E-READINESS OF THE SOUTH AFRICAN INFORMAL SECTOR FOR ELECTRONIC PORTAL TECHNOLOGY SUPPORT

By

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DECLARATION

I, Ernest S. ETIM, declare that the contents of this thesis represent my own unaided work and that the thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

15 September 2021

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Signed Date

ABSTRACT

E-readiness signifies the level to which a nation or entity is well-positioned to reap the full benefits of a digitalised world. At the micro-level, it determines how an individual is strategically positioned to effectively use the opportunities that come with Information and Communication Technology. Information technology infrastructure, human capital development, government regulations and policies, and internet penetration are critical components of e-readiness. In most transitioning or developing economies, including South Africa, the informal sector represents the lowest level of micro-, small-, and medium-scale enterprises (MSMEs). Technically, informal businesses are unregistered and unregulated; therefore, they operate outside government jurisdiction. They are non-taxable. This sector is subject to several constraints (external and internal) which impede its efficiency and growth. A technology-centric approach has been articulated to address some of the key constraints. This approach is a multi-modal electronic portal as a niche e-portal for personalised information access and management targeted to the informal sector of South Africa. This doctoral study aims to ascertain the e-readiness of the SA informal sector service providers for electronic technology support. The thrust of this research is the provision of the premise for the gradual migration of the SA informal service providers to a technology-based agenda that supports their visibility, brand, profitability and, eventually, their semi-formalisation.

A synthesised conceptual framework was developed from Information Systems theories comprising self-efficacy theory (SET), unified theory of acceptance and use of technology (UTAUT), and technology readiness index (TRI). This framework became the research model. Data was collated from 419 respondents in the Cape Town metropolis after using a survey research design. Prior to data collection, the researcher demonstrated how to use the electronic portal technology (web technology portal) artefact to the respondents. A structural equation modelling was performed on the data using SmartPLS-SEM (vs, 3.3.5), to assess the degree of e-readiness of several service providers in the SA informal sector. The relationship between gender, business type and their e-readiness, and pertinent factors that impede or enhance the state of e-readiness of the informal sector providers were determined.

The findings obtained after performing descriptive statistics, and PLS-SEM analysis are presented and show the participants' demographics in terms of gender, age distribution, sub-sector concentration, and internal and external factors. The PLS analysis showed that self-efficacy, performance expectancy, social influence, and external factors relate positively and significantly to e-readiness use of a web technology portal. Comparatively, other hypotheses had positive non-significant relationships to the use of a web technology portal. These

constructs were non-supportive and therefore rejected. Gender and business type were the moderating variables on the dependent variable for respondents' e-readiness to use a web technology portal.

Conclusively, gender and business type did not significantly influence the e-readiness of the micro-entrepreneurs. Adding moderating variables (gender and business type) to the model makes no significant improvements to the original model. The findings showed no significant differences between gender and type of businesses (sub-sectors) regarding the use of web technology portal and the degree of e-readiness. Additionally, considering factors influencing the intention to leverage web technology portal, performance expectancy, self-efficacy, social influence, and external factors had significant positive influence on their degree of e-readiness, while exogenous constructs such as effort expectancy, facilitating conditions, optimism, innovativeness, discomfort, insecurity, and internal factors all had a positive but non-significant influence on their degree of e-readiness.

The implications of these findings for theory, subsequent research, policy, and practice are emphasised here. A synthesised research model was used for this study to contribute to theory and improve scholarship in terms of IS research. A new theoretical lens has been adapted for this study, and future research will entail the validation of the synthesised research model, using multiple research settings before generalising about the informal sector.

In terms of policy, governments and other stakeholders in the informal sector can harness the functionality and applicability of web technology portal (e-portal) to greatly improve the productivity and competitiveness of informal sector workers. Policy incentives and technology must be applied in tandem to improve the productivity of informal practitioners. Equally, the government must become aware that external variables (support, cost of internet connectivity, absence of internet hotspots in communities, and constant power availability) are very important to the operational activities of informal workers, and adequate steps should be taken to address these challenges. In practice, leveraging technology/innovation can assist the informal sector providers to increase their output (productivity and wage earnings). Increased wages lead to improved livelihood and well-being, and eventually some form of semi-formalisation of the sector.

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DEDICATION

Dedicated to my parents, Reverend and Mrs Sunday E. Etim (late). Thank you for providing the love, tools, impetus, and encouragement in times of challenging circumstances.

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GLOSSARY

AMOS	Analysis of Moment Structures
APEC	Asia-Pacific Economic Cooperation
DTI	Department of Trade and Industry
EIU	Economic Intelligence Unit
EIWA	Enterprising and Informal Work Activities (FRB-USA)
EQS	Equation Modelling Software
ITU	International Telecommunication Union
KAS	Konrad Adenauer Stiftung (Germany)
LVs	Latent Variables
LISREL	Linear Structural Relations
MENA	Middle East and Northern Africa
MI	McConnell International
ML	Maximum Likelihood
MSMEs	Micro-, Small, and Medium-scale Enterprises
NRI	Networked Readiness Index
SIDA	Swedish International Development Cooperation Agency
SMM	Social Media Marketing
TAI	Technology Achievement Index
TESSISA	Technology-based Support for Informal Sector of South Africa

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Background of the Study

According to the Centre for International Development (CID) (2004), e-readiness signifies the level to which a nation or entity is well-positioned to reap the full benefits of a digitalised world. From a UN perspective, "e-readiness" determines how any society or individual is strategically positioned to utilise the available opportunities when Information and Communication Technology (ICT) is leveraged. Here, information technology infrastructure, human capital development, governmental regulations and policies, and internet penetration are all critical components of e-readiness" (Ojo, Janowski, & Estevez, 2007).

This doctoral thesis is to ascertain the e-readiness of South African service providers in the informal sector to leverage electronic portal technology support (also referred to as web technology portal in this thesis. These two terminologies are used interchangeably to reference the same concept). Technology Readiness Index (TRI) signifies peoples' propensity to embrace and use innovations/ new technologies. The TRI construct considers a four-dimensional trait – optimism, innovativeness, discomfort, and insecurity to explain the relationships between technology use adequately. Thus, technology readiness is antecedent to technology acceptance, and adoption. (Bakirtus & Akkas, 2020; Esen & Erdogmus, 2014; Larasati, Widyawan & Santosa, 2017). Therefore, the emphasis of this study is on technology readiness, and not on technology acceptance which represents an experience after technology use.

This study provides a premise for the gradual migration of the South African informal sector to a technology-based agenda that supports their visibility, brand, and enhances profitability. The technology-based ecosystem is structured around utilising Information and Communication Technology (ICT).

A web technology portal represents a single point of access (SPOA) necessary to pool, organise, interact, and distribute organisational knowledge, creating enterprise intelligence (Bock, 2001; Kendler, 2000; Schroeder, 2000). Practically, web portals synchronise information with applications, enabling a singular view into an organisation's intellectual capital (Benbya et al., 2004). The advantages to a web portal are the potential for filtering, targeting, and categorising information, enabling users to access what is important and needed (Eckel, 2000). The availability of customised information allows users to make informed/sound

business decisions, driving innovations in business operations/activities. These platforms can be accessed with the help of computers, smartphones, and other electronic devices/or personal digital assistants (PDAs).

This thesis focusses on four key aspects that relate to the readiness of the South African (SA) informal sector to use electronic portal technology. These are: (i) the level of e-readiness of SA informal economy subsectors, (ii) the effect of gender on e-readiness, (iii) the effect of internal factors and external factors on e-readiness, and (iv) the impact of individual's beliefs and perceptions on the readiness to use electronic portal technology.

i) E-readiness of subsectors of the SA Informal Sector

According to Rogerson (2018), the South African informal economy represents the lowest level of micro-, small-scale, and medium-scale enterprises (MSMEs). Informal service providers connote informal traders who operate outside the accepted norms of society and engage in business activities that are primarily unregulated/unregistered (Schraeder, Whittaker & McKay, 2010; Ligthelm, 2006), outside the jurisdiction of the government and hence non-taxable (Bacchetta, Ernst, & Bustamante, 2009). Willemse (2011) posits that the informal sector comprises informal street traders or workers. These micro- traders operate on a small scale, mostly from street pavements. These trading outfits can be mobile sometimes in circumstances when outlawed by governments, and Davis and Thurlow (2009) contend that informal sector traders provide only services to their customers, devoid of the ability to take part in manufactured products sales, which generally are outside their domain.

ii) E-readiness and Gender Type in the SA Informal Sector

According to Nguyen et al., (2014a), entrepreneurship (indicated by the informal economy) is affected by age, gender, educational and socio-economic status, and years of experience of the practitioners. Gender difference to entrepreneurship has been analysed in extant literature, and it is argued that social, psychological, and sociological labour inequalities between men and women still exist in the marketplace (Navarro & Jimenez, 2016). On several occasions, women are exposed to barriers (challenges), which can hinder the realisation of their full potential and limit other activities such as self-employment (micro- or informal businesses). Because female entrepreneurs tend to be risk-averse and have difficulties balancing life-work interface (Mauchi, Mutengezanwa, & Damiyano, 2014), they tend to gravitate to less capital-intensive industries (services), in comparison to their male counterparts who dominate capital intensive industries such as construction, manufacturing, and mining.

iii) The Effect of Internal Factors and External Factors on e-readiness of the SA Informal Sector

The economic necessity for the existence, evolution, viability, and sustainability of the informal, grey/shadow economy in countries of the global South, cannot be over-emphasised. Its contribution to economic activities is widely known, for it acts as "conduits of employment" to most developing economies laden with under-employment, unemployment, low capital in-flows, and investments (Rogerson, 2018; Skinner, 2016; Valodia & Devey, 2012).

However, despite its contributory role as an employment generator to the SA economy, one cannot overlook the myriad of problems that beset this sector. These might include internal factors, such as the lack of adoption of innovation, absence of ICT skills, low capitalisation, absence of acceptable production facilities, copyright infringements, non-standardisation of goods (Skinner, 2016; Charmes, 2000a; Rogan & Skinner, 2018; Etim & Daramola, 2020; Skinner, 2018; Cichello & Rogan, 2018), and external factors such as security problems, external competitive pressures, lack of social protection, infrastructural constraints, governmental zoning constraints, and poor governmental regulations and control (Social Protection & Human Rights, 2015; Siqwana-Ndulo, 2018; eThekwini Municipality, 2011). These challenges that have been classified as internal and external factors are issues that informal sector practitioners grapple with consistently. A technology-centric approach has been advocated to address some of these challenges (Larsson & Svensson, 2018; Berrou & Eckhout, 2019; Ilavarasan, 2018). One of these is the need for a multimodal portal that can support the promotion of informal sector services, as recommended by Daramola (2018). The paper proposed a multi-modal electronic portal as a niche e-portal/Web 2.0 portal for personalised information access and management and tailored for South African (SA) informal sector providers to enhance their visibility and brand. This thesis seeks to determine the readiness of SA informal sector workers to use electronic portal technology support despite these challenges

iv) The Effect of Individual Beliefs and Perceptions on the Readiness to Use Technology

The Technology Acceptance Model (TAM) by Davis (1989) based on the Theory of Reasoned Action (TRA) proposed by Fishbein and Ajzen (1975), explains technology acceptance, behavioural intentions, and definite behaviour of end-users toward technology. Davis (1989) opined that perceived usefulness and ease of use (antecedent variables) act as determinants of technology acceptance and actual user behaviour. Venkatesh et al., (2003), introduced several factors such as social influence, cognitive structure, experience, and subjective norm to the original TAM, to expand the explanatory power of the constructs in TAM. Further research on eight IS theories led to four variables (performance expectancy, effort expectancy,

social influence and facilitating conditions) as the key constructs for behavioural intent on the use of technology. These constructs were moderated by age, gender, innovative use, and experience, and are the foundation of the unified theory of acceptance and use of technology (UTAUT). Bandura, (1977. 1982. 1986) proposed the self-efficacy theory to indicate how an individual's core perceptions and beliefs about their abilities can impact their desire to execute specific tasks. Compeau and Higgins (1995), then looked at how computer self-efficacy can impact one's ability to use technological innovations under different conditions. Hence, technological self-efficacy can be regarded as a proxy of control beliefs on an individual's desire to use technology (Venkatesh & Davis, 1996).

Equally, technology readiness (TR), signifies 'an individual's propensity to embrace and use innovations to accomplish set goals at work and in home life' (Parasuraman, 2000:308). In the views of Parasuraman (2000), TR is made up of positive (optimism, innovativeness), and negative (discomfort and insecurity) technology-related beliefs. The positive beliefs are mental enhancers, while the negative beliefs are mental inhibitors. Unfortunately, these beliefs are specific and vary among individuals, affecting individuals' predisposition to use and interact with new technology (Parasuraman & Colby, 2001). Thus, understanding the e-readiness of the SA informal sector to leverage electronic portal technology to enhance their profitability and overall development of their businesses is necessary.

Cape Town metropolis was chosen as the study site because it is one of the most developed cities in South Africa (SA), with an extensive concentration of the informal sector in its urban and suburban areas. Also, the structure of its informal sector is representative of the structure of the informal sector in other cities in South Africa.

