mean of 2.37, with two missing responses.

Table 4.6: Responses to perceived trust

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
15	I believe that digital payment acceptance methods are reliable	1.00	5.00	2.37	1.20	1.44	118

Responses recorded that 36% of respondents agreed and 25.42% strongly agreed with the belief that digital payment acceptance methods are reliable, as seen on figure 4.5.

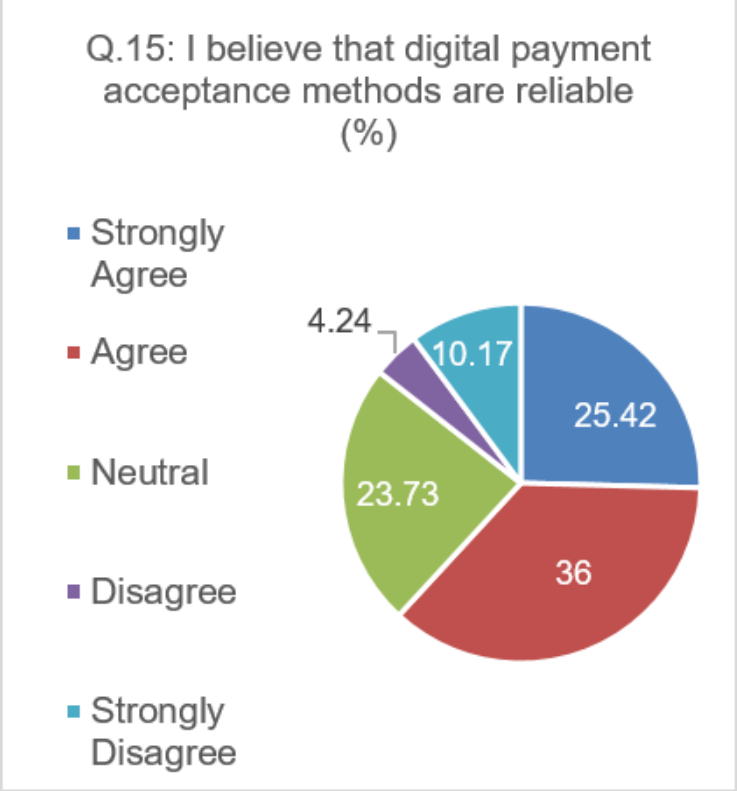

Figure 4.5: Perceived trust responses

4.2.6 *Responses pertaining to Behavioural Intention*

Questions 16 to 18 were asked to determine behavioural intention of the respondents to use digital payment acceptance methods. The average mean of

responses was 2.15, shown in table 4.7. Questions 17 and 18 were each missing responses.

Table 4.7: Responses to behavioural intention

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
16	I intend to use digital payment acceptance methods in the near future	1.00	5.00	2.11	1.19	1.41	120
17	If I had access to digital payment acceptance methods I would always try to use them in my daily activities	1.00	5.00	2.12	1.18	1.40	119
18	I plan to use digital payment acceptance methods frequently	1.00	5.00	2.24	1.16	1.34	119

Figure 4.6 shows responses, that 39.17% of respondents strongly agree and 32% agree with question 16, 36.97% strongly agree and 35% agree with question 17 and 31.93% of respondents strongly agree, 34% agree with question 18.

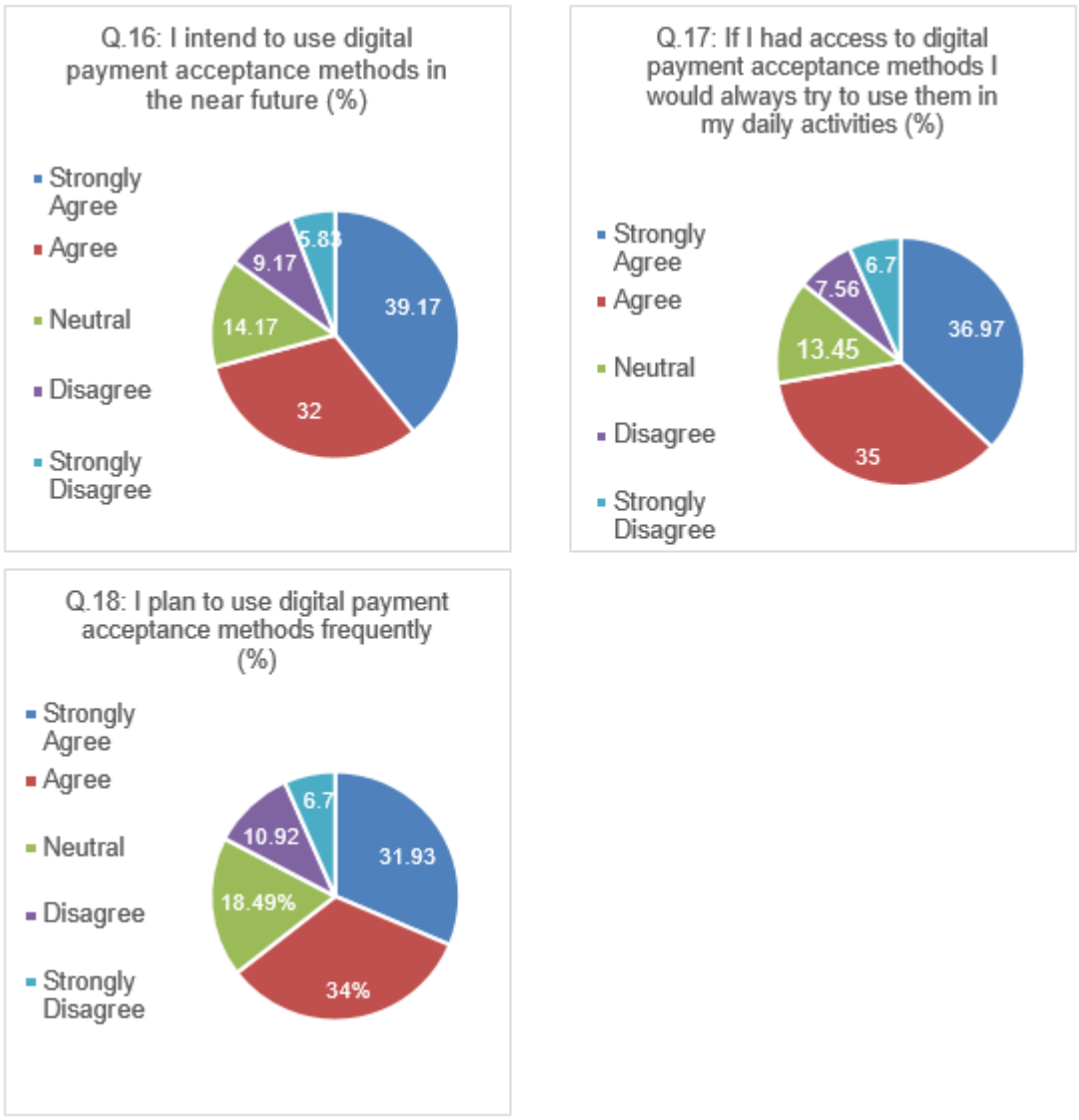

Figure 4.6: Behavioural intention responses

Overall, having aggregated the responses from the three questions, on average 70% of respondents either strongly agree or agree that they intend on using digital payment acceptance methods.

4.3 Reliability and validity of measurement

The test results conducted to measure reliability and validity are presented. These were measured using factor analysis, namely Principal Components Analysis (PCA) and Cronbach's alpha.

4.3.1 *Convergent and discriminant validity*

Table 4.8 depicts the KMO measure for the study, which is 0.926, well above the threshold of 0.6. The Bartlett's test of sphericity is significant ($p < 0.01$). This confirms that the sample is appropriate for factor analysis.

Table 4.8: KMO and Bartlett's Test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,926
Bartlett's Test of Sphericity	Approx. Chi-Square	1645,969
	df	105
	Sig.	<,001

Table 4.9 below shows a measure of the proportion of variance that can be accounted for by the extracted factors, also known as communalities (Field, 2017). Variables having communalities below 0.4 do not have much contribution to the underlying factors. The factors below all exceed 0.5, ranging from 0.503 to 0.852.which is ideal for a sample size of 100 to 200 (Field, 2017).

Table 4.9: Communalities

Communalities

	Initial	Extraction
PE1	1,000	,717
PE2	1,000	,763
PE3	1,000	,752
PE4	1,000	,789
EE1	1,000	,820
EE2	1,000	,832
EE3	1,000	,852
EE4	1,000	,789
PV1	1,000	,503
PV2	1,000	,797
PV3	1,000	,533
PR1	1,000	,617
PR3	1,000	,516
PT1	1,000	,631
PR2	1,000	,631

Extraction Method: Principal Component Analysis.

Table 4.10: Total variance

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9,036	60,238	60,238	9,036	60,238	60,238	8,625	57,499	57,499
2	1,507	10,050	70,287	1,507	10,050	70,287	1,918	12,788	70,287
3	,887	5,915	76,202						
4	,744	4,959	81,161						
5	,608	4,052	85,213						
6	,549	3,661	88,874						
7	,428	2,856	91,730						
8	,280	1,864	93,595						
9	,225	1,499	95,093						
10	,187	1,247	96,341						
11	,167	1,117	97,457						
12	,123	,823	98,280						
13	,113	,752	99,033						
14	,077	,516	99,549						
15	,068	,451	100,000						

Extraction Method: Principal Component Analysis.

The table 4.10 above shows the number of factors to be retained. Only eigenvalues greater than 1 were considered, therefore only two components were retained. The two components account for the majority of the variance, at 70.23%, which is above the recommended threshold of 60%.

The scree plot below also shows that there are two components which account for the majority of the variance. It shows that, only two of the fifteen components had eigenvalues greater than 1 and should thus be retained.

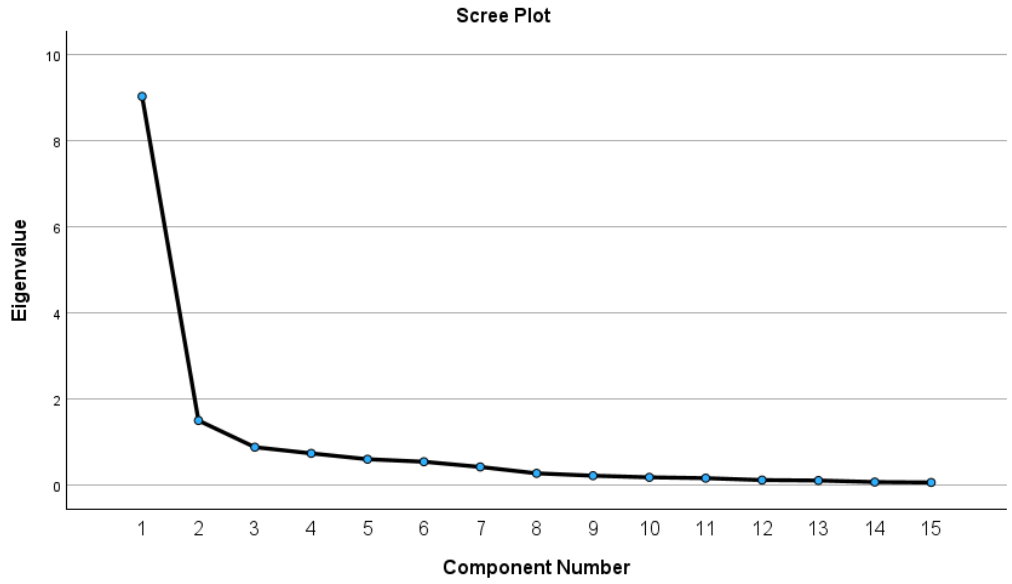

Figure 4.7: Scree plot

Table 4.11 presents the rotated component matrix, which was obtained using the varimax rotation method, selected due to its ability to achieve a more interpretable structure of factors (Field, 2017). The result matrix in table 4.11 illustrates the two components that were retained.

Table 4.11: Rotated Component Matrix

Rotated Component Matrix[a]

	Component	
	1	2
PE1	,838	-,120
PE2	,869	-,086
PE3	,865	-,064
PE4	,879	-,127
EE1	,887	-,183
EE2	,902	-,137
EE3	,913	-,136
EE4	,879	-,128
PV1	,693	-,151
PV2	,865	-,222
PV3	,724	-,096
PR1	-,018	,785
PR3	-,336	,635
PT1	,754	-,251
PR2	-,080	,790

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

a. Rotation converged in 3 iterations.

4.3.2 *Scale reliability*

The section illustrates the reliability of the scale, measured using Cronbach's alpha. The scale is said to be reliable if Cronbach's alpha is above 0.7, depending on the number of items on the scale (Field, 2017). The Cronbach's alpha for each construct except Perceived Trust, is summarised in table 4.12 below. Perceived trust was not measured as it contains only one measurement item.

Table 4.12: Cronbach's alpha summarised results

Variable	Number of measurement items	Cronbach's alpha	Reliability
Performance Expectancy	4	0.951	Good
Effort Expectancy	4	0.968	Good
Price value	3	0.856	Good
Perceived Risk	3	0.628	Acceptable
Perceived Trust	1	Not calculated	
Behavioral Intention	3	0.945	Good

4.4 Correlation analysis

This section presents the results from the hypothesis testing conducted using Pearson's correlation coefficient, which was used to measure the strength of a linear relationship between two variables (Field, 2017). A multiple regression analysis is used thereafter to accept or reject the hypothesis.

4.4.1 *Behavioural Intention and Performance Expectancy*

The results of the relationship between Perceived Expectancy and Behavioural Intention show that the correlation coefficient is 0.547 and the p-value <0.001. This indicates a strong positive correlation between the two variables. Therefore, this finding supports hypothesis 1 which states that PE has a positive influence on behavioural intention of informal merchants to use digital payment acceptance methods. Figure 4.8 below graphically illustrates this relationship.