This thesis seeks to make some contributions. Theoretically, the study extends the body of knowledge on technology readiness of the informal sector in South Africa with an emphasis on the use of electronic portal technology to promote business activities in the informal sector. Methodologically, this study introduced a new theoretical lens derived from using a synthesised conceptual framework composed of constructs from the unified theory of acceptance and use of technology, self-efficacy, and technology readiness to study the e-readiness of the informal sector. Practically, the web technology portal to be developed and introduced into the marketplace would enhance the informal sector's visibility, profitability, and semi-formalisation. The web technology portal is a digital platform dedicated to servicing the needs of the SA informal sector, which will contribute to the digital economy in South Africa. Additionally, the overarching contribution of this study will be in assisting government re-dress policies regarding the productivity, and wage earnings of informal practitioners.

1.2 The Informal Sector

Globally, more than 60% (about 2 billion) of the world's labour force and about 90% of micro- and small enterprises (ILO, 2018b) make up the informal economy. Uniquely and peculiar to the informal sector are micro-enterprises offering cooked food from kiosks, transport services (pedal power or motorbikes), shoe and clothing repairs, home extension or repairs, reusable waste from dumpsites, personal services, such as hairdressing, fortune-telling, shoe-cleaning, street-theatre, and house cleaning (Bargain & Kwenda, 2011) or horticulture, pottery, bead-making, and handcrafts. According to Magbagbeola (1996), the informal sector can be opaque, erratic, parallel, unstructured, undeclared, shadow, grey, or residual.

Thus, in this research, informality refers to trading in legal goods and services outside government regulations for tax purposes (Williams & Martinez, 2014). According to Rogan and Skinner (2017), in South Africa (SA), informal service providers comprising more than 2.5 million people become a panacea to unemployment and the level of poverty in SA, and hence a driver of economic activities through buying and selling. It is quite understandable that the SA government is trying to integrate the informal/shadow economy. The resilience and growth observed in the informal sector have proved problematic for regulators who try to integrate it into the formal economy, thus contributing to its demise. The consensus is that informality is for those who occupy the lowest base of the pyramid, and the desire to introduce measures for formalisation has been defeated because it re-invents itself in the economies of the global South. Thirty-four (34%) of SA employees work in several informal economic units (ILO, 2018a:103). Furthermore, ILO estimates that 21 percent of total employment are informal, 8 percent in homes (as domestic help), and 5 percent in the formal sector. 2018 (! QLFS) survey data indicated 220,000 more informal job creation than 1Q 2017 (Statistics SA, 2018:1).

1.3 Research problem

Presently, the South African informal sector is plagued by numerous challenges, including low capitalisation, the absence of supporting technologies, poor infrastructure, lapses in security, external competitive pressures, zoning constraints, poor governmental policies, and absence of social protection (Cicello & Rogan, 2018; Skinner, 2018; Skinner, 2019). This means that they cannot add meaningful value to the socio-economic advancement of South Africa (Fourie, 2018).

Support through ICT has been identified as having the potential to negate some of the challenges peculiar to the informal sector (Daramola, 2018; Etim & Daramola, 2020; Sustainable Livelihood Foundation, 2016). A technology-centric approach has been articulated in addressing some of these key challenges (Daramola, 2018). However, the level of e-readiness of the informal sector to leverage ICT utilisation for improved visibility and

profitability is yet unknown. Informal sector providers and customers do not have sufficient information on the potentials and opportunities available in the informal marketplace. The government does not have an accurate idea of where the starting point should be for designing a viable technology to address the challenges of informal sector providers. More so, what level of sophistication is required?

The consequences of these are that the status quo will remain in terms of the several problems of the informal sectors such as lack of organisation, lack of formalisation, poor marketing visibility, low capitalisation, low quality of service, and a generally low contribution to the national GDP.

The level of e-readiness of the informal sector service providers for technology support is unknown, making implementing electronic portal technology solutions that meet their needs difficult.

1.4 Research Objectives and Questions

1.4.1 Aim of the Study

The study aims to assess the e-readiness of the South African informal service providers to utilise electronic portal technology for increased visibility, brand promotion, and profitability.

1.4.2 Research Objectives

In respect of the aim of the study, the objectives for this study are:

i. To determine the degree of e-readiness of specific subsectors of the SA informal sector.
ii. To determine the effect of gender type on the degree of e-readiness of service providers in the SA informal sector.
iii. To examine the effect of external factors on the e-readiness of SA informal sector service providers
iv. To examine the effect of internal factors on the e-readiness of SA informal sector service providers.
v. To determine how the beliefs and perceptions of technology by SA informal sector providers affect their e-readiness.

1.4.3 Research Question

The main research question raised for this study is:

What is the degree of e-readiness of the South African informal sector service providers to utilise electronic portal technology support?

1.4.4 Sub-research questions

The sub-research questions that will facilitate answers to the main research question are:

SRQ 1 What is the degree of e-readiness of specific subsectors of the SA informal sector?

SRQ 2 What is the effect of gender type on the degree of e-readiness of SA informal sector service providers?

SRQ 3 What is the effect of external factors on the e-readiness of the SA informal sector service providers?

SRQ 4 What is the effect of internal factors on the e-readiness of SA informal sector service providers?

SRQ 5: What is the impact of the beliefs and perceptions of technology by SA informal sector service providers on their e-readiness?

1.5 Delineation of the research

The focus of this study was solely on the informal sector service providers in the Cape Town metropolis in the Western Cape Province. The languages spoken are Xhosa, Afrikaans, and English. Additionally, the web technology portal support is limited and focused primarily on providing a website for the informal sector of South Africa (SA). It excludes the provision of either ICT devices or computing infrastructure.

1.6 Significance and scope of the research

The significance of this study can be looked at holistically from several perspectives. Initially, it would assist the government to understand better the level of e-readiness of the informal sector service providers and the sophistication of their ability to adopt and use technology. Secondly, it will benefit the informal service providers by providing another narrative on the importance of leveraging technology to enhance productivity, business operations, and competitiveness. Several constraints, including infrastructure, the need for face-to-face contact for business activities, time, and requirements for huge capital investment, especially for female micro-entrepreneurs, can be drastically reduced with technology usage. Thirdly, this study is designed to help decision and policymakers both in government and industry re-orientate their focus solely not on the policy as the panacea to the numerous constraints experienced by micro-entrepreneurs, but rather on technology adoption and use, as well as policy (in tandem), as one of the myriad solutions to understanding and meeting the challenges of the informal economy.

Additionally, for practitioners, it would assist them in increasing their visibility, brand promotion, customer retention, profitability, and semi-formalisation. Society will be better informed on the

potential and possibilities open in the informal marketplace to customers. Finally, academics will have proper perspectives on the constraints facing informal sector service providers and how leveraging web technology portals can help ameliorate these constraints.

1.7 Structure of the Thesis

CHAPTER 1: Introduction

This chapter provides the background of the study, the study questions and sub-research questions, aim, and objectives. Furthermore, it highlights the significance and delineation of the study.

CHAPTER 2: Literature Review

This chapter synthesises the extant literature on the informal sector, covering definitions, informal/formal economy characteristics, motivation, and global and SA perspectives. It discusses E-readiness as a concept for technology adoption and utilisation, assessment tools for e-readiness, and the limitations of these tools. Electronic portal technology/web 2.0, digital platforms social media marketing and related work detailing the use of technology support in micro-, small- and medium enterprises in SA and the global South are also covered. The chapter also includes an analysis of current research gaps in the literature on study topic.

CHAPTER 3: Theoretical Framework

The concept of the various Information Systems theories; (Self-efficacy Theory (SET), Unified Theory of Acceptance and Use of Theory (UTAUT), and Technology Readiness Index (TRI)) adapted for this study is emphasised. A synthesised conceptual framework (as the research model) and several hypotheses are discussed. Furthermore, the perspective of this thesis as regards technocentricism is also presented.

CHAPTER 4: Research Methodology

This chapter outlines the study's adopted philosophical stance (ontology and epistemology) and the rationale/significance for positivism as the research philosophy, the research design, the population, sampling frame, and questionnaire as an instrument for data collection. Emphasis was placed on the research process, the strategy employed for analysis, the quality control measures (reliability and validity), ethical considerations and structural equation modelling.

CHAPTER 5: Data Analysis and Results

This chapter articulated the findings of the research. Descriptive statistics covered the demographics of the participants. The multivariate inferential analysis (Partial Least Squares-

Structural Equation Modelling) discusses reflective and formative measurement models/structural models, and all the results of the hypotheses (supported or not supported).

CHAPTER 6: Discussion of Findings

This chapter discusses the study's findings in relation to gender type and the degree of e-readiness, sub-sector characterisation, effects of internal and external factors on e-readiness, and hypotheses testing.

CHAPTER 7: Conclusion and Recommendations

This chapter presents the conclusion of the study. It articulates the summary of the findings, the contributions, the implications of introducing the moderating variables of gender and business type into the analysis, the limitations of the research and direction for future research. Implications and recommendations are also discussed.

CHAPTER TWO

LITERATURE REVIEW

This chapter articulates a review of the extant literature on key concepts pertaining to this study to lay a foundation. The key concepts discussed include informality, the informal sector, and the informal economy. This chapter also examines issues of e-readiness for technology adoption and utilisation, e-readiness assessment tools, electronic portal technology, online marketplaces, and the barriers to internet adoption and ICT usage. It also discusses previous studies on technology and the informal sector of South Africa.

2.1 Informality

Informality as a phenomenon has re-emerged as developing countries' economies try to contend with high underemployment, and unemployment rates, and poverty among those that are marginalised (women, youths, and disabled) in society. A growing population and changing demographics have exacerbated this problem, accelerating the growth of informality among many jobless people in society. Exclusive to the non-agricultural sector, levels of informality differ remarkably across 60 developing economies (Charmes, 2016). Statistically, the median score for informality is 58 percent, while exceeding 80 percent in countries such as Benin, Burkina Faso, and Mali.

Chen (2012); Gindling and Newhouse (2014), identified the working 'top' of the informal sector as 'employers' or as 'top performers' (Grimm, Korringa, & Lay 2012), making up about 10 percent of entrepreneurs (using productivity quotas and size as criteria). These groups are outside this study's confines, for they possess a lower risk propensity to poverty because of relative higher wage earnings (Chen, 2012; Gindling & Newhouse, 2014). According to the IMF (2017), these groups may have deliberately chosen informality for very personal reasons. However, we focus mainly on the "bottom" of the informal labour force (groups such as individual account workers, casual daily paid workers, domestic helpers, and family members as workers) (Chen, 2012) or (household-level enterprises that have contributed significantly to poverty reduction and productivity) (Kanbur, 2014; IMF, 2017).

Today, informality captures a huge proportion of the global workforce, which drives global GDP for many countries. Sadly, though, informal sector service providers continue to remain at the fringes of the global economy without the necessary protection and regulation of the state (Chen, 2012). Two billion persons globally are into informal employment and are vulnerable and exposed to several risks (ILO, 2018b). This means that about 60 % of the workforce globally, and 90% of all small-scale and medium-scale enterprise (SME) businesses, are technically informal (ILO, 2018b). This exposure becomes challenging in

terms of government policy in developing and emerging economies, where information reveals that most individuals gravitate to the informal economy as a medium of survival (OECD/ILO, 2019).

Formal employment as part of economic activities in advanced and developing economies has recently been transformed by new policies and incentives, agenda, and globalisation. Sadly, portions of manufacturing and services have been outsourced from organised, unionised, and operational regulatory units to non-centralised, informal production units (without unions), solely to cut production costs (Moreno-Monroy et al., 2014; ILO, 2012). According to ILO (2012), a new trend in employment focuses on part-year employment, with flexible contractual arrangements, utilising contract firms to outsource jobs to workers with flexible time schedules lacking social protection and benefits. Unfortunately, these work arrangements feed into the dynamism of the informal economy in most developing countries.

Developmental policies and economic perspectives for countries cannot be properly articulated without addressing core challenges driving informality because, comparatively, the weighted average size of the informal economy to national GDP is (37.6 percent for sub-Saharan Africa; 36.4 percent for Central Asia and Europe; 34.7 percent for the Caribbean/Latin America; and 27.3 percent in the Middle East and North Africa region) (Schneider et al., 2010). Despite the enormous benefits to society (employment generation, livelihood and income for millions of workers and enterprise owners) from this sector, policymakers in South Africa (and globally) have overlooked it. The lack of sound economic analysis and innovative policies for this sector is at best “an oversight and missed opportunity” (Fourie, 2018), for it becomes an important medium for inclusive growth and poverty reduction (Fourie, 2018).

The underlying incentive for this study is determining the degree of e-readiness of the South African (SA) informal sector to leverage web-portal technology support. Web portal technology adoption as a phenomenon, therefore, forms the subject of interest here, situated in the SA informal sector. This chapter, therefore, deals solely with the informal sector and e-readiness assessment.

2.2 Informal Sector in Africa

Unfortunately, despite improvements to financial inclusion in Africa, the continent operates a cash payment system that is detrimental to its economic growth and development (WEF, 2019). According to the WEF, cash accounts for 95 % of payments in the continent, and the invisible economy created impedes productivity and growth of segments within micro-, small, and medium scale enterprises. Hampering the collection of meaningful statistics, oversight, regulation, taxation, and control translates into inadequate policies and incentives to drive formalisation.