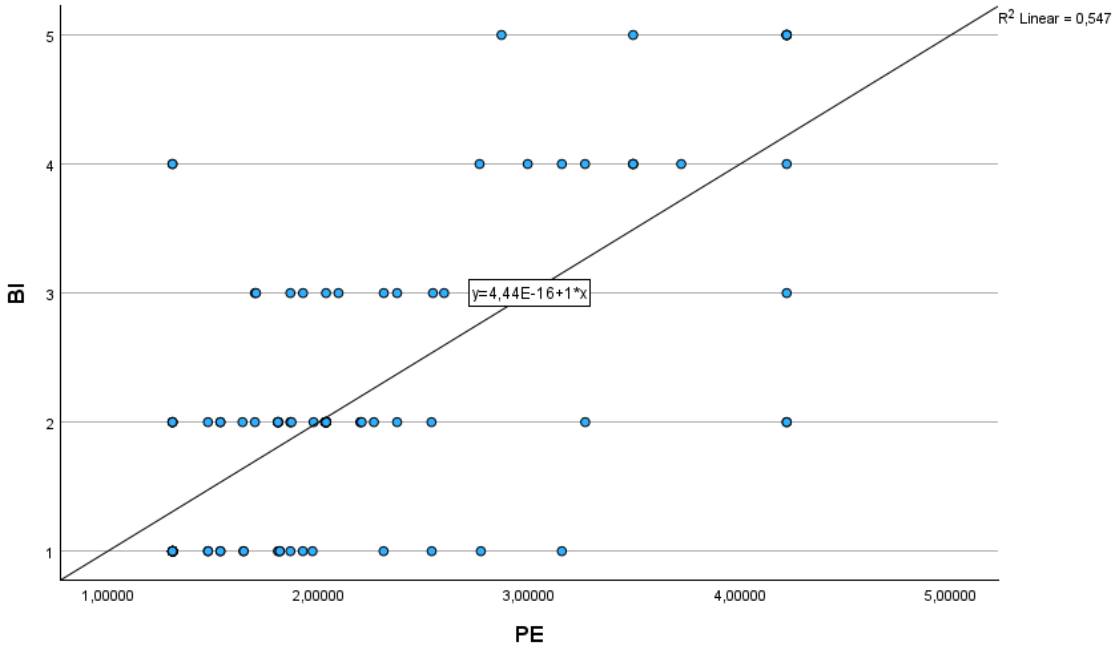

Figure 4.8: Scatter plot for behavioural intention and performance expectancy

4.4.2 *Behavioural Intention and Effort Expectancy*

The results of the relationship between Effort Expectancy and Behavioural Intention show that the correlation coefficient is 0.525 and the p-value <0.001. This indicates a positive correlation between the two variables. Therefore, this finding supports hypothesis 2 which states that EE has a positive influence on behavioural intention of informal merchants to use digital payment acceptance methods. Figure 4.9 below graphically illustrates this relationship.

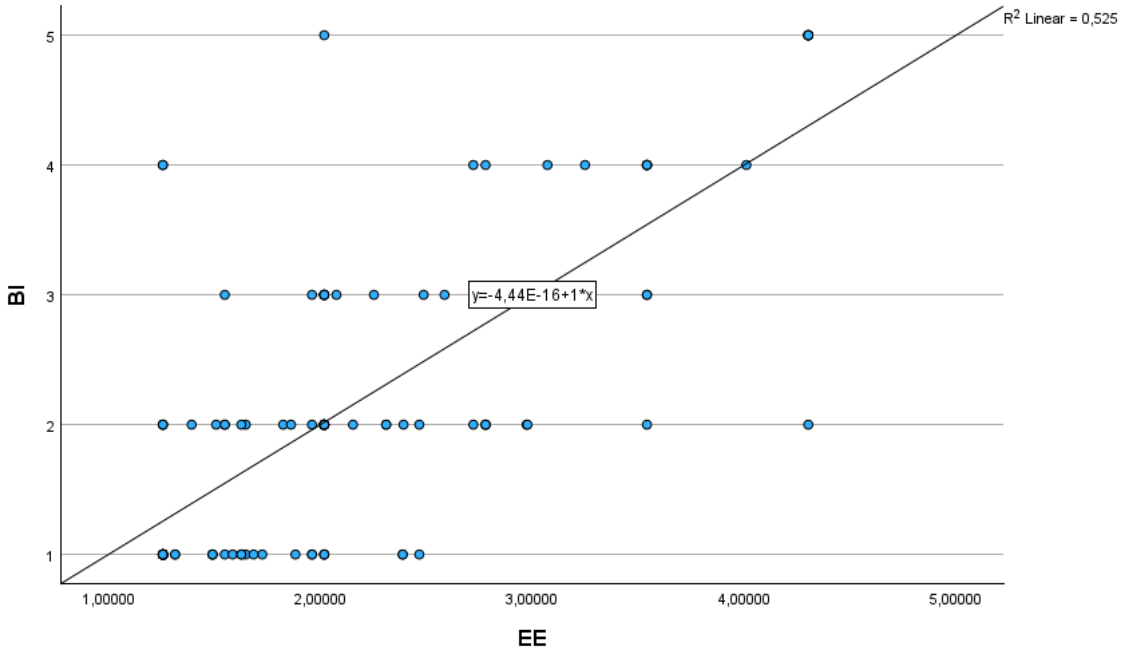

Figure 4.9: Scatter plot for behavioural intention and effort expectancy

4.4.3 *Behavioural Intention and Price Value*

The results of the relationship between Price Value and Behavioural Intention show that the correlation coefficient is 0.519 and the p-value <0.001. This indicates a positive correlation between the two variables. Therefore, this finding supports hypothesis 3 which states that PV has a positive influence on behavioural intention of informal merchants to use digital payment acceptance methods. Figure 4.10 below graphically illustrates this relationship.

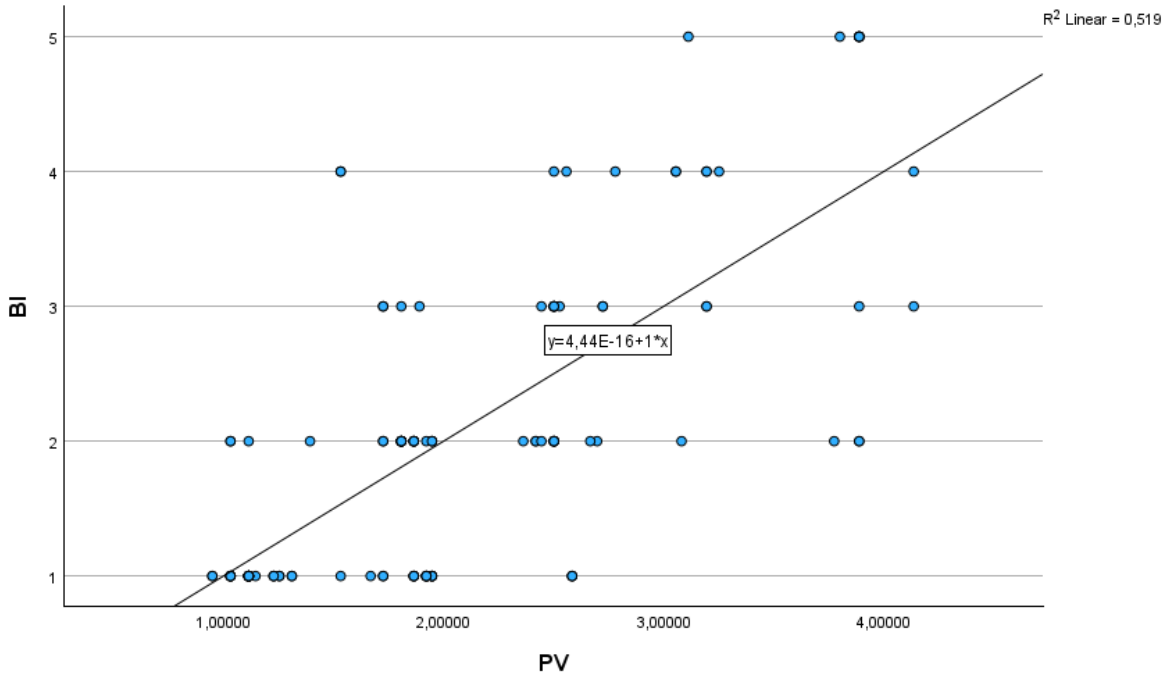

Figure 4.10: Scatter plot for behavioural intention and price value

4.4.4 *Behavioural Intention and Perceived Risk*

The results of the relationship between Perceived Risk and Behavioural Intention show that the correlation coefficient is 0.149 and the p-value <0.001. This indicates a positive correlation between the two variables. Therefore, this finding does not support hypothesis 4 which states that PR has a negative influence on behavioural intention of informal merchants to use digital payment acceptance methods. Figure 4.11 below graphically illustrates this relationship.

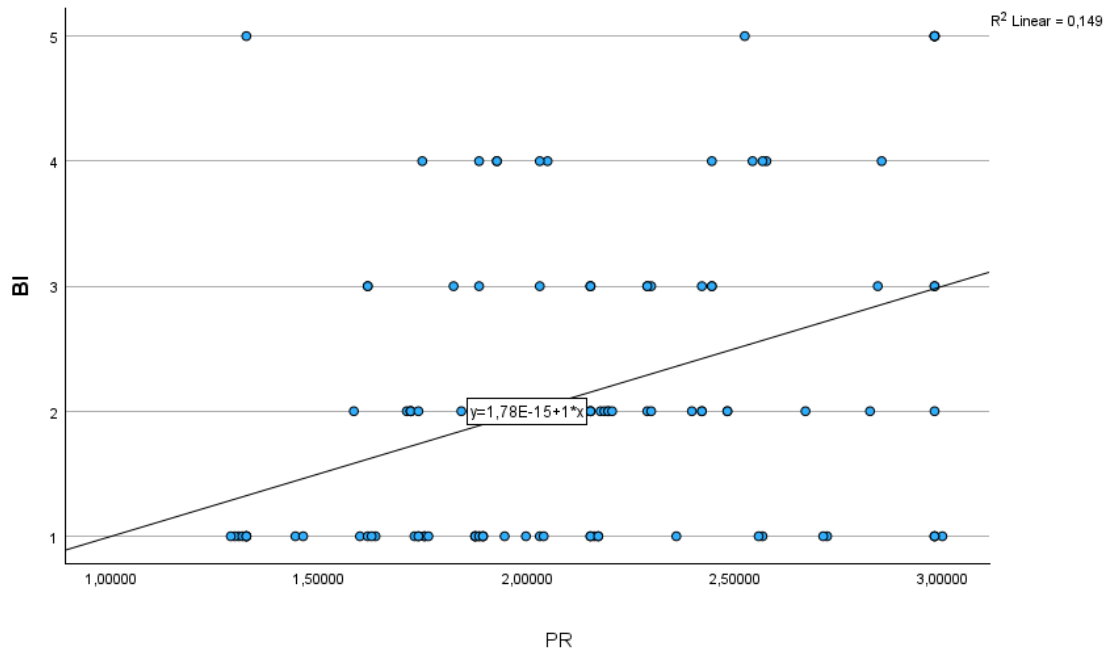

Figure 4.11: Scatter plot for behavioural intention and perceived risk

4.4.5 *Behavioural Intention and Perceived Trust*

The results of the relationship between Perceived Trust and Behavioural Intention show that the correlation coefficient is 0.429 and the p-value <0.001. This indicates a positive correlation between the two variables. Therefore, this finding supports hypothesis 5 which states that PT has a positive influence on behavioural intention of informal merchants to use digital payment acceptance methods. Figure 4.12 below graphically illustrates this relationship.

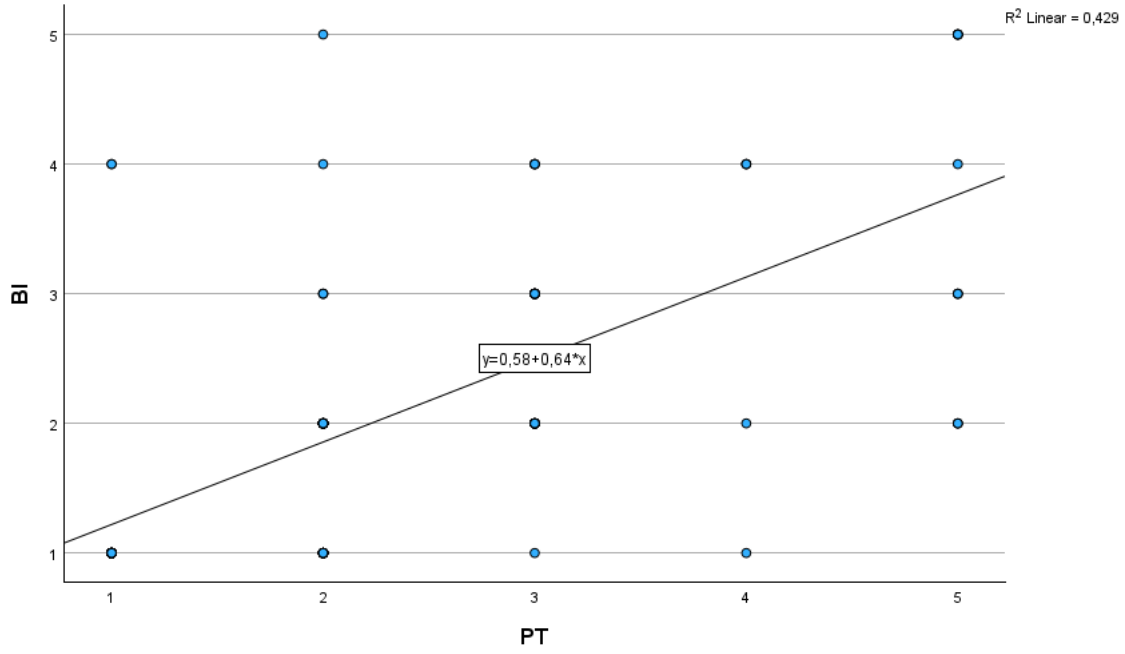

Figure 4.12: Scatter plot for behavioural intention and perceived trust

4.5 Multiple regression analysis

Multiple linear regression was conducted to predict the relationship between Behavioural Intention (dependent variable) and independent variables Performance Expectancy, Effort Expectancy, Price Value, Perceived Risk and Perceived Trust. Results indicated an R square of 0.625 which entails that the model explains approximately 62% of the variance in informal merchants' intention to adopt digital payment acceptance methods. This is statistically significant at the $p < 0.001$ level.

Results indicate that PE ($p < 0.05$), EE ($p < 0.1$), PV ($p < 0.1$) and PT ($p < 0.1$) all have a significant effect on BI whereas PR ($p > 0.1$) has been found to have a non-significant effect on BI. PE has the highest significant effect with a beta coefficient of 0.269. The tolerance values range between 0.254 and 0.779, while the VIF values range from 1.284 to 3.939 which is evidence of there being no multicollinearity. Guidelines suggest that tolerance values not be below 0.2, while VIF greater than 10 is cause for concern (Field, 2017).

Table 4.13: Model summary of multiple regression

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,791[a]	,625	,608	,743

a. Predictors: (Constant), PR, PE, PT1, PV, EE

b. Dependent Variable: BI1

Table 4.14: ANOVA of multiple regression

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	98,447	5	19,689	35,673	<,001[b]
	Residual	59,058	107	,552		
	Total	157,504	112			

a. Dependent Variable: BI1

b. Predictors: (Constant), PR, PE, PT1, PV, EE

Table 4.15: Coefficients of multiple regression

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-0.653	0.338		-1.931	0.056		
	PT1	0.155	0.088	0.160	1.764	0.081	0.427	2.339
	PE	0.358	0.156	0.269	2.287	0.024	0.254	3.939
	EE	0.288	0.160	0.208	1.800	0.075	0.262	3.811
	PV	0.256	0.154	0.188	1.665	0.099	0.276	3.624
	PR	0.235	0.173	0.091	1.356	0.178	0.779	1.284

a. Dependent Variable: BI1

4.6 Summary of the results/findings

In this chapter, the responses to the 18 survey questions were analysed and synthesised. Principle Components analysis was used to measure validity of the tool, and Cronbach's alpha was applied to measure the scale's reliability. Thereafter, hypothesis testing was conducted using Pearson's correlation, followed by multiple regression analysis. The table below provides a summary of the hypothesis test results.