Averages of the informal economy, in terms of the global GDP from 2011 to 2014 include OECD (18%); East Asia (22%); the Middle East and North Africa (MENA) (23%); Europe (23%); South Asia (35%); SSA (39%); and Latin America & the Caribbean (40%). According to the IMF, informality has been falling globally, but remains a weighted average of 34% in SSA; 15% in (OECD countries); a low 25% in South Africa, Namibia, and Mauritius, above 50% in Tanzania; and about 60% in Nigeria.

Bottlenecks in governments from "low-quality bureaucracy' encourage informality in small and medium-scale enterprises. Quality time is wasted in the taxation process to actual taxes paid, together with harassment from officials (Lagos & Nairobi) even after taxes have been promptly paid to authorities. As of today, 30% to 90% of total non-agricultural employment is attributed to informality (IMF). According to Adegoke (2019), institutionalised laws and regulations (in terms of minimum wages for informal workers) are a norm in most developing informal economies. However, informal employers are under no obligation to keep their end of the bargain. This is due to the absence of contractual arrangements between the employer and employee.

According to Adegoke (2019), BFA Global/Quartz Africa are exploring the validity of whether a more digitalised economy (laden with government services, mobile app for payments/financial transactions, and 'gig/sharing' workers) where online activities are prevalent, could alter behaviour leading to alterations in modes of operation for developing economies. The consensus is that a platform economy will increase digital footprints, enabling governments to seamlessly track and collect taxes (and VAT). However, it is rather a hope. The reality might be more complicated than envisaged.

2.2.1 South African Informal Economy

Initial concerns about the informal economy lie in the fact that informal service providers are not protected by regulation and are generally liable to exploitation and physical abuse. In the context that rapid urbanisation creates slums, congestions, a drain on social systems, and the destruction of healthy environments (Guha-Khasnobis, Kanbur & Ostrom 2006:6), it should be stressed that although the percentage of informal employment is low; about 6 percent of SA population (Daramola, 2018), sound policy incentives can drive the semi-formalisation of the sector.

According to the International Conference of Labour Statisticians (ICLS) (including Statistics SA), people in active informal employment can be viewed as persons active in precarious working conditions, whether formally or informally active economically. Statistics SA technically employs a *lack of a written contract and basic benefits such as pension and medical aid as key variables* (2018: 16). Secondly, Statistics SA (2018) posits that the informal

sector consists of employees in organisations employing less than five (5) persons, without deductions of taxes from their salaries or individual own account workers. This includes persons actively engaged in unpaid household enterprises who are unregistered with the authorities for deductions of either income or value-added tax (Stats SA, 2018: 16; Skinner, 2018:412).

The officially accepted characterisation of informality in SA (all economic units, businesses, employments, and employees outside the domain of government regulation) creates difficulty in assessing or measuring the market capitalisation of the SA informal economy. Saunders (2005), employing the currency demand and regression modelling, estimated the market capitalisation of the SA informal sector to be about 7.2 percent in 2002. Loots (1991), employing labour market principles, observed 12.6 percent in 1989. Stats SA in the QLFS of 2017 gave an estimate of 2.8 million people or 18.0 % total employment to be active in the informal economy, and an ILO/Stats SA estimation in 2018 was 34% of total employment.

Tables 2.1a, 2.1b and 2.1c provide an outlay of the characterisation of the South African informal sector.

Table 2.1a: Micro-, Small, and Medium -scale Enterprises (MSMEs) (Rogan & Skinner, 2017; Fourie, 2018)

Size of organisation	**No of employees**	**Turnover/ZAR**	**Formal**	**Informal**
Medium	< 250	R 4.5 m – R850m	Yes	No
Small	< 50	R2.5m -R4.5m	Yes	No
Micro-	<10	R750K	Yes	No
Informal	< 5	< R78,000/year	No	Yes

Table 2.1b: Formality Index (Esselaar et al., 2006)

Form of Ownership	**Sole proprietorship**
Payment of taxes	No
Registration for VAT deductions	No
Employees with contractual arrangements	No
Business finances separated from personal finances	Maybe

Keeping of business financial records	• None – Yes • Simple bookkeeping –Yes/No • Double-entry bookkeeping – No • Audited financial statement -- No

It is worth noting that the main difference between an informal business and a formal business is that it is a one-owner account enterprise (that is, sole proprietorship), while for MSMEs multiple ownership can be possible. At the organisational level, micro-businesses do not have more than five (5) employees (Rogan & Skinner, 2017, Essalaar et al., 2006; Fourie, 2018). For any typical MSME, the number of employees ranges from above 10 to 250 (Fourie, 2018; Rogan & Skinner, 2017; Essalaar et al., 2006). Additionally, there is no separation between personal and business finances, and there is a complete absence of bookkeeping procedures (Esselaar et al., 2006).

Table 2.1c: Challenges of the Informal Sector (Literature review)

Internal factors/challenges	• Lack of finance/credit • Low market capitalisation • Low/crude technology adoption • Lack of ICT skills and training • Precarious working and production facilities • Non-standardisation of goods/services
External factors/challenges	• Infrastructural constraints • Security problems • Competitive external pressures • Absence of social protection • Unfavourable zoning laws, • insufficient government policies and regulations

Paradoxically, the informal sector will always be an alternative proposition for individuals desiring added income because entry is easy and requires minimal capital equipment, investment, and interpersonal skills (Charmes, 2000a). Unfortunately, both internal and external factors play a substantive part in micro-enterprise operations within the informal sector. The absence of social protection and other external factors prevalent in the informal sector negatively impacts the government's sustainable enterprise development, fair competition, and income generation (Social Protection and Human Rights, 2015). Social

protection can transform society and move the citizens from survivalist positions to better lives with absolute control. Also, it can accelerate the transition from informality to semi-formalisation (Social Protection and Human Rights, 2015).

2.2.2 Spatial Distributions and Townships

SA statistics show a major disparity between provinces and metropoles, with the same trend observed in rural communities. Calculations from QLFS show that the proportion of workers in informality is: -

i. Lower in Gauteng and Western Cape, while higher in Limpopo, Mpumalanga, Eastern Cape and KwaZulu Natal. (EC. KZN and FS have been decreasing from 2008 to 2016)
ii. Larger percentage in non-metropolis than metropolitan communities
iii. Greater for traditional communal zones as well as informal urban settlements, comparative to urban or rural formal settlements, and
iv. Largest in Mangaung, lowest in Cape Town and Tshwane, with median groupings in Johannesburg, eThekwini, Ekurhuleni, and Nelson Mandela Bay. (From 2015 and 2016, informal sector contribution to total employment was Mangaung (19 percent); Buffalo City (17 percent); Cape Town and Tshwane (11 percent); Johannesburg, eThekwini, Ekurhuleni, and Nelson Mandela Bay (14-15 percent) (Fourie, 2018).

Complex social factors, including demography, poverty levels, unemployment rate, compelling urbanisation, migrant work, the death of a spouse, or loss of support from a spouse, are drivers that sustain the informal economy in SA. There is a causal relationship between poverty and informalisation, for any rise in the poverty level translates to more people migrating to the informal sector (Chen, 2012).

However, it is disturbing to observe that an increasing poverty level and a shrinking informal sector affect the wellbeing of communities. Dealing with a decreasing informal sector under a high unemployment rate requires carefully analysing policies that limit ease of entry and mobility. To accelerate viability and sustainability, differential provincial and local government policies must be devised to enhance formalisation.

Conceptual understanding of the informal sector per texture, spatial arrangement, and dynamics in townships are important for sound governmental policies (zoning, licensing permits, and provision of services), considering the logic for the location of such an enterprise. Noise levels, crowding, and pollution can negatively impact informal service providers. Equally important is the location of most of these micro-enterprises in owners' homes (Fourie, 2018). This location indicates that all operations (labour, finances, management) are integrated within

the household. According to Charman and Petersen, and Rogen and Skinner, cited in Fourie (2018), these locations in family premises can be explained in terms of social, economic, and family perspectives for, in situations where these supports are lacking, dis-functionality of these enterprises can be the result.

2.3 E-readiness for Technology Adoption and Utilisation

Governments, enterprises, and social organisations globally have tried from the early 1980s to utilise the potential of information and communication technology (ICT) for socio-economic development. Practitioners skilled in international development have concluded that for developing economies to harness ICT effectively, they are required to be “e-ready” in respect of the ICT eco-system, citizens’ ability to assess ICT, together with the legal and regulatory framework that supports the infrastructure.

Conceptually, e-readiness was an attempt to develop an acceptable framework to determine the degree of the ‘digital divide’ existing between advanced and transitioning economies during the 1990s (Mutula & Van Brakel, 2006). This dynamism around ICT utilisation has brought about competitiveness, enhanced productivity, increased collaboration, and organisation, together with the effective use of resources (Popova, Popov & Dalin, 2005). The ‘digital divide’ represents exclusion and measurement of inequality in the “knowledge economy” or information age, as nations are at a disadvantage if they do not redress the disparity in their ICT infrastructural development.

E-readiness indicators help society understand beneficial adaptations to the installation and use of ICT and what innovative policy shifts must be made to positively enhance the knowledge economy of developing countries (United Nations, 2005a). Appropriate measurement systems for current market development, challenges and market failure, and the harmful effects of new technology introduction (Guislain et al., 2003) act as the impetus for developing nations to be part of the “knowledge economy” (UN, 2005a). The Computer Systems Policy Project (CSPP) (1998) in “Readiness Guide for Living in the Networked World” defined e-readiness as having high-internet connectivity in markets that are instead very competitive; institutions (governments, businesses, public sector, schools, healthcare facilities and homes) accessing ICT, security; and government policies and incentives as drivers of connectedness and network utilisation (Bridges.org, 2001).

2.3.1 Assessment of E-readiness

These international groups and organisations (Centre for International Development, Harvard, MI, Economic Intelligence Unit; UNCTAD, Mosaic Group) have introduced different tools for the assessment, depending on their unique e-readiness definition (Bridges.org, 2001).

Generally, according to Mutula and Van Brakel (2005), e-readiness sophistication and complexity may include any of these activities: -

i. E-mail to communicate
ii. Website to communicate internally and externally
iii. Using the internet to procure goods and services
iv. Travel arrangement obtained through online services
v. Using websites to purchase computers, software, supplies, and services
vi. Sending digital invoices or bills to customers electronically
vii. Digital payments

Any tool adapted for e-readiness measurement depends on assessment purposes and goals.

2.3.2 Macro-level and Micro-level E-readiness Assessment

Over the years, institutions and organisations have developed e-readiness assessment tools dependent on parameters classified under infrastructure, application and services, access, internet use (in business, government, homes, schools), economy, promotion and facilitation (standards in the industry), and skills and human capital (ICT education, workforce, e-business climate—competition, financial and political stability, foreign direct investment, financial infrastructure, per capita use) (Ifinedo, 2005). Categorically, each tool uses differing definitions and methods for its assessment and applicability at the macro-level (countries). According to Bridges.org (2005a), these assessments include network speed, network access quality, ICT policy, available ICT training programmes, computer literacy, relevant content, and human resource availability.

Hence, at the country/macro-level, being “e-ready” signifies one of the following:

i. How a nation or entity is positioned to reap the benefits of a digitalised world (CID, 2004)
ii. The status of ICT infrastructure available in any nation and the propensity for businesses, citizens, and governments to use ICT to their benefit (EIU, 2006)

2.3.3 E-readiness Assessment at the Micro-level

This is based on the individual or organisation’s level.

i. Being e-ready represents how any individual/society is strategically situated to effectively use the space that comes with leveraging information and communication technology (UN), cited in Musa (2010)

ii. E-readiness is the ability of communities to use IT as an instrument to transform traditional modes of business operations into a digitalised economy (Alaaraj & Ibrahim, 2014)

2.4 E-readiness Assessment Tools

IT has proven to be a sophisticated tool for fighting world poverty, for when properly applied, citizens in developing nations can be empowered to overcome development challenges; address pertinent social issues they encounter daily, empower communities, bring about strong governmental institutions, and increase the competitiveness of local economies (Bridges.org, 2001). As most governments look to IT as an instrument of growth or advancement, being "e-ready" represents a country's preparedness to harness the benefits of using IT. E-readiness becomes the path to measure changes that happen to peoples' lives.

Hence, e-readiness assessment targets developmental efforts by providing benchmarks for comparison and progress determination and assessing impacts due to IT adoption. The assessment process comprises the following:

i. Ascertaining the objectives/goals of the country and electing which assessment tool is the most applicable.
ii. Conducting an e-readiness assessment.
iii. Coming up with an all-inclusive plan,
iv. Implementing the plan

Several assessment indicators have been constituted for determining a nation or economy's e-readiness and any tool chosen solely depends on one's goals and objectives. Some of these might be:

i. Assessing the preparedness of a company/ group to participate in electronic commerce.
ii. Determining the willingness/preparation of any nation for electronic commerce.
iii. Determining the status of technological sophistication as an underlying factor in forecasting future technology levels
iv. Assessing the extent of technology use in a particular area
v. Having improved perceptions of the dynamics of politics, economy, and social indicators that affect IT adoption, acceptance, and use
vi. Assessing why growth trajectories are dis-similar for several countries
vii. Determining the impact and relationships between IT use and the wellbeing of real people, and

viii. Determining the extent of technology use

Originally, a narrow perspective was maintained in earlier assessment tools for e-readiness (rendering IT tools the end goal) with exclusivity on IT adoption, integration, and use. However, recent e-readiness assessment has broadened the scope to cover more meaningful goals and objectives, subject to the local context. These themes have become both relevant and important (Bridges.org, 2001):

i. Infrastructure: including IT infrastructure, which includes teledensity (number of phones per 100 inhabitants)
ii. ICT usage: that covers the level of usage in society in relation to homes, enterprises, schools/institutions and government offices.
iii. Human capital development-: literacy rate, development in IT skills, and occupational training
iv. Policy: the relevance of policy to the IT sector with its accompanying legislative and regulatory framework. These include telecommunication, trade policy, electronic commerce, taxes, and data privacy.
v. ICT economy: representing the relative size of the ICT eco-system.

National "e-readiness assessment" research depends on two criteria: (a) targeted predominantly to economic issues; and (b) broader e-societal issues. These economic assessments cover networks teledensity (basic infrastructure) and e- readiness for technology-based enterprises and economic growth (short-term e-commerce growth and development due to direct foreign investments). The second criterion dealing with e-society examines the societal benefits of integrating ICT tools, reflected by the "digital divide" assessment of nations.

2.4.1 Main Objectives of the Various Assessment Tools

Apart from the fact that the assessment tools follow similar objectives, others have peculiar objectives enumerated below: -

i. Mosaic (a consortium of universities) came up with a model, "Global Diffusion of the Internet" (1998), to enable the measurement and analysis of internet growth globally (Grigorovici et al., 2003)
ii. Economic Intelligence Unit/IBM Corporation (2003) proposed rankings on each country's e-readiness. These rankings measure the breath/intensity to which any market becomes amenable to favourable circumstances created from internet use, considering factors ranging from IT infrastructure quality to levels of directives from

government to the extent internet use brings about efficiencies in the economy (EIU, 2003).

iii. "Monitoring the Digital Divide and Beyond" in 2003. This was developed to measure the level of the digital divide, and at the same time, monitor its evolutionary trend across and within countries at any point in time (Sciadas, 2003)

iv. Swedish International Development Cooperation Agency (SIDA) established in 2001. This involves a holistic approach to e-readiness assessment. From considering the weakness and opportunities to ICT use, a pathway was put in place for the continual usage of ICT for national development (Esselaar et al., 2001)

v. UN Conference on Trade and Development (UNTAD) (2003) devised ICT Development Indices Report (Esselaar et al., 2001). The focus is based on how science and technology impact developing countries.

vi. Knowledge Assessment Methodology [KAM] (World Bank, 2003) as an indicator to enable developing countries (as clients) to understand potential weaknesses and strengths as they move into the digital economy (Chen & Dahlman, 2003).

vii. Empirica GmbH developed a concept with a methodological framework under the (SIBIS) project as a set of Statistical Indicators Benchmarking the Information Society. These are indicators of a "knowledge" economy covering nine topics (Primo Braga et al., 2000 cited in Hanfizadeh et al., 2009).

2.4.2 Overview of E-readiness Assessment Tools

One drawback to using these tools is the absence of a standard framework that provides a unified measure of assessment indicators. The use of this framework must enhance analyses and comparisons, together with problem diagnosis and suggesting ideal solutions to issues that may arise from determining the digital divide among nations (Beig et al., 2007). Several authors view e-readiness determination as a gauge/standard on how "ready" a nation/individual or economy is to leverage IS systems and e-commerce, or how ready a country can leverage internet usage as an inducer of socio-economic development. Thus, information is vital to help countries develop an ICT policy, a strategy for IT development, and within countries, determine the need for external help or technical aid (Beig et al., 2007). Hence, e-readiness provides a yardstick for comparing and pointing the way forward (Purcell & Toland, 2004). The importance of e-readiness has driven governments, academia, international organisations, and researchers to suggest different assessment tools.

a) Technological Achievement Index (TAI)

The TAI (Desai et al., 2002), as reported in UNDP (2001), is a composite indicator of technology indices that signify technological progress levels of countries as their economies

transition to a knowledge base. The method of calculation for TAI depends on the use of the mean for index dimensions calculated from selected indicators. These indicators are about eight, two from four basic dimensions.

i. Technology creation (ascertained by patents registrations or applications, and payments on royalties and licensing fees)
ii. Fresh innovations diffusion (internet hosts; also, medium - and high-technology exports)
iii. Older technologies penetration (assessed by the number of fixed line telephone and electricity consumption).
iv. Human skills (years in school and tertiary science registration).

b) Assessing Global Diffusion of the Internet (GDI)

GDI originated from a consortium of universities. The sole purpose of GDI is to quantify the degree of diffusion of the internet in any economy as part of studies involving 25 countries in 1997. Diffusion characterisation is based on six dimensions (Wolcott & Goodman, 2000). These are pervasiveness (users per capita); geographic distribution (national internet distribution); sectorial absorption (level of internet use by institutions such as academia, commerce, health, and the public); connectivity (robustness and layout of physical network); organisational layout and competitive space; and use sophistication. The indicators/category is ranked from zero (absent) to four (ubiquitous and profoundly developed) (Mosaic Group, 1998). The absence of representative scores makes comparisons complex. Dealing with qualitative and quantitative data makes it amenable to individualistic interpretation. Overall, access and literacy levels do not matter (Minges, 2002). Therefore, it is limited in this regard, for it does not consider ICT adoption and use but centres solely on ICT penetration.

c) McConnell International (MI) Tool

The MI tool (developed by McConnell International LLC) tries to ascertain how “e-ready” nations, governments, and the citizenry are in a knowledge economy. The thrust of MI Net.Go! tools are tailored to economic growth, but the infrastructural layout of nations is also factored in (MI, 2000). Five (5) indicators are pertinent here: inter-connectivity, electronic leadership, security and privacy of information, human capital development and digital business climate. Country ratings, according to MI, depends on five categories, using “blue”, “amber”, “red’ on a one to three scale. The resulting assessment indicating blue provides evidence of a country's readiness to support e-commerce and e-government, ‘red’ shows advances needed for promoting e-commerce and e-government.

d) Networked Readiness Index (NRI)

The NRI is a proposition from the WEF, INSEAD and infoDev (Kirkman et al., 2002). It conveys "the degree of preparation of a nation or community to participate in and benefit from IT developments". Its composite indices have three constituents—the IT domain offered by any community or country, the public's key stakeholders (citizens, enterprises, and governments) for the use, and these stakeholders' actual adoption of IT. Generally, this component index for connectedness determines the connectivity of the current system, and a facultative component index measures a country's ability to enhance the use of pre-existing networks and establish new ones (Beig et al., 2007). Thus, the network readiness index uses component indices to collate the proportionality of ICT growth in countries. Technically, it has five important variables:

i. Internet adoption assessment regarding 100 inhabitants.
ii. Number of cell phone contracts per 100 inhabitants
iii. Number of Internet services per host
iv. Percent of computers connections to the net
v. Public space available with internet access.

e) Knowledge Assessment Methodology (KAM)

KAM was developed in 1999 by the World Bank Institute (under the development programme) to assist clients of the bank transition to a knowledge economy (Chen & Dahlman, 2003; Hanafizadeh et al., 2009). The encompassing feature of the knowledge economy framework is the integration of four key areas as pillars of the Knowledge Economy (KE). These key areas cover long-term investments in education, building innovative capacity, internet infrastructure modernisation, and an economic setting that supports market activities (Beig et al., 2007). Using the four key pillars, KAM's performance becomes a weighted average of 12 basic indices in the scorecard or as disaggregation of Knowledge Economy Index (KEI). Advantageously, it can benchmark or analyse several variables (performance, economic incentives, national regime, basic education and human capital resources, systems innovation, and a country's overall information infrastructure) (Beig et al., 2007).

f) E-Readiness Ranking Tool by Economic Intelligence Unit (EIU)

EIU (2006:19-20; 2009), in collaboration with IBM, provides an e-readiness ranking tool. It determines the scope that an economy adapts to opportunities related to the internet, in cognizance of several factors (IT infrastructure quality, ambitious government's initiatives, and the degree to which the internet has the possibilities of producing real commercial efficiencies). About 100 qualitative and quantitative criteria form part of the primary categories weighted by

their relative importance. The weighting of the indices, according to the Economic Intelligence Unit (2006:19-20), is:

i. Connections and development of technology infrastructure (30 percent)
ii. Business settings (20 percent)
iii. Social and cultural habitat (5 percent)
iv. Legal and regulatory settings (15 percent)
v. Government policy and supporting e-services (10 percent)
vi. E-commerce consumer and business adoption (20 percent)

There is a 1-10-point score range used for all the indicators (EIU, 2009), and tailored to business adoption of ICT. Unfortunately, the inclusion of comparatively large qualitative data imposes certain restrictions, making the analysis extremely difficult. (Chugh & Gupta, 2010)

g) UNCTAD Development Index

The UNCTAD ICT Development Index was developed at the 10th United Nations meeting in Bangkok in 2000. The emphasis is on the analysis and evaluation of ICT development by assessing ICT diffusion across nations. Key indicators are selected to measure ICT development as pervasive technologies with global impact. It must also have wider application and growth potential. It is a benchmark against levels of infrastructure connectivity, future trends in growth potential, and other key determinants that impact a nation's competency in integrating, adopting, and using new forms of innovation (UNCTAD, 2003).

The Indices include connectivity (depicting internet host per unit of population, the sum of PCs per unit of population, fixed telephone mainline per unit of population, mobile phone use per unit of population); total access (internet adoption per unit of population, literacy rate (as percent of the population); GDP and total charges (for local calls); Policy (availability of internet exchange, local loop telecommunication competition; and domestic long-distance competition, ISP market, and use (UNCTAD, 2003).

Several society indices (access to the infrastructure, ICT adoption by individuals and households, ICT adoption by businesses, and trade on ICT goods) form part of the information economy report (UNCTAD, 2003).

h) APEC E-commerce Readiness Assessment

APEC tool symbolises an assessment mechanism for individual countries to determine their degree of being "e-ready" for e-commerce and improve their position in the digital economy by considering the business community. The importance of the APEC tool is its adaptability to any economic environment or community and is centred on 6 indices of e-readiness: -

i. Technological eco-system or basic infrastructure
ii. Ability to have entry or utilise the necessary communication services.
iii. Present status and level of internet adoption
iv. Promotional activities that facilitate access.
v. Skills acquisition and development of human capital resources
vi. Adapting to all facets of the knowledge economy.

The use of these six indicators for e-readiness assessment comes with about one hundred multiple-choice questions. The overall findings obtained do not provide a score/ranking but are supposed to provide a baseline, overall acting as pertinent drivers for adopting ICT by businesses (APEC, 2000). The thrust here is the governmental policy for e-business (APEC, 2000).

i) Computer System Policy (CSPP) Readiness Guide

Towns, cities, counties, individual states, nations, or communities under CSPP readiness guide can evaluate their preparation/willingness for involvement in the networked/digitalised world. Pertinent criteria for these assessments are based on a five-point index: digital infrastructure, the ability to access, available applications and core services, the knowledge economy, and enablers for networking. A series of 23 questions grouped into four stages portray how ready any community is under each of the five categories. The advantage of this readiness guide is that it is scalable and adaptable for anyone, according to individual needs (Computers System Policy Project [CSPP], 1998). Unfortunately, no guidance is provided on how one can move between four stages of e-readiness (Chugh & Gupta, 2010).

j) ASEAN E-Readiness Assessment

This method determines how ASEAN (10 member countries) measures e-readiness (as electronic-society, electronic-commerce, and electronic-government) using ICT infrastructure as the premise. The format provided these ASEAN countries with required policies to promote of e-commerce and e-society. Unfortunately, utilising this tool comes with some limitations, for it conveys diversity in ICT indicators, their survey elements, definitions, the methodology adopted, and relevant skills for carrying out the survey (Rachman, 2002).

k) SADC E-Readiness Task Force

The SADC region's e-readiness tool, as proposed in 2001, was to assist member countries to assess the degree of proficiency in electronic-governance, electronic-services, electronic-business, ICT awareness, digital infrastructure, policy, and legislative frameworks (Durek & Redep, 2016). Inherently, it comprises three levels of competencies: fundamental, middle, and advanced levels.

E-readiness assessment tools at the macro-level are presented in Table 2.7.

2.4.3 Limitations of E-Readiness

It must be borne in mind that limitations to the assessment of being “e-ready” are sometimes observed. The premise or notion that these indices can provide simple solutions to rather very complex societal problems is naive (Dada, 2006). The various definitions and accompanying indicators complicate the process. Minges (2005) and Bui et al. (2003) have suggested newer, modified frameworks, but their findings, validity, and broader applications have remained questionable (Bridges.org, 2005b)

Bridge.org (2001) undertook comprehensive research to compare the widely used e-readiness tools available and concluded that each tool had its merits and limitations; therefore, they had to be judiciously adapted to assess the intended goal (s). Thus, any assessment model employed for any study had to be re-designed or re-tooled in cognizance of these flaws to be comprehensive enough to meet the intended objectives.