Table 4.16: Summary of hypothesis results

Hypothesis	Description	Result
H1	Performance Expectancy has a positive influence on behavioural intention of informal merchants to use digital payment acceptance methods	Supported
H2	Effort Expectancy has a positive influence on behavioural intention of informal merchants to use digital payment acceptance methods	Supported
H3	Price Value has a positive influence on behavioural intention of informal merchants to use digital payment acceptance methods	Supported
H4	Perceived Risk has a negative influence on behavioural intention of informal merchants to use digital payment acceptance methods	Not supported
H5	Perceived Trust has a positive influence on behavioural intention of informal merchants to use digital payment acceptance methods	Supported
H6	Behavioural Intention has a positive influence on use behaviour of informal merchants to use digital payment acceptance methods	Supported

CHAPTER 5. DISCUSSION OF THE RESULTS OR FINDINGS

5.1 Introduction

In chapter four, the results obtained from the research were presented and described. Chapter five discusses the outcome of the results and interprets them against the literature review and theoretical framework outlined in chapter two.

5.2 Discussion pertaining to objective 1: Determining the factors that influence informal merchant digital payments adoption through the lens of Unified Theory of Acceptance and Use of Technology (UTAUT2)

The first objective of this study was to determine informal merchant's adoption to digital payment acceptance methods through the lens of the UTAUT2. Of the seven constructs of the UTAUT2, three were applied: performance expectancy, effort expectancy and price value.

5.2.1 *Discussion pertaining to Performance Expectancy*

The results from this study indicate performance expectancy as the strongest factor, with a positive linear correlation found between PE and BI with at a correlation coefficient of 0.547. The construct comprised four questions, from which it was found that respondents who 'strongly agreed' or 'agreed' to the questions pertaining to performance expectancy were above 60% of the total sample. Performance expectancy has previously been found by researches to be the best predictor of mobile payment users' intention to use the system (Al-Saedi, Al-Emran, Ramayah, & Abusham, 2020). In other literature, performance expectancy was proven to have a strong influence on Gen-Zs mobile payment services adoption, which was expected due to the high level of interest that they have in technological services (Nur & Panggabean, 2021).

Considering that researchers have encouraged that the construct be applied in other countries, this study has addressed the construct in the context of South Africa's informal sector. In line with the hypothesis that performance expectancy positively influences behavioural intention, as it has been theorised in the consumer context (Venkatesh, Morris, Davis, & Davis, 2003), the results from this study can be interpreted to be in support of this hypothesis. The results were aligned with previous studies that, even in the context of the informal sector, performance expectancy is the strongest predictor of behavioural intention.

Based on the premise that cash is the preferred acceptance method especially in marginalised economies as previously mentioned by PASA (2019), it would be implied that respondents would not expect to attain any benefit, therefore, from the use of alternative methods. However, results have proven this to not be the case. Considering that the majority of respondents acknowledge that the use of digital methods would be useful in their daily activities, would help them conduct business quicker and save them time to do other activities, and suggests that informal merchants are willing to adopt alternative methods. These results should, therefore, be taken into account when considering how to implement strategies to grow adoption in the informal sector by government and businesses.

5.2.2 *Discussion pertaining to Effort Expectancy*

Effort expectancy has been found in this study to be the second strongest factor, with a positive linear correlation found between EE and BI, at a correlation coefficient of 0.525. The construct comprised four questions, from which it was found that 33% to 40% of respondents 'strongly agreed' or 'agreed' to the questions pertaining to effort expectancy.

Several studies have included the effort expectancy construct which measures ease of use in their research in various applications. The construct has been consistently found to be a main factor in the adoption of electronic and mobile payment (Kalan, 2016; Sokobe, 2021; Abebe & Lessa, 2020). Perceived ease of use has also previously been found to positively influence perceived value in the

SA consumer context (Jenkins & Ophoff, 2016). This correlation is interesting because it implies that value is not only derived from a financial 'cost-benefit' result but more from a combination of quantitative and qualitative factors (Jenkins & Ophoff, 2016). Further studies could be conducted to explore this correlation in the context of merchant adoption. Interestingly, where Gen-Zs are concerned, it was expected that ease of use for consumers would impact their adoption choices, however, this has not been the case (Nur & Panggabean, 2021). This may be because Gen-Zs have access to information on the web, are already familiar with using mobile online payment services and find them easy to use (Nur & Panggabean, 2021).

Results from the study indicate empirical support for the construct, following performance expectancy in being a strong driver of behavioural intention. The research was undertaken in a similar merchant setting as past studies, which noted, however, that the merchants under study had not attempted to use the technology, therefore making it difficult, if not impossible to measure perceptions linked to the construct (Kalan, 2016). The contribution of this study was in the inclusion of respondents who had attempted to, or currently use the technology. Considering that the majority of respondents indicated that using the technology was easy for them and that it would be easy to develop the necessary skills to use the technology suggests that a willingness on the part of respondents exists to potentially take part in government interventions seeking to reduce the amount of cash in circulation through the use of technology (UNDP, 2021). This also indicates the positive influence that effort expectancy has on behavioural intention, as has been previously theorised (Venkatesh, Morris, Davis, & Davis, 2003).

5.2.3 *Discussion pertaining to Price Value*

The study indicated price value to contribute less than performance and effort expectancy as an important factor, with a positive linear correlation found between PV and BI at a correlation coefficient of 0.519. The idea of a price value that has a positive impact to behaviour relates to the perception that the monetary cost of merchants taking up certain technologies is lower than the benefit that

they would receive from using them, thus driving adoption (Venkatesh, Thong, & Xu, 2012). This study revealed this to not be the case with price value having a moderate effect in influencing behavioural intention.

Although the cost associated with digital acceptance was not explicitly stated in the three research questions, there was a significant element of neutrality in responses, with 50% of respondents citing the belief that the technology does not cost a lot of money or that it is a bargain at the current price and that spending money on the technology would benefit them. This neutrality might suggest that the current prices of acceptance methods are not known, or that the acceptance methods have not been used frequently enough to understand the cost-benefit effect on their businesses, which may explain why the determining effect was not found to be as strong as that of preceding factors, being performance and effort expectancy.

The results from this study are in contradiction to historically research which concluded that price value was found to be the only significant factor influencing adoption of NFC payments in South Africa from a consumer perspective (Jenkins & Ophoff, 2016) and that cost negatively influenced adoption (Anyaeneh & Nkamnebe, 2021). It has also been alleged that merchants consider digital acceptance to be costly, which may be the reason that merchants only accept cash (Genesis Analytics, 2016). Considering that the informal economy may be cost-sensitive, the study's revelation may be used to provide another perspective that desensitises costs where merchant benefits are believed to be greater, which could, in turn, assist in driving down merchant fees and eradicate the issue of informal merchants passing costs down to their customers.

5.3 Discussion pertaining to objective 2: Extending the UTAUT2 model to also determine merchant digital payments adoption with perceived risk and perceived trust constructs using the Perceived Risk Theory

The second objective of this study was to extend the UTAUT2 model with the constructs of perceived risk and perceived trust using the Perceived Risk Theory.

5.3.1 *Discussion pertaining to Perceived Risk*

The study indicated a weak positive linear correlation between PR and BI with at a correlation coefficient of 0.149; this was found to be the opposite of the hypothesis that PR negatively influences BI. Existing research conducted in the South African context measured security, financial, product and performance risks of proximity payments, a maturing field of study (Eksteen & Humbani, 2021). In e-services such as online bill payment, time, psychological and social risks have been included as important facets; overall, performance risk was proved to negatively affect adoption (Featherman & Pavlou, 2003).

This study's contribution is in measuring the effect of security, privacy and financial risk on adoption in the informal merchant setting, an area which hasn't been researched as extensively. Results indicated that the drivers that explain the construct's proportion of influencing factors of intention were found to be the lowest, contradicting the aforementioned study, which found the construct to be a predictor of proximity mobile payments, having a significantly negative effect on adoption (Eksteen & Humbani, 2021). Similarly, though unexpected, it has been proved that perceived risk had the strongest positive effect on trust, therefore, because of this correlation of risk to trust, risk was found to be low in the perspective of merchant adoption of mobile payments in a developing country (Abebe & Lessa, 2020).