The Massachusetts Institute of Technology's “Global E-Readiness Report” (Maugis et al., 2005), covering the “first generation” of e-readiness assessment indices, has 13 ready-to-use indicators, with 2 survey-based and 5 case studies. The results did not show evidence on the construction of the indices, nor how it might be adjusted for contextual differences. This report then introduced elements of inflexibility and applicability, together with a proposal for a new methodology customised according to the context of usage.

According to Bridge.org (2001), numerous e-readiness tools offer an ambit of questions, statistics, and adequate benchmarks and historical analyses. Sadly though, there is no standardisation of measures in the mix which are acceptable (Maugis et al., 2005). Against this backdrop, the Information Society provided an international assessment and benchmarking with standardised indicators (WSIS, 2003a; WSIS, 2003b) cited in (Dada, 2006). These deficiencies drew the attention of the International Telecommunication Union (ITU) and led to the development of the Digital Opportunity Index (DOI), based on a standard framework with international indicators and benchmark indicators; as a requirement for assessing the information society (ITU, 2005).

Table 2.2: E-readiness Assessment Models at the Macro-level (Alaaraj & Ibrahim, 2014)

Name of Organisation	Tool proposed	Year developed	Aspect	Domain	Methodological approach
Economist intelligent Unit	E-business-Readiness Ranking	2003	E-economy	Macro-	Qualitative
Centre for International Development	Networked Readiness Index	2002-2003	E-society	Macro-	Quantitative
IDC	Information Society Index	2000-2002	E-society	Macro-	Quantitative
UNDP	Technology Achievement Index	2001	E-society	Macro-	Quantitative
UNCTAD	Information and Communication Development Index	2001	E-society	Macro-	Quantitative
Computer System Policy Project	Readiness Guide	2001	Electronic society	Micro or Macro	Qualitative
World Bank	Knowledge Assessment Methodology	1998	E-commerce	Macro-	Quantitative
ITU	Digital Assessment Index	1998	E-society	Macro-	Quantitative
APEC	Readiness Index (APEC)	1999	E-commerce	Macro-	Quantitative
USAID	Assessment index for ICT	1999	Electronic society	Macro-	Qualitative

ASEAN	Readiness Assessment (electronic)	2001	Electronic society	Macro	Qualitative

Contextually, E-readiness indicators are loaded with ambiguities in theory and practice, which can be ambivalent (Maugis et al., 2005), with the assumption of a one-size-fits-all. The uniqueness or individuality of countries is never factored into the equation or the need for special requirements. Also, the presumption that development can only be achieved through IT e-readiness is fundamentally flawed. This is understandable because of the various perspectives considered in defining e-readiness. Too many people define being "ready" differently under circumstances and context, resulting in lapses between theoretical and practical applications (Dada, 2006).

Authors have questioned the validity or usefulness of several assessment models. Ifinedo (2005), from research on e-readiness of nine African nations, observed these models to be descriptive (describing what happens) or diagnostic for identifying areas of contention. The drawback is that these models do not prescribe the way forward, nor actions necessary to re-dress the problem; hence not conveying benefits.

Picci (2006) posits that e-readiness assessment determination can lead to a useful summation of critical points (analysis) but is inherently difficult to quantify the magnitudes observed in the public sector. This is true in situations where decisions on contentious issues such as social cohesion or environmental sustainability are to be made. There is the need to question the assumptions made with linking e-readiness (enabling conditions) and positively impacting society with IT tools (Picci, 2006). E-readiness, unfortunately, measures the enabling conditions without regard for assessing policy implementations.

The need to draw generalisation from high e-readiness validation to imply organisational exposure to high IT usage for competitive advantage is misleading. According to Chu and Tang (2005), Hong Kong typically has higher levels of e-readiness, but then environmental, and labour organisations have not profitably adopted ICT tools for inherent benefits. It is quite justifiable to see the numerous negative impacts and criticism of using e-readiness as most nations' constructive framework for development (Dada, 2006).

2.5 Electronic Portal Technology

An e-portal (2.0 Web) platform represents harvested information from different sources (emails, online forum, search engines) hosted on a single user interface. It is a hub of personalised and categorised content. Over the years, e-portal has undergone substantial

evolution from being a provider of web page access and databases for corporations to a medium that supports intelligence management, collaborative processing, and application integration. Advantageously, web portals can integrate and personalise technologies (such as groupware, database, data warehouse, emails, etc.) in a single management tool (Dias, 2001).

Interestingly, a web portal can be considered a site that provides personalised content/capabilities to the visitor hosted on the world-wide-web. With a host of distributed applications and hardware, e-portals are designed to offer services from different sources. These contents, as expected, must work on different platforms that can be accessed with the help of computers, smartphones/cell phones, and other personal digital devices (PDAs)

(a) E-Government Portals

According to the World Bank (2012), E-government represents the use of information technology by various governments to transfer information between citizens, businesses, and all government stakeholders. The objective of this approach is for better public service delivery to citizens, enabling the collaboration of industry and businesses, the empowerment of citizens, and the provision of effective governance (Al-Kibsi et al., 2001; Layne & Lee, 2001; Stowers, 1999; Whinston & Davis, 2001). The compelling reason for e-government services is the assurance that government administration becomes swift and transparent, and in the process, helps to reduce huge operational costs. According to Grant and Grant (2002), the government's website act as an integrated gateway for visitors to enhance online service delivery. In respect of government services, e-portals facilitate the state's e-services, to improve access to governments, and cost reductions in service processing, thus improving the quality of services to its citizens. Hence, enhancing and improving a common and basic website's functionality into a high-performance website is always challenging to policy makers and technology specialists. Three main factors compel governments to set up e-portal accounts: (a) an unsustainable level of expenditure unable to provide efficient services (due to wastage, delays, inappropriate management practices, corruption, or absence of proper organisational and management skill), (b) a resurgence of emphasis on efficiency resulting from market competition compelling governments to function more like a business, and (c) increasing integration of IT tools into important operational activities of governments (Heeks, 2000). The advantages of e-government (e-services, reduction in bureaucratic processes, enhanced citizenship participation per democracy, and increased responsiveness of governmental agencies to citizens' needs compel governments to go digital (Prins, 2001)

There are several disadvantages to e-government services. These include: (i) unavailability of public internet hotspots, (ii) scepticism about the reliability of published information on the web, (iii) increased surveillance and monitoring of citizens in cognisance of the fact that citizens are

expected to communicate with the government, (iv) higher costs due to implementation, maintenance, and optimisation, (v) poor accessibility for people distant from government, lower literacy rates, and individuals with low wage earnings.

Unfortunately, e-government portals in SA do not address several challenges that negatively impact the operations of informal businesses. This is due to the primary focus of e-government portals which is the provision of services.

2.5.1 Web Portal Functionality

The functionality of a web portal depends on the number of integrated systems (Layne & Lee, 2001; Raol et al., 2002). Thus, it has several inter-related components (Raol et al., 2002) of disparate enterprises databases and information resources. Users must have easy access to personalised enterprise and information resources (White, 2000). Important functions include security (Benbya et al., 2004; Raol et al., 2002; Collins, 2001), personalisation and customisation (Dias, 2001; Raol et al., 2003; Collins, 2001; Benbya et al., 2004), content management (Dias, 2001; Collins 2001), taxonomy (Benbya et al., 2004: Collins, 2001), integration (Benbya et al., 2004), presentation (Collins, 2001), administrative tools (Collins, 2001), profiling (Benbya et al., 2004), quality/accessibility (Moraga et al., 2006; Moustakis et al., 2004) and ease of use (Dias, 2001; Benbya et al., 2004; Raol et al., 2002).

According to Jalal and Al-Debei (2012), pertinent functions of web portal technology include (i) tailored content management. - allows users to adjust and tailor data based on specific requirements and preferences. This functionality incorporates customisation, peculiar personalisation/profiling, content management, and taxonomy; (ii) integration – which aims to bring together, harmonise, and synchronise existing data in differing formats in compatible applications, finally presenting it on a unified interface (the portal); (iii) security – provides secured access to resources for potential users, allowing seamless access to all applications and software integrated into the portal, (iv) searchability – retrieval of required materials/information by using search engines, (v) collaboration – collaborative tools provided to enable users to optimise activities and work, (vi) scalability – the ability of the portal to cope and function under increasing workload, and (vii) accessibility – the ability to access the portal 24/7 without interruptions.

As per the above functionality and embedded features, the web technology portal (WTP) (https://uvuyo-prod.firebaseeapp.com) designed as an electronic portal artefact for a demonstration to the informal sector service providers, before questionnaire administration and data collection, should allow for content management / tailorability (informal service providers and customers in need of these services). We postulate that “searchability” would also enable portal users to be more informed about the various problems and related issues

driving innovativeness in the informal sector. Customers will access relevant information in respect of the services provided. The integration will allow applications to be integrated and harmonised, giving more access to better/appropriate information for more informed decisions. Collaborative tools will allow for close coordination with colleagues making room for internal consumption of information for an appropriate overview of business issues, which calls for the optimisation of enterprise processes. This will result in developing ingenious solutions to enterprise problems. The collaboration will enhance contact with customers, understanding their needs and proactively providing solutions that cater to flaws in the system. The resulting informed strategic decisions per the needs and interests should improve visibility and brand, thus resulting in more customer retention. Accessibility allows users and customers to navigate and be engaged 24/7, irrespective of distance. Service providers can work at their convenience, and when better informed, can react innovatively to the task at hand. Security allows for secured access to the database, gaining valuable information, using the web portal as a tool for performing tasks and making informed decisions (Jalal & Al-Debei, 2012).

2.5.2 Digital Platforms and the Platform Economy

i) Platform Economy

Technological innovativeness and increasing online connectivity have led to a new disruptive economic model which affects the economy, business operations, labour markets and personal lives. This model has given way to what is called the platform economy, where workers find work through an outsourcing online platform/or applications (apps) rather than traditional recruiting agencies/employers (Kenney & Zysman, 2016:64). Several businesses adopt the platform business model with its accompanying digital strategies to remain competitive. Airbnb, Uber, Amazon, Google, Salesforce, and Facebook are compelled to create online networks to increase people's interactions with digital platforms (Deloitte, 2019). The applicability of these platforms in today's marketplace ranges from service provision (Uber and Airbnb) to products/goods (Amazon, eBay), ability to deliver payments (Square, PayPal), to software development (Apple, Salesforce).

ii) Digital Platforms and their Role in the Platform Economy

Digital platforms act as media for exchanging information, products, or services between producers and consumers and the community that interacts with the said platform. The community is an essential and integral part of the digital platform (Watts, 2020). Its omission means that the digital platform has very little intrinsic value. Technically, digital platforms are created to reflect a particular business model and the specificity of purpose (Watts, 2020). Successful platforms include:

a) Social media platforms—Facebook, Twitter, Instagram, and LinkedIn, WeChat
b) Knowledge platforms---StackOverflow, Quora, and Yahoo
c) Media sharing platforms---YouTube, Spotify, and Vimeo
d) Service-oriented platforms----Uber, Airbnb, and GrubHub.

For designers, key components of digital platforms include: (a) relative ease of use and appeal to end-users, (b) trustworthiness and inbuilt security, including assurances for intellectual property and ownership of data, (c) enhanced connectivity with APIs extending the ecosystem for third party users, (d) information exchange between users (producers and consumers), and (e) ability to scale without performance degradation (Watts, 2020)
Overall, digital platforms can provide value for everyone, and huge profits for organisations that create and maintain them through advertising, subscriptions, pay as you go or a multiple combination of the above.

iii) Challenges of Digital Platforms in Sub-Saharan Africa (SSA)

Waswa et al., (2021), writing on the future of work using perspectives from the World Bank Group Youth Summit, posit that the pressing problem for African countries was mitigating the effects of the Covid-19 pandemic and unemployment. Considering marginalised rural communities in SSA and other developing countries, challenges to digital inclusion are (a) technology accessibility, its availability, and affordability. This is due mainly to lack of access to power/electricity, incessant power outages, exorbitant internet costs, and poor infrastructure. The unavailability of a constant power supply means that telecommunication companies experience difficulties in maintaining mobile networks, and hence fewer people have the inclination of purchasing mobile devices. Renewable energy, fortunately, has become the way out of this predicament. Renewable energy solutions (such as LUMOS and MTN partnership) have increased internet access. Another challenge is the low uptake of digital technologies. There is a “digital divide” between SSA and the western developed world, and countries where rural communities fall behind cities. The development of public digital goods, focusing on training to harness the inert potential of utilising digital media for social and economic development (e.g. Kenya’s Ajira digital project), might prove beneficial to governments in SSA. Additionally, it would be advisable to increase local /native languages content on these platforms; and

(b) entrepreneurship support ecosystem, which is unfortunately fragmented and unreliable. Digital platforms can facilitate business registration together with the ability to file taxes online. A digital tax filing ecosystem has been crucial during the covid-19 pandemic. More so, digital platforms such as M-PESA and Esoko have fostered an entrepreneurial ecosystem that is both robust and competitive. Thus, for an effective digital ecosystem in SSA, governments

must establish adequate policy, legal and institutional frameworks, and aspire to reduce the digital divide through partnership and collaboration with all stakeholders.

iv) Characteristics of Digital Platforms in SSA

Electronic technology portals/(DPs) in SSA are mobile-app-based technology that has impacted livelihoods by (a) facilitating the demand for goods and services; (b) providing employment channels for additional value-added services (particularly digital financial services) to customers, workers, and small- and medium-scale enterprises (SMEs) (Insight2impact, 2018; Centfri, 2018). In the context of the informal sector/economy, place-based digital e-hailing platform Safeboda mediates interactions between workers and consumers, thus enhancing employment for Africa's informal sector. Additionally, key digital platforms in SSA (Table 2.8a) have been shown to enhance product/service delivery to important geographies in SSA during the COVID-19 lockdown period.

Insight2impact has shown that in SSA (notably Ghana, Kenya, Nigeria, Rwanda, South Africa, Tanzania, Uganda, and Zambia), about 277 unique DPs were operational for about 4.8 million individuals whose transactional activities generated income for basic needs. As of 2019, 365 local DPs tailored to SSA were active, representing online shopping (98); freelance (91), and e-hailing (81). As the digital platforms continue to grow, new platforms enter the marketplace, intensifying competition and contributing to the absorption/use of the local labour force.

v) Growth of Digital Platforms

Chakravorti and Chaturvedi (2019), writing in the Harvard Business Review, utilised metrices covering archetypes of size (economy and population, growth of the economy, median age of the population, governance quality and digital momentum) to assess the digital landscape of six (6) African counties (Egypt, Kenya, Ethiopia, Rwanda, Nigeria, and South Africa). DPs such as Takealot, Gumtree, Jumia, Bolt (SA); Irembo, government e-portal (Rwanda); online freelancers (Egypt); Jumia, Kobo360, Andele, Interswitch (Nigeria); Ushahodi, M-KODA, M-TIBA, MPESA, about 200 digitalized services offered through Huduma E-Centers (Kenya), and from Ethiopia through their “Sheba Valley” ride-hailing-ZayRide, Gebewa and Blue-Moon, Blockchain in coffee tracking and planting have enabled SSA leverage digital technologies to meet local needs.

The drivers of growth are increasing digitalisation of SSA economies from increased smartphone purchase, internet penetration, advances in the gig economy, the mobility of the youth, lack of employment for the population, the need to support and digitalised the informal sector, and the trend in African countries trying to leapfrog developments.

The digital economy (operational through DPs) is part of the fourth industrial revolution (4IR). It thrives irrespective of national borders/frontiers, driven by global economic growth, thus providing governments, enterprises, and citizens access to infinite information services.

Table 2.3a: Platform eco-system in SSA (Insight2impact, 2018; Centfri, 2018)

S/N	Type	Average monthly use per platform	Three (3) largest platforms by user activity		
1	Online shopping (goods only)	157,000	Jumia	Takealot	Konga
2	Freelance	36,000	Builders	Snupit	VConnect
3	Online Shopping (restaurant)	29,000	Mr Delivery	Jumia Foods	Uber Eats
4	Others	25,000	CompuTicket	Expedia	Eventbrite
5	Rental	24,000	Booking.com	TravelStart	Airbnb
6	e-Hailing	18,000	Uber	Bolt	Gigm
7	Logistics/Courier	6,000	Mr Delivery	OFoods	PIZAREA

2.6 On-Demand Home Services

Technavio (2019) opines that global on-demand home service in 2020 to 2024 would be USD1, 574, 860 billion, impacting geographic regions (APAC, MEA, North America and South America, Europe, the Caribbean) differently. In the view of the NY Times, the US on-demand home service is worth about USD 600 billion, having a projected Compounded Annual Growth Rate (CAGR) of 49% by 2021 (Code Brew, 2020). Also, MarketWatch (2019) posit market segmentation to be diverse:

i. Home care and design—interior design, pest control, deep cleaning, laundry services, metalwork, and glasswork, upholstery, masonry, and carpentry
ii. Appliance repair and maintenance services
iii. Healthcare and beauty services
iv. Groceries, pharmaceuticals, pet grooming, taxi services etc.

The market growth (home care and design dominated by German-based Helping GmbH and Co. KG (global cleaning and furniture assembly services) will accelerate more than other sub-sectors. Notable competitive vendors are Alfred Club Inc; ANGI Home-services Inc, MyClean Inc; Serviz.com Inc (Market Watch, 2019).

2.6.1 Challenges Combated by Using On-Demand Apps

Several challenges, according to Code Brew (2020), include the following:

i. Proliferation of service providers—several downloadable apps from a host of providers
ii. Improved reliability and service quality offered by these apps
iii. Appointment scheduling, which is both simplistic and user-friendly
iv. Provision of multiple payment models (use of flexible payment gateways)
v. Better lead generation for service providers

2.7 Online E-Marketplaces

Online e-commerce marketing/e-commerce marketplace represents a website where different product brands (from numerous vendors, shopping houses and persons) are showcased on a single platform. The marketplace operator's sole objective is attracting customers and transaction processing, while third-party vendors tend to manufacture processes and shipping (Happiest Minds, 2020). Through “Drop-shipping”, the online marketplace streamlines production, having manufacturers sell to consumers directly. Product categories, service charges/listing fees, and targeted audiences (Cindy Puryear 2020 cited in BigCommerce, 2020).

Technically, the online marketplace is an agglomeration of retailers, wholesalers, and product designers as manufactures, working in consonance solely for attracting consumers with minimal investment costs (ASD Market Week, 2020). Corporations such as Amazon, eBay, and Flipkart (India) have been immensely rewarded financially with e-commerce business models. This Omni-Channel business model is based on a single software infrastructure, where vendors display and sell their products under the umbrella of one website (Happiest Minds, 2020). For FY18, US consumers spent US$ 517.36 billion (an increase of 15% from 2017) (ASD Market Week, 2020). While it is true that consumers still use the services of large shopping stores, the shift is towards e-commerce and the online marketplace. See Table 2.4 for the characterisation of the online marketplace.

As with any business model or business operation, there are benefits and challenges to their success (Table 2.5)

Table 2.4 Characterisation of Online Marketplace. (Happiest Minds, 2020)

S/N	TYPE	COMMENTS
1	Buyer-oriented e-marketplace	• Operated by groups of buyers desiring to establish an efficient environment for the buyer, thus enhancing buyers' interactions and administrative costs. For example, Exostar.
2	Supplier-oriented e-marketplace	• An efficient sales channel operated by large group suppliers for enhanced visibility and obtaining leads to large segments of consumers. • Supplier directory searchable by products/services • Buyer privileged to information covering the suppliers, products, and region
3	Vertical/horizontal e-marketplace	• Vertical e-marketplace serves businesses vertically across segments of industrial sectors – automotive, chemicals, construction, or textile. Buying/selling increases operational efficiencies, and procurement time/supply chain and inventory costs • E-marketplace (horizontal) links buyers/sellers across different industries and regions.
4	Independent e-marketplace	• B2B platform run by a third party targeted to a unique industry linking sellers and buyers

According to Happiest Minds (2020), challenges facing the e-commerce marketplace can be a combination of one of the following: -

i. Seller and buyer retention
ii. Connecting buyers with appropriate and relevant sellers.
iii. Maintenance of trust between the buyer and seller
iv. Creation of the first impression, which happens to be the dividing line between success and failure,
v. Price competition can be problematic,
vi. Quality assurance might be an issue,
vii. Use of minors and exploitative workers in factories.

In the views of Gegan Mehra cited in Practical Ecommerce (2018), leading global online marketplaces are enumerated in Table 2.6.

Table 2.5: Benefits of E-commerce Marketplace (Happiest Minds, 2020)

S/N	Benefits	Comments
1	Business	● Business/platform operators can charge a fee on each transaction that the vendor makes for exponential growth. ● E-Marketplace is transparent on pricing and product stocks. ● New trading relationship with the supply chain ● Time/distance constraints are eliminated due to innovations
2	Sellers	● Smaller ventures can reduce marketing costs by aligning with larger businesses to gain visibility. ● Cost quotations exchange between newer and older vendors, thereby streamlining standards. ● Platform acts advantageously as a sales channel for products /services. ● Enablers of international sales through alignment with other national platforms
3	Buyers	● Wide product options on the same site which increases quality and pricing. ● Information update on price and availability to offer the very best to the consumer. ● Availability of trusted vendors open to the buyer.

Table 2.6: Global Leading Online Marketplaces (Mehra, 2018; ASD, 2020)

S/N	Region - Global	Type
1	North America	Amazon, Walmart, Facebook Marketplace, Target, Overstock,
2	Europe	Allegro, Asos, Cdiscount, Cel, DaWanda, Emag, Flubit, Fnac, Fruugo, Game, Mobile.de, Okazii, OnBuy, Otto, PriceMinister, Real.de Tesco, Zalando
3	South America	Americana
4	Asia	GittiGidiyer, Kaola, Lazada, Qoo10, Rakuten, Shopee, Snapdeal, Souq, Taobao, Tmall, VIP.com
5	Africa	Jumia, Konga, Takealot, Bidorbuy
6	Australia	The Iconic, Mydeal

2.7.1 Social Media Marketing

Marketing on social media (SMM) represents an interplay between utilising platforms around social media to connect with audiences solely for brand promotion, sales enhancement, and driving website traffic (Buffer), or simply, SMM represents a robust media for enterprises of all sizes to increase prospecting and reaching out to more customers (Word Stream). The process revolves around great content publishing on one's social media profile, engaging with followers, result-analysis, and social media advertisement for increased revenue.

Presently, SM platforms include Pinterest, YouTube, WeChat, Weibo, Google+, MySpace, Digg, Facebook, and Snapchat. These SM platforms are utilised for text posting and image updates, video, pictures to drive user/audience engagement, and paid SM advertising.

There are five (5) pillars of SM marketing:

i. Strategy
ii. Planning and publishing
iii. Listening/engagement
iv. Analytics and reporting
v. Advertising

Steps for achieving marketing goals include the following: -

i. Increase of traffic on the website,
ii. Enhanced conversation through listening and engagement,
iii. Brand promotion
iv. Brand identity creation and positive association for the unique brand
v. Communication and audience interaction enhancement.

Social media (SM) content is also a pertinent source for online information which can be created, shared, and utilised by consumers bent on educating themselves/others about specific products/services, brands, and problems (Xiang & Gretzel, 2010) and has become the medium for information overload on topics as diverse as the environment, politics, technological innovation, fashion design, and the entertainment industry (Nadaraja & Yazdanifard, 2013). Tanuri (2010) opines that promotions, marketing intelligence/communication, public relations, and customer management (all marketing sub-disciplines) can affect marketing performance (e. g., sales).

2.7.2 Advantages of Social Media Marketing

Social media marketing, as a tool, is the use of social media (SM) channels for the promotion of a brand or company (Nadaraja et al., 2013). Its most important advantage is cost reduction and enhancing the reach of the target audience. Comparatively, the utilisation of SM platforms is relatively cheaper than the person-to-person salesforce or distributors. More so, SMM allows businesses to reach out to inaccessible audiences/customers because distribution channels might be limited by time and distances (Watson et al., 2002; Sheth & Sharma, 2005). Other benefits include:

i. Financial hurdles or barriers to using SM are low in comparison to other methods. The possibility that a post might go viral or using text to facilitate interaction is important (Weinberg, 2009).
ii. Social Interaction—more time online by people is spent communicating (emails, chat rooms, social networking) as part of leisure and entertainment (Hill & Moran, 2011). Additionally, social networking sites acting as popular internet destinations for many individuals are pervasive (Burmaster, 2009).
iii. Interactivity – the ability of users to participate in modifying form and content under real-time in a mediated environment (Steuer, 1992). One defining characteristic of SM networks is their interactivity (Fiore et al., 2005 in Hill & Moran, 2011).
iv. Targeted market/population – the ability to perform target marketing to specific audiences and customers based on interests. Increasingly using 'smart' marketing to enhance music sales (for example) or personal advertising to promote goods/services with social networking sites (Hill, Provost & Volinsky, 2006)
v. Customer services – added intentionally due to website design complexity. Links to (FAQs), online representatives, and using special toll-free numbers for assistance is a process to try and lock in e-loyalty for the businesses (Gommans et al., 2001).

2.7.3 Disadvantages of Social Media Marketing (SMM)

Aside from the opportunities that come with using an online environment, there are challenges and complications embedded in SMM. Web transparency increases information flow, but there must be consistency in design, planning, the overall strategy for implementation, and checks for control of communication in online marketing (Hart et al., 2000). Important disadvantages include:

i. Intensive operations which are time-consuming
ii. Demanding trademark and copyright concerns which must be adhered to
iii. Developing trust between users, privacy concerns and security controls
iv. User-content generation (UGC) might become a problem

v. Negative feedback which might not be palatable to owners/operators

2.8 Barriers to Internet Adoption and ICT Usage

Despite the ubiquity of the internet and preponderant evidence of the ability of ICT to drive innovation, competitiveness, poverty alleviation, environmental sustainability, political participation enhancement, greater empowerment, and financial inclusion of women, most citizens in the global South are still not actively integrating the internet/ICT into daily business operations or personal activities. This is due primarily to the "digital divide" that has developed between the advanced North and the developing countries of the global South.