The average of neutral responses (26%) in this study suggests that perceived risk is not considered an influential factor of behavioural intention when compared to findings by Anyaeneh and Nkamnebe. (2021) and Al-Saedi, et al. (2020) who respectively concluded perceived risk to have a negative and insignificantly negative impact on behavioural intention. The response rate may imply, particularly to the questions asked around sharing of personal data and the privacy thereof, that users did not base their purchase decisions on the level of risk associated with a digital acceptance product, contrary to what has been previously theorised (Tian-Que, 2012).

5.3.2 *Discussion pertaining to Perceived Trust*

Perceived trust was indicated to contribute as a lower factor; with a positive linear correlation found between PT and BI at a correlation coefficient of 0.429. The construct of perceived trust was identified as an influencing factor in behavioural intention where trust is allotted to service providers (Al-Saedi, Al-Emran, Ramayah, & Abusham, 2020) and not necessarily to using the system itself. This is also the case in the informal merchant context, where reliability of the technology is dependent on who users are transacting with (Jenkins & Ophoff, 2016). This study aimed to measure perceived trust on the use of actual acceptance methods and not the service provider.

Regarding online payment, consumers have zero to little face-to-face interaction with merchants, which can affect their level of trust when it comes to adopting the services offered by online merchants (Nur & Panggabean, 2021). The effect thereof may be for merchants to withdraw from offering the online services. This has been referred to as a 'chicken-egg problem' (Kalan, 2016). The majority of respondents believe that digital payment acceptance methods are reliable, contradicting another study in which merchants perceived acceptance methods to be unreliable (Genesis Analytics, 2016). Network connectivity and data unavailability have been known to act as barriers to adoption (Kalan, 2016). The belief by SMEs that e-commerce payments are not secure also acts to impede adoption in both developed and developing countries (Kartiwi & MacGregor, 2007).

Results from this study have shown that perceived trust has a positive influence on behavioural intention. Although findings in the study by Kalan (2016) revealed that SMEs consider banks (implying also payment acceptance products offered by banks) to be trustworthy, however, due to their concerns around network reliability and their customers not feeling secure using the technology offered by other service providers such as SnapScan and FlickPay, trust was found to have a negative influence on intention to adopt. On the contrary, again the perspective of merchants operating in cash-heavy environments, it has been proven that trust has a strong positive effect on mobile payment adoption due to the concerns

faced largely around the theft of cash and reliable means of moving cash (Abebe & Lessa, 2020).

5.4 Discussion pertaining to Behavioural Intention

The effects of performance expectancy, effort expectancy, price value, perceived risk and perceived trust on behavioural intention have been discussed. The UTAUT theorised factors influencing behavioural intention in an organisational setting (Venkatesh, Thong, & Xu, 2012). This study sought to understand predict behavioural intention in the context of merchants operating informal businesses. The theoretical construct has been proved to predict technology use even when extended to a consumer context in the UTAUT2, however, its effect was moderated by experience, as opposed to having a direct effect as in the UTAUT (Venkatesh, Thong, & Xu, 2012). The construct of behavioural intention has previously been found to directly influence use behaviour in a similar setting as this study (Anyaeneh & Nkamnebe, 2021).

Based on the responses in this study which measured behavioural intention, it can be deduced that the results empirically support prior research which show the behavioural intention to predict use behaviour. To demonstrate this, the majority of respondents strongly agreed to the intent of using digital acceptance methods. Furthermore, they strongly agreed to try to use digital acceptance methods in their daily activities where they were able to access them. Lastly, respondents strongly agreed that they plan to use digital acceptance methods frequently.

In other literature, experience was found to have a positive effect on usage (Tuffour, Akuffo, Kofi, Frimpong, & Sasu, 2018). Although the moderating effect of experience was not measured in this study, it is implied through the application of the UTAUT2 (Venkatesh, Morris, Davis, & Davis, 2003), hence it can be deduced that the responses to this construct were based on previous usage.

5.5 Conclusion

In summary, this study incorporated the UTAUT2 and the extension thereof using perceived risk theory, in order to measure its applicability in the context of informal merchant payment acceptance. Empirical support has been provided for each hypothesis and similarities and/or differences observed based on the literature review conducted. Based on the concluded study, it is clear that performance expectancy and effort expectancy emerged as the most influential factors, which was expected based on past research. The constructs were followed by price value, perceived trust, and lastly perceived risk. Considering that the informal sector is a community based on trust, the influential effect thereof to behavioural intention was expected to be high (UNDP, 2021). Since perceived cost was found to have a significantly negative influence in like markets (Abebe & Lessa, 2020), (Anyaeneh & Nkamnebe, 2021), price value (which takes into account perceived benefits against cost) was also expected to have a negative influence. The study confirmed this to not be the case. Where prior research associated digital payments with security, privacy and financial risks (Abebe & Lessa, 2020), it was proved that the influential effect of perceived risk was low (albeit positive) within the context of the study, which was aligned to the results found in this study. Finally, the behavioural intention of informal merchants (based on previous experience with use of digital payment acceptance methods) was shown to directly influence use behaviour.

CHAPTER 6. CONCLUSIONS & RECOMMENDATIONS

6.1 Introduction

The previous chapter discussed the results of this study against past literature. In this chapter, the results and discussion thereof are integrated with each research objective outlined in Chapter 1 and conclusions are drawn, recommendations and suggestions for future research are provided.

6.2 Conclusions regarding objective 1: Determining the factors that influence informal merchant digital payments adoption through the lens of Unified Theory of Acceptance and Use of Technology (UTAUT2)

Merchants who operate small to medium businesses in South Africa's township economy still turn to cash as the preferred method of acceptance. The study was undertaken to understand the motivating factors that drive adoption of digital payment acceptance. In doing so, a literature review was conducted, some in like-markets, across the digital payments spectrum, including mobile, proximity/ NFC payments and e-commerce payments. There was found to be limited research which covered the area of merchant payment adoption in the informal sector, more especially in South Africa.

A conceptual model was constructed, that consisted of six hypotheses based on constructs, four of which were adopted from the UTAUT2, namely performance expectancy, effort expectancy, price value and behavioural intention (Venkatesh, Thong, & Xu, 2012). The constructs were expanded to twelve of the eighteen research questions, where 120 respondents were conveniently sampled to take part in a survey. The results of the survey were analysed using Pearson correlation and multiple regression analysis using the IBM SPSS tool. Results

indicated that performance expectancy and effort expectancy explained a high proportion of factors influencing behavioural intention, therefore H1 and H2 were accepted. Price value explained a moderate proportion of factors influencing behavioural intention, therefore H3 was accepted. Furthermore, behavioural intention was found to directly influence use behaviour, thus H6 was accepted.

6.3 Conclusions regarding objective 2: Extending the UTAUT2 model to also determine merchant digital payments adoption with perceived risk and perceived trust constructs using the Perceived Risk Theory

This study aimed to determine informal merchant adoption of digital payments by extending the UTAUT. The extension of the UTAUT2 model entailed integrating two of the six constructs that were conceptualised, namely perceived risk and perceived trust as theorised in the Perceived Risk Theory (Bauer, 1960). The addition of perceived risk as a construct was beneficial to the study in exploring the different facets of perceived risk, having combined them with the TAM model in one instance. Insights from past studies revealed perceived risk to have little influence on behavioural intention. However, in conducting this study, it was found that perceived risk had a positive influence on behavioural intention, which was contrary to the hypothesis in this study, hence H4 was rejected.