Several important determinants which inhibit businesses (micro and small firms) from actively adopting and integrating ICT into daily operational activities have been identified. These factors/determinants vary across countries/societies, sectors, and sizes of firms. According to Touray, Salminen and Musa (2013), some important factors include:

i. Political and leadership directives – countries of the global South (developing countries) do not have adequate ICT policies that drive development and usage. It becomes extremely impossible to measure progress without adequate policies and institutions. It is therefore imperative for governments to provide good leadership.
ii. Socio-Cultural Barriers – due to lack of content (in local languages), poor literacy rate, societal attitudes to the use of ICT, and gender issues limit half of the population to internet access.
iii. Poor Infrastructure – poor infrastructure because of lack of investments limits how IT tools are accessed. In this context, availability signifies ICT enabling infrastructure for service delivery, while accessibility represents users' freedom without impediments due to political affiliations etc. (Rangaswamy & Nair, 2010).
iv. Technical barriers limiting the smooth delivery of ICTs. Poor network receptivity, slower connectivity, and issues with systems integration all impede ICT adoption by businesses, governments, and society at large.
v. Educational skills – largely due to lack of human capital development (illiteracy, lower ICT skills, educational systems in developing countries which do not emphasise quantitative/analytical skills and computerisation. This introduces an amount of uncertainty into the system.
vi. Economic – financial implications of having a good ICT infrastructure. The inability to think of ICT in terms of per capita income by users, internet service providers (ISP), and investors. Cost analysis determines the high investments required for ICT infrastructure, connectivity, and services.

vii. Safety – freedom to use without challenges, danger, and harassment from government officials.

viii. Legal and Regulatory – laws in countries of the global South impede the use of the internet and ICT. Sometimes, society is closed to the outside world to guard against political dissent. Sometimes, the laws and regulatory environments are not proactive because of a weakness to sustain the ruling class (Proenza, 2006).

Also, Subbaye and Marimuthu (2013), using a survey/quantitative approach to analyse barriers to internet adoption by SMEs, observed that despite the notion of ICT being used for efficiencies and improvements to competitiveness in a networked world, and advantages provided by the internet, most owners of SMEs had no plans to make a substantial investment in Information Technology/Information Systems. The critical barriers to internet adoption and ICT use were costs, the complexity of ICT tools, inadequate security, and the absence of supporting facilities/channels from Internet Service Protocols (ISPs).

2.9 Related Work

Several studies in South Africa have reported on the status of IT adoption by small- and medium-scale enterprises (SMEs) and micro-, small-, and medium-scale enterprises (MSMEs).

Efforts that have targeted SMEs include Mathu and Tiare (2017). They looked at IT integration by SMEs in the manufacturing and service industries. The factors affecting software adoption by SMEs (Mokwena et al., 2018); the adoption of cloud computer modelling to assess the integration of cloud computing services by SMEs in SA (Ayong & Naidoo, 2019), the adoption of Bring Your Own Device (BYOD) in small and medium businesses in SA (Akin-Adetoro & Kabanda, 2021), inhibition to e-commerce adoption in two SA cities (Ndayizigamiye & Khoase, 2018), e-commerce and rural development by KwaZulu's SMEs (Migiro et al., 2005), and businesses (SMEs) in the Province of Gauteng integration of ICT tools (Modimogale et al., 2011).

Mathu and Tiare (2017) used a quantitative methodology to collect data from 300 respondents (owners/managers of SMEs tailored to the manufacturing and service sectors). They used Confirmatory Factor Analysis (CFA) and Covariant-based structural equation modelling with AMOS vs 22 for data analysis. The findings showed that IT enhanced integration and collaborative operations involving supply chains through customer services, inventory management, time management, task performance, and relationship-building. Equally, Mokwena et al. (2018) observed a low adoption rate among SA's SMEs for software as a service (SaaS) despite its inherent benefits. Adopting the theory of Diffusion of Innovation

(Rogers, 1995), a research questionnaire (as an instrument) was used for data collection. This data was analysed by regression. Most SMEs operators were not aware of the potential of SaaS and considered using SaaS if the cost was not a limiting factor. At the other end of the spectrum, Akin-Adetoro and Kabanda (2021) explored factors that impacted the Bring Your Own Device (BYOD) concept by SMEs in South Africa. Applying the perceived e-readiness model (PERM) as the conceptual framework and an interpretivist philosophical stance, data was collected qualitatively (through semi-structured interviews) and analysed thematically. The findings indicated that there must be organisational e-readiness (awareness, support from management, adequate enterprise resources, personal resources, adequate governance, technological readiness), together with environmental readiness (compelling market forces, industrial support, socio-cultural drivers, government readiness) for there to be any meaningful approaches to using BYOD. Likewise, Ayong and Naidoo (2019) tried to synthesise a conceptual research model incorporating control indicators from the diffusion of innovation (DOI) theory, institutional theory, transactional cost theory, organisation theory, information security theory and trust theories for the assessment of pertinent factors influencing SMEs in SA from adopting cloud computing services. The model was to be employed in future research.

Additionally, Mbatha and Ngwenya (2018) employed the Publicise Interact and Transform (PIT) model in information and communication technology adoption to study the barriers to integrating e-commerce by SME service providers engaged in tourism. Utilising a qualitative approach and thematic analysis, service providers in SMEs particular to tourism in Pretoria experienced high costs, inadequate funding, and lack of technical skills as factors that impeded e-commerce adoption. These SMEs experienced added benefits when these barriers were overcome or circumvented.

Studies that focused on MSMEs included Ndayizigamiye and Khoase (2018), who conveniently sampled 247 SMMEs quantitatively from two cities (Durban and Pietermaritzburg) in KwaZulu Natal (KZN) to assess the relationship between inhibiting factors and e-commerce adoption. Results after descriptive statistics and Chi-square of independent test on the data from the two cities showed that factors including a low level of computerisation, the exorbitant cost of computers and networking equipment, poor telecommunication services, internet security, legal problems, and liability and rigidity in contractual arrangements negatively inhibited e-commerce adoption by SMMEs in KZN. Waden and Motjolopane (2007) noted that in considering e-commerce adoption, the most likely possible scenario could be explained with an “adoption ladder” where e-commerce adoption followed a step- by step process (from a simple email to highly integrated business tools) to “managed strategic adoption”, predicated by management taking informed-decision to move the organisation to

e-commerce adoption. Using 1time Airline and other larger companies, a “managed strategic adoption” approach was applicable in Western Cape, SA. Other authors have reported on ICT diffusion concerning micro-, small-medium-scale enterprises (MSMEs) in South Africa. According to Duncombe and Heeks (2005), introducing ICT into the daily operations of micro-, small- and medium-scale enterprises (MSMEs) can help integrate them into the digital/knowledge economy. Additionally, it can contribute to poverty reduction through income generation, more diverse opportunities in livelihood, employment for the poor and those disadvantaged in the society, skills development and self-confidence, social protection, empowerment, and security against job losses (Duncombe and Heeks, 2005).

Table 2.7: ICT diffusion in MSMEs in South Africa

Study/year	Sector	Country	Focus
Migiro et al., 2005	SMEs	KZN, South Africa (SA)	e-commerce and rural development
Adigun et al., 2006	MSMEs	SA	Challenges/opportunities in enabling technology
Waden et al., 2007	MSMEs	SA	e-commerce adoption
Ruxwana et al., 2010	Rural Health Centres	Eastern Cape, SA	e-health solutions in health care
Chiliya et al., 2011	MSMEs	Eastern Cape, SA	e-commerce adoption
Modimogale et al., 2011	SMEs	Gauteng, SA	ICT in businesses
Mathu & Tiare (2017)	SMEs	Gauteng and Free State	IT adoption in SMEs supply chain
Mbatha & Ngwenya (2018)	SA Tourism service providers	Pretoria	E-commerce adoption
Mokwena & Hlebota (2018)	SA SMEs -- IT decision-makers/ and IT partners	Gauteng Province, SA	SaaS adoption in SA SMEs
Akin-Adetoro & Kabanda (2021)	SMEs	Cape Town, WC, SA	BYOD conceptual framework in SMEs
Ndayizigamiye & Khoase (2018)	SA SMMEs	KZN, SA	Inhibitors to the adoption of e-commerce
Ayong & Naidoo (2019)	SMEs	SA	Development of Conceptual framework for future research

Unique to (SMEs and MSMEs) in SA, according to available literature, Migiro et al. (2005) posit that high investment cost necessary for integrating ICT into businesses, and the absence of acquired skills for utilising these tools, acted as an impediment to their use by SMEs. Other studies such as ICT adoption and development of e-commerce among SMEs in SA (Mpofu et al., 2010), the role of ICT within SMEs in Johannesburg (Modimogale et al., 2011), and investigating the key factors influencing ICT adoption in SA (Kyobe, 2011), have contributed to the extent of technology adoption in the SA context. Kyobe (2011) opined that in the context of SA's platinum mining sector, the observed trend was "Early adopters and Early majority". This was in accordance with the observed trend in larger organisations. According to Modimogale et al. (2011), in utilising a qualitative method, they observed that although ICT tools are acknowledged to be drivers to the knowledge economy, SMEs in Gauteng, unfortunately, did not fully adopt ICT tools. Therefore, they could not stay competitive locally, nationally, or globally. These SMEs in Gauteng were prone to adopting local technology in business operations. By adopting a qualitative approach and a semi-structured interview to assess the importance of ICT tools in SMEs, Modimogale et al. (2011) posited that limited funding, lack of skilled staff, and lack of tools were critical factors impeding ICT adoption. Cloete et al. (2002) equally opined that comparing SMEs in SA to other advanced societies, the acceptance and adoption of e-commerce (despite its inherent benefits to businesses) as drivers to the survivability of these SMEs were almost non-existent. They were still interested in using local technologies. Ruxwana et al. (2010), focusing on ICT applications as e-health solutions (e-health, telemedicine, e-education) in rural healthcare in Eastern Cape, SA, applied a "case study" /qualitative approach to rural health centres in Eastern Cape, SA. They opined that fewer computer availability, fewer internet connectivity, various disadvantaged staff members in computer usage, lack of information access which negatively impacted healthcare delivery, and the inappropriateness of e-health policies deemed necessary for overall performance were key constraints to healthcare delivery in Eastern Cape, SA. Hence, these policies made ICT tools less user-friendly. Chiliya et al. (2011) also opined that the adoption of e-commerce by SMEs trailed large corporations. These studies are summarised in Table 2.8.

Importantly, other authors have detailed ICT diffusion in the small and medium-scale enterprises (SMEs) in Africa and other countries (Table 2.8). Also, Table 2.9 provides an outlay of digital technology usage in the informal sector.

Table 2.8: ICT diffusion in SMEs in Africa and other Countries (Literature)

Study	Year	Sector	Country	Research Method
Rizk	2004	SMEs	Egypt	Quantitative
Ifinedo	2005	Global network economy	Nigeria, Ghana, CIV, Kenya, RSA, Mauritius, Egypt, Tunisia, Botswana	Quantitative
Essellaar et al.,	2006	SMEs	Botswana, RSA, Cameroon, Zambia. Ethiopia, Rwanda, Ghana, Nigeria, Kenya, Mozambique, Namibia, Tanzania, Uganda	Quantitative/qualitative
Mutula & Brakel	2006	SMEs	Botswana	Quantitative
Chiware & Dick	2008	SMEs	Namibia	Qualitative/quantitative
Fathian et al.,	2008	SMEs	Iran	Quantitative
Chitungo & Munongo	2013	SMEs	Zimbabwe	Quantitative
Sandez-Torrez & Juaree-Acosta	2019	SMEs	Columbia	Quantitative

Table 2.9: Use of Digital Technology by the Informal Sector (literature)

Author/Year	Study focus	Country
LIRNEasia (2014)	Informal micro-enterprises	India, Sri Lanka, Bangladesh
Ilavarasan (2019)	Impact of ICT on informal sector	India
Larsson & Svensson (2018)	Market women in the informal sector – organisation and growth	Kampala, Uganda
Berrou & Eekhout (2019)	Fishermen • Bilateral coordination	Senegal

	• Multilateral coordination • Payment transfer • Business management	

These authors have reported leveraging digital technologies by the informal sector (Ilavaransan, 2018; Larsson & Svensson, 2018; Berrou & Eekhout, 2019). Please see Table 2.9.

A careful observation of previous studies on the informal sector of South Africa, as summarised in Tables 2.7, 2.8, and 2.9, indicate that before this study, there was no focus on determining the degree of e-readiness of the SA informal sector to leverage web technology portal support. Thus, this study presents an opportunity to understand technology adoption readiness by the SA informal sector that other researchers have not explored until now.

2.10 Gap Analysis

According to Wallis and Wright (2020), gap analysis can be achieved by considering the structure, data acquisition, and stakeholders reported in the extant literature. IS/IT studies in SA were directed to MSMEs and health-related centres. Most of these studies were also targeted at individuals or organisations (micro- level). Data were acquired either quantitatively or qualitatively. The stakeholders as respondents, were managers, employees, informal sector workers (market women, fishermen, micro-entrepreneurs), clients, suppliers, and service providers. The social science discipline (business/management) formed the foundational approaches used by several authors for IS research. However, most of these studies using qualitative approaches (Skinner 2016; Rogan & Skinner, 2018; Fourie, 2018) concentrated on policy incentives as the panacea for solving these challenges of the informal sector. Findings from extant literature (Daramola, 2018; Etim & Daramola, 2020, Daramola, 2021) has shown that: (a) the challenges of the informal sector service providers have not been holistically addressed with policy and technology running in tandem, (b) e-government portal services have not focused specifically on the challenges of the informal sector practitioners, despite governments' desire to increase the productivity and competitiveness of the informal sector.