The inclusion of perceived trust was beneficial in this study because of how importantly informal merchants regard reliability and security in their payment operations. It gave insight into the way merchants perceive these attributes and how their customer's perceptions affected whether or not the merchants would accept and or offer digital payment methods. Results in this study indicated that perceived trust had a positive influence on behavioural intention, therefore H5 was accepted. Notably, trust and security were found by past literature to be barriers to adoption. Based on these observations, it can be concluded, therefore, that the extension of the theorised UTAUT2 has been a valuable contribution in expanding the understanding of and perceived risk and perceived trust as factors to adoption within the informal sector.

6.4 Recommendations

Recommendations have been provided for financial institutions or payment service providers and government entities who are interested in providing services to the informal market. Recommendations are based on the outcome of this study as well as existing literature previously discussed.

Perceived risk was shown to be a weak influential factor to adoption, however, concerns about data privacy and financial losses that may result from the use of acceptance devices prevail. Trusted financial institutions such as banks and other payment service providers should address these concerns and demonstrate secure measures in handling merchant's data. It is recommended that financial institutions work with merchant service providers to ensure that extensive due diligence is conducted when on-boarding merchants, monitoring systems are in place and guidelines be provided should a data breach occur.

Results showed areas where knowledge gaps may exist in terms of the costing of acceptance methods. Where there is limited knowledge on the price value of products that are offered in the informal market which support merchants, service providers are encouraged to educate the sector, thereby giving customers more choice on which digital payment acceptance methods are available to use, thus creating value for money which may drive adoption rates upward. Government organisations could provide incentives to township-based merchants which can help to relieve cost pressure related to accepting digital payment and drive adoption rates.

6.5 Limitations and challenges of the study

- Fewer responses were received from online respondents as data and network connectivity was not available for some respondents.
- Some of the merchants which were targeted for data collection refused to complete the face-to-face questionnaires, which reduced the sample size.
- Experience in using digital payment acceptance methods was limited for respondents.

- Language barriers were experienced as some respondents were non-English speakers, which meant that some face-to-face questionnaires could not be conducted, which reduced the sample size.

6.6 Suggestions for further research

It has been noted that not all questions were answered in completion of the survey – for reasons unknown. Demographics of the respondents were not included for this study either. Future researchers could incorporate measuring the effect of demographics such as age and gender so obtain a richer picture of adoption. Research was conducted using quantitative methods and did not provide respondents the opportunity to provide reasons for their answers. Further research could use mixed-methods techniques which may provide the researcher with quantitative and qualitative information to draw inferences from. The study also focused only on three townships in Pretoria. Further studies could expand to more townships across the country to allow for better coverage of the research base.

Table 6.1: Consistency table - research questions, propositions, data collection and data analysis

RQ #	State Research Question or Objective	Literature Review	Hyp #	Hypothesis	Data collection detail	Data analysis method
1	Determine informal merchant digital payments adoption through the lens of Unified Theory of Acceptance and Use of Technology (UTAUT2)	(Venkatesh, Thong, & Xu, 2012)	H1-H3, H6	H1:Performance Expectancy has a positive influence on behavioural intention of informal merchants to use digital payment acceptance methods H2: Effort Expectancy has a positive influence on behavioural intention of informal merchants to use digital payment acceptance methods H3: Price Value has a positive influence on behavioural intention of informal merchants to use digital payment acceptance methods H6: Behavioural Intention has a positive influence on use behaviour of informal merchants to use digital payment acceptance methods	Questionnaire Likert statement 1-5, Questions 2 to 11, 16-18	Multiple regression analysis Factor analysis Pearson correlation
2	Extend the UTAUT2 model to also determine merchant digital payments adoption with perceived risk and perceived trust constructs using the Perceived Risk Theory	(Featherman & Pavlou, 2003), (Abebe & Lessa, 2020)	H4, H5	H4: Perceived Risk has a negative influence on behavioural intention of informal merchants to use digital payment acceptance methods H5: Perceived Trust has a positive influence on behavioural intention of informal merchants to use digital payment acceptance methods	Questionnaire Likert statement 1-5 Questions 12 -15	

REFERENCES

Abebe, F., & Lessa, L. (2020, July). Factors affecting mobile payment adoption by merchants in Ethiopia.

Agarwal, S., Weichert, M., & Burr, E. (2022). *Growing Payments to new heights.* Accenture.

Ajzen. (1991). The theory of planned behavior. *Organizational behavior and human decision processes, 50*(2), 179-211.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour.* Englewood Cliffs: Prentice-Hall, Inc.

Allen, M. P. (2004). *Understanding regression analysis.* Springer Science & Business Media.

Al-Saedi, K., Al-Emran, M., Ramayah, T., & Abusham, E. (2020). Developing a general extended UTAUT model for M-payment adoption. *Technology in Society, 62*.

Anastasi, A., & Urbina, S. (1997). *Psychological testing.* Prentice Hall/Pearson Education.

Anyaeneh, V. K., & Nkamnebe, A. (2021). Mobile Payment System Adoption among Informal Sector in Anambra State. *Contemporary Marketing Research Journal, 8*(1), 1-14.

Apuke, O. D. (2017). Quantitative research methods: A synopsis approach. *Kuwait Chapter of Arabian Journal of Business and Management Review, 33*(5471), 1-8.

Asongu, S. A. (2018). Conditional determinants of mobile phones penetration and mobile banking in Sub-Saharan Africa. *Journal of the Knowledge Economy, 9*(1).

Bauer, R. (1960). Consumer behavior as risk taking. *Marketing: Critical perspectives on business and management*.

Bhandari, P. (2022, December 05). Correlational Research | When & How to Use.

Business Standard. (2022, March 30). *Google Pay launches Tap to Pay for UPI, in collaboration with Pine Labs*.

Cant, M. (2017). The availability of infrastructure in townships: Is there hope for township businesses? *International Review of Management and Marketing, 7*(4), 108.

Choy, L. T. (2014). The strengths and weaknesses of research methodology: Comparison and complimentary between qualitative and quantitative approaches. *IOSR journal of humanities and social science, 19*(4), 99-104.

Crail, C., & Adams, D. (2021, October 20). *What You Need To Know About Contactless Payments*.

Creswell, J. W. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches.* Sage publications.

Cruz, P., Neto, L. B., Muñoz-Gallego, P., & Laukkanen, T. (2010). Mobile banking rollout in emerging markets: evidence from Brazil. *International Journal of bank marketing*.

Davis, F. D. (1985). *A technology acceptance model for empirically testing new end-user information systems: Theory and results.*

Edey Van Wyk, C., & Van Gaalen, P. (2021, August 05). *Investec Focus Economy*.

Eksteen, C., & Humbani, M. (2021). Understanding Proximity Mobile Payments Adoption in South Africa: A Perceived Risk Perspective. *Journal of Marketing and Consumer Behaviour in Emerging Markets*.

Featherman, M. S., & Pavlou, P. A. (2003). Predicting e-services adoption: a perceived risk facets perspective. *International journal of human-computer studies*, 451-474.

Field, A. (2017). *Dsicovering statistics using IBM SPSS Statistics.* Sage.

Finscope. (2021). *Virtual Launch of FinScope MSME South Africa 2020 results.* Finmark Trust.

Franciska, A., & Sahayaselvi, S. (2017). An overview on digital payments. *International Journal of Research, 4*(13), 2101-2111.

Gauteng Provincial Legislature. (2022, May). *Gauteng Township Economic Development Act.*

Genesis Analytics. (2016). *Quantifying the true cost of cash in South Africa*.

Goodman, L. A. (1961). Snowball sampling. *The annals of mathematical statistics*, 148-170.

GSMA. (2021). *State of the industry report on mobile money.* GSMA.

Igudia, P. O. (2017). A qualitative evaluation of the factors influencing the adoption of electronic payment systems by SMEs in Nigeria. *European Scientific Journal, 13*(31), 472-502.

International Finance Corporation. (2018, November). The unseen sector: A report on the MSME opportunity in South Africa. Washington D.C.

Jenkins, P., & Ophoff, J. (2016). Factors influencing the intention to adopt NFC mobile payments - A South African perspective. *International Conference on Information Resources Management.*

Kalan, A. (2016). Understanding merchant adoption of m-payments in South Africa.

Kartiwi, M., & MacGregor, R. C. (2007). Electronic commerce adoption barriers in small to medium-sized enterprises (SMEs) in developed and developing

countries: A cross-country comparison. *Journal of Electronic Commerce in Organizations, 5*(3), 35-51.

Khazanchi, D., & Munkvold, B. E. (2003). On the rhetoric and relevance of IS research paradigms: a conceptual framework and some propositions. *Proceedings of the 36th Annual Hawaii International Conference on System Sciences.* IEEE.

Kılınç, H., & Vaudenay, S. (2018). Secure contactless payment. *Australasian Conference on Information Security and Privacy*, 579-597.

Kirch, W. (2008). Pearson's correlation coefficient. *Encyclopedia of public health*, 1090 - 1091.

Ladkoom, K., & Thanasopon, B. (2020). Factors Influencing Reuse Intention of e-Payment in Thailand: A Case Study of PromptPay. *ICEIS, 1*, 743-750.

Leavy, P. (2017). *Research design: Quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches.* Guilford Publications.

Madden, T. J., Ellen, P. S., & Ajzen, I. (1992). A comparison of the theory of planned behavior and the theory of reasoned action. *Personality and social psychology Bulletin, 18*(1), 3-9.

Marikyan, D., & Papagiannidis, S. (2021). *Unified Theory of Acceptance and Use of Technology: A review.*

Mathibe, M., Mochenje, T., & Masonta, M. (2021). Assessing the Effectiveness of 4IR Strategy on South African Township Economy: Smart Township Perspective. *Mbali Conference.*

May, A. (2018). Simple Descriptive Statistics. In M. Allen, *The SAGE Encyclopedia of Communication Research Methods* (Vols. 1-4).

Mukherjee, S., Sinha, B., & Chattopadhyay, A. (2018). *Factor Analysis. In: Statistical Methods in Social Science Research.* Springer.

Najib, M., & Fahma, F. (2020). Investigating the adoption of digital payment system through an extended technology acceptance model: An insight from the Indonesian small and medium enterprises. *International Journal on Advanced Science, Engineering and Information Technology, 10*(4), 1702-1708.

Nkaelang, B., Ojo, S. O., & Mbarika, V. W. (2012). Mobile payment services in South Africa: Providing secure financial services to the poor. *IDIA 2012 Conference*.

Nur, T., & Panggabean, R. (2021). Factors influencing the adoption of mobile payment method among generation Z: the extended UTAUT approach. *Nur, T. and Panggabean, RR*, 14-28.

PASA. (2019). *Modernised Real-time Electronic Retail Payments: A Case for Change for South Africa.* Payment Association of South Africa.

Pidugu, K. (2015). Mobile payment adoption in South Africa: a merchant's perspective.

Queirós, A., Faria, D., & Almeida, F. (2017). Strengths and limitations of qualitative and quantitative research methods. *European journal of education studies.*

Rahman, A., & Muktadir, M. G. (2021). SPSS: an imperative quantitative data analysis tool for social science research. *International Journal of Research and Innovation in Social Science, 5*, 300-302.

Rastogi, S., Sharma, A., Panse, C., & Bhimavarapu, V. M. (2021). Unified Payment Interface (UPI): A digital innovation and its impact on financial inclusion and economic development. *Universal Journal of Accounting and Finance, 9*, 518-530.

Roopa, S., & Rani, M. S. (2012). Questionnaire designing for a survey. *Journal of Indian Orthodontic Society, 46*, 273-277.

Shaffer, J. A., DeGeest, D., & Li, A. (2016). Tackling the problem of construct proliferation: A guide to assessing the discriminant validity of conceptually related constructs. *Organizational Research Methods, 19*(1), 80-110.

Sharma, S. K., Govindaluri, S. M., Al-Muharrami, S., & Tarhini, A. (2017). A multi-analytical model for mobile banking adoption: a developing country perspective. *Review of International Business and Strategy.*

SME South Africa. (2022, May 6). *Formal and informal business in south africa*.

Sokobe, O. E. (2015). Factors influencing adoption of electronic payment by small and medium hotel enterprises in Kisii town, Kisii county, Kenya. *International Journal of Novel Research in Computer Science and Software Engineering*, 5-18.

South African Government. (2023). *Companies Act 71 of 2008.*

South African Reserve Bank. (2018). *Payments and Settlements: National Payment System Framework and Strategy – Vision 2025.*

Suebtimrat, P., & Vonguai, R. (2021). An Investigation of Behavioral Intention Towards QR Code Payment in Bangkok, Thailand. *The Journal of Asian Finance, Economics and Business, 8*(1), 939-950.

Thompson, C. B., & Panacek, E. A. (2007). Research study designs: Non-experimental. *Air medical journal, 26*(1), 18-22.

Tian-Que, L. (2012). Perceived risk in marketing strategy. *Business, economics, financial sciences and management*.

Tominc, P., & Čančer, V. (2020). Quantitative Methods. In V. Pászto, C. Jürgens, P. Tominc, & J. Burian, *Spationomy.* Springer.

Trading Economics. (2022, June 19). *South Africa Unemployment Rate.*

Tuffour, J. K., Akuffo, D., Kofi, A. A., Frimpong, P. A., & Sasu, T. (2018). Adoption of mobile commerce and service in Adentan Municipality of Ghana: An

examination of factors influencing small scale enterprises. *International Business Research*, 109-118.

UNDP. (2021, September 28). *Impact of COVID-19 on Micro and Informal businesses South Africa.* United Nations Development Programme.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science, 46*(2), 186-204.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view.

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS quarterly*, 157-178.

APPENDIX (A) Questionnaire

Variable	Survey question	Scale	Literature source
Performance Expectancy	PE1. I believe using digital payment acceptance methods would be useful in my daily activities PE2. Using digital payment acceptance methods would help me conduct my business quicker PE3. Using digital payment acceptance methods would save me time to do other daily business activities PE4. Using digital payment acceptance methods is convenient for me	Likert 1-5	Adapted from (Venkatesh, Thong, & Xu, 2012),
Effort Expectancy	EE1. Learning how to use digital payment acceptance methods would be easy for me EE2. My interaction with using digital payment acceptance methods would be clear and easy to understand EE3. I believe it is easy to use digital payment acceptance methods EE4. It would be easy for me to develop the skills to use digital payment acceptance methods	Likert 1-5	Adapted from (Venkatesh, Thong, & Xu, 2012)
Price Value	PV1. I believe digital payment acceptance methods do not cost a lot of money PV2. I believe the money that I would spend on digital payment acceptance methods would benefit me PV3. I believe digital payment acceptance methods are a bargain at the current price	Likert 1-5	Adapted from (Venkatesh, Thong, & Xu, 2012)
Perceived Risk	PR1. I would not feel safe providing my personal details when using digital payment acceptance methods PR2. I'm concerned that others will have access to my personal data when using digital payment acceptance methods PR3. Using digital payment acceptance methods would lead to financial loss for me	Likert 1-5	Adapted from (Featherman & Pavlou, 2003), (Abebe & Lessa, 2020)
Perceived Trust	PT1. I believe that digital payment acceptance methods are reliable	Likert 1-5	Adapted from (Featherman & Pavlou, 2003), (Abebe & Lessa, 2020)
Behavioural Intention	BI1. I intend to use digital payment acceptance methods in the near future BI2. If I had access to digital payment acceptance methods I would always try to use them in my daily activities BI3. I plan to use digital payment acceptance methods frequently	Likert 1-5	Adapted from (Venkatesh, Thong, & Xu, 2012)