Several authors including Larsson and Svensson (2018), Berrou and Eekhout (2019), Daramola (2018), and Etim and Daramola (2020), have suggested that technology can be used in tandem to provide a better approach to solving the challenges experienced by informal practitioners. Additionally, e-government portals in SA are not tailored to deal specifically with the challenges of the informal sector, but on policy targeting the informal sector (Cape Town Government, 2019), in facilitating service delivery to the public (SA Government, 2022; SA Health, 2022).

Therefore, this study seeks to address this gap in the literature. It is the determination/assessment of how SA informal sector service providers are “e-ready” to leverage electronic portal technology to increase their micro-enterprises’ visibility, branding, productivity, and viability. The degree of the e-readiness of the SA informal sector service providers to leverage web technology portal required the conceptualisation of a new research model, and data collection from informal sector practitioners in Cape Town metropolis. The beliefs and perceptions of the informal worker of technology will give a better picture/understanding of their intention to use web technology portal. The evaluation of these beliefs and perceptions is possible by introducing complex constructs to the adopted research model and the use of quantitative data analysed by using advanced statistical technique such as partial least squares structural equation modelling (PLS-SEM).

2.11 Chapter Summary

Chapter two (2) provides a synopsis of extant literature and gaps in research on e-readiness assessment at the micro-level (here referring to an individual or at the organisational level), the drivers to informality and the challenges that service providers are exposed to in the daily operations of these micro-economic units. From a global perspective, the core drivers of the informal economy are bureaucratic quality, corruption level, and GDP/capita. We looked at the informal sector/ economies in China, India, and South Africa from this perspective.

The literature review also identified pertinent e-readiness tools necessary to assess the macro-level and the limitations of these existing tools. In the relationship to web portal technology development, a discussion is provided for its functionality and embedded features to assist informal practitioners and customers to be better informed about informal economy opportunities.

Furthermore, the on-demand economy is discussed. This included the online marketplace and the advantages as well as the disadvantages of the social media marketplace. The literature review was then concluded with the barriers to internet adoption, ICT usage and related work.

CHAPTER THREE

THEORETICAL FRAMEWORK

This chapter presents the Information System (IS) theories that underpin this research. The theories adopted were Self-efficacy theory (SET), Unified Theory of Acceptance and Use of Technology (UTAUT), and the Technology Readiness Index (TRI).

3.1 Use of Theoretical Framework in IS Research

A theoretical framework is necessary for any research to define pertinent concepts that underpin the study and build relationships between them (Vinz, 2020). A solid theoretical framework enhances the research direction, allowing for the interpretation, explanation, and generalisation of the findings. Authors tend to view theories as composed of defined variables, domains for their applicability, and sets of relationships for predictability of these variables (Bunge, 1967; Reynolds, 1971; Dubin, 1978; Hunt,1991). A ‘good theory' provides clear explanations for why and how relations lead to specific results. Utilising the principle of abstraction continuum, theories with high abstraction levels have a limitless scope of applicability, while theories with lower abstraction levels show a limited scope of applicability (Wacker, 1998; Bluedorn et al., 1980). The selection of any theory or theories should be predicated on their appropriateness, applicability, and explanatory power (Nilsen, 2015; Collins & Stockton, 2018).

In circumspect, a theory represents a set of analytical statements developed to structure one’s observation, understanding, and perceived explanation of the world (Frankfort-Nachmias & Nachmias, 1996; Wacker, 1998; Carpiano et al., 2008). A theory is composed of a set of systematic, logical premises used to explain a particular phenomenon by showing the relationship between the phenomenon and others. Alternatively, a theory can be envisaged as a formal explanation of some events, which is testable and includes logical explanations of how things are related to one another (Zikmund et al., 2010).

Several theories have been adapted for IT/IS research (Wade, 2009). According to Carr (1999), technology adoption represents the process of selecting and using an innovation by an individual or organisation. This research focuses on determining the degree of e-readiness (at the micro-level) of the SA informal service providers to adopt and use web technology portals as a supporting operational tool for their micro-enterprises. Hence, the underlining concept is technology adoption and use. More so, following the constraints that informal sector service providers are exposed to in the operational activities of their micro-enterprises, what external or internal factors act as impediments or drivers to their being “e-ready” for technology support?

Several studies show that adopting innovation/technology is entirely non-dependent on facets of technology alone, but instead on complex processes entailing users' attitudinal disposition and personality (Venkatesh et al., 2012), social influence (Ajzen & Fishbein, 1975), generated trust (Gefen et al., 2003) and various facilitating conditions (Thompson et al., 1991). These models or theories were developed to assist in understanding the dynamism of diffusion and adoption of new technologies. In consideration of (IS/IT) as a discipline, research dealing with acceptance and technology adoption is predicated on behavioural intentions and beliefs grounded in sociology and cognitive psychology (Orlikowski & Baroudi, 1991, cited in Tarute & Gatautis, 2014).

Adoption models/theories have been modified over the years and include the following:

i. Reasoned Action (TRA), (Ajzen & Fishbein, 1977)
ii. Planned Behaviour (TPB): (Ajzen, 1991)
iii. Diffusion of Innovation (DOI) (Rogers, 1995)
iv. Acceptance Model of Technology (TAM): (Davis 1989)
v. Acceptance Model 2 (TAM2): (Venkatesh & Davis, 2000)
vi. Unified Theory of Acceptance and Use of Technology (UTAUT): (Venkatesh et al., 2003)
vii. E-readiness perceived model (PERM): (Molla & Licker, 2005)
viii. Framework for Technology, Organization and Environment (TOE) (Tornatzky & Fleischer, 1990)

This research adopts the premise that innovation/technology adoption signifies the stage in which technology is selected for use by an individual or organisation (Carr, 1999), while diffusion means the stage in which the technology spreads to general use and application (Rogers, 2003).

The relevant IS/IT theories that underpin this study are discussed subsequently: -

3.2 Self-Efficacy Theory (SET)

Self-efficacy signifies a person's beliefs in his/her abilities required to perform a particular task (Bandura, 1977; Bandura, 1982), or an individual's judgment of abilities to use information systems/technologies under differing conditions (Compeau & Higgins, 1995). It cannot be equated with acquired skills but under judgements of what can be achieved with skills already in possession of any individual (Bandura, 1986:391). This portrays that people' self-efficacy cannot be generalised but is circumstance/situation dependent. One can judge him/herself to be competent in one field but woefully incompetent in another field; thus, self-efficacy is related to situations and particular tasks, establishing differences to other concepts such as self-

esteem (Maibach & Murphy, 1995). Unfortunately, a global self-efficacy scale/score is absent, and therefore self-efficacy cannot be a personality trait but an easily influencing characteristics circumspect to situations and tasks.

The basic assumption/assertion of self-efficacy theory is that personal mastery or efficacious expectations, together with success (exhibited as outcome expectations), are the driver to an individual's incentive to engage in any behaviour (see Figure 3.1)

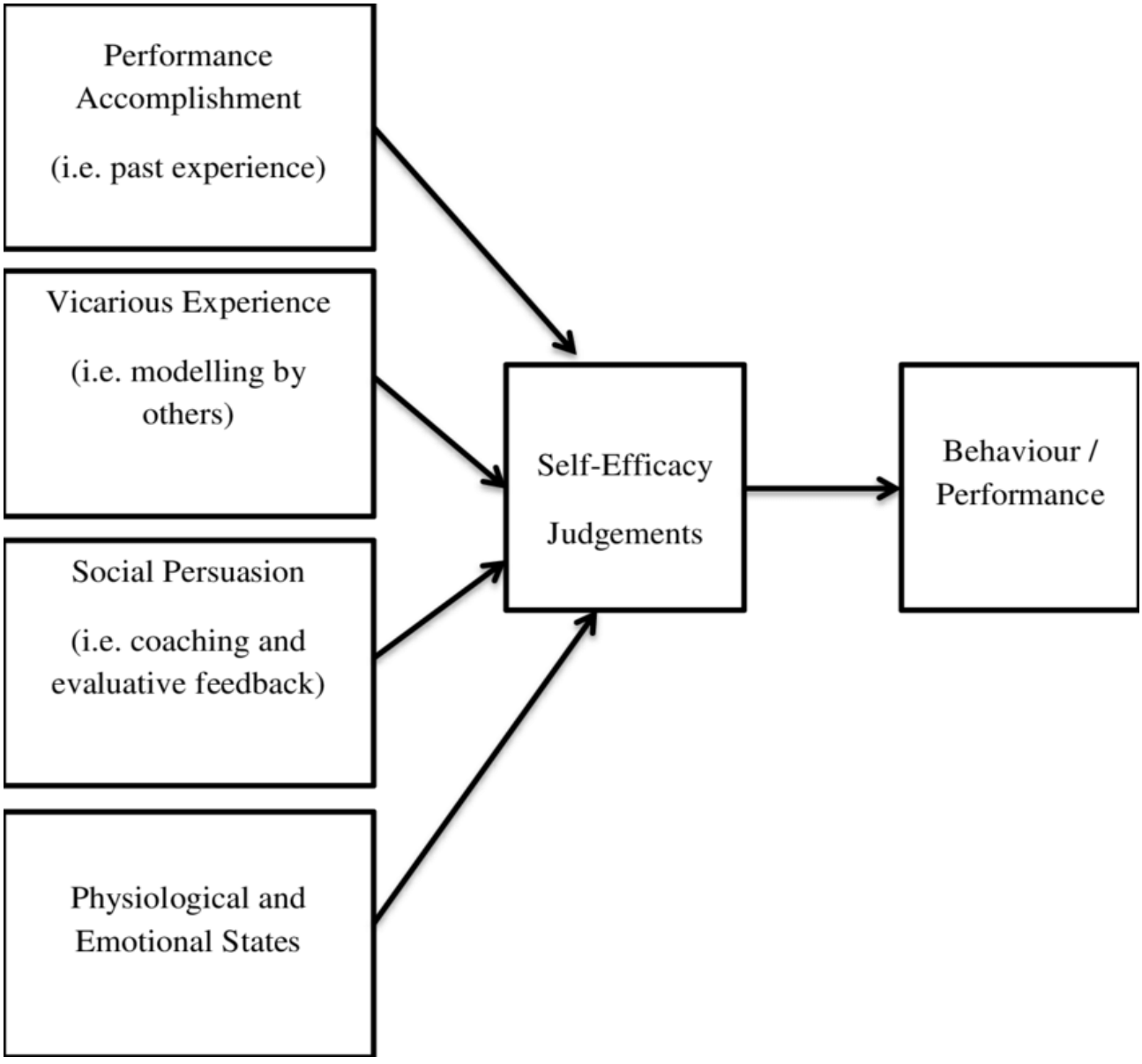

Figure 3.1: Sources of Self-efficacy (Bandura, 1986; 1997)

Thus, in cognisance, personal characteristics, personal behaviours, and expected outcomes of the behaviour (that is, efficacy expectations together with outcome expectation) form the underlying pillars of Bandura's model.

An outcome (physical, social, self-evaluation) expectation determines outcomes from any behaviour that follows a person's beliefs. Likewise, efficacious expectation (self-efficacy) signifies morale/tenacity in one's ability to induce the behaviour. Overall, individuals are incentivised to undertake behaviours they inherently think will lead to the desired expectations, but outcome expectations are self-efficacy-dependent; hence performance is better predicted by self-efficacy than outcome expectancies (Bandura, 1986).

People with lower self-efficacy seem to be challenged and frustrated easily by obstacles during computer/technology use, while those with high self-efficacy are not easily deterred by obstacles, becoming more persistent in using innovative technologies.

3.2.1 Sources of Self-Efficacy

Beliefs encompassing self-efficacy are driven by four pertinent information constructs (Bandura, 1977; 1997a; 1986, 1995):

i. **Performance accomplishment/experience** – a better perspective on the present task to be accomplished due to prior success at something that is like the new behaviour
ii. **Vicarious experience/modelling others** – Learning by observing activities performed by someone else who is an associate/ or colleague-become proficient
iii. Social persuasion – Encouragement provided by others as an incentive to perform the task
iv. **Physiological/emotional states** – The states (physical and emotional) caused by thinking about the requirement for executing the new behaviour

Perceived usefulness (PU) can be predicted by computer self-efficacy because perceptions of being highly capable of using technology will infer the ability to use technology for increased productivity and effectiveness at work and in life.

3.3 Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT model tries to clarify users' motives for IS/IT and users' behavioural intention. The UTAUT proposed by Venkatesh et al. (2003) has four essential variables (performance expectancy, effort expectancy, social influence, and facilitating conditions) which assess users' intentions (Venkatesh et al., 2003). Additionally, other factors, including gender, age, experience, and voluntariness of use, moderate the four key constructs given above (Venkatesh et al., 2003).

By considering eight other models, including TRA, TAM, TPB theories, Motivational Model (MM), Model of PC Utilisation (MPCU), Social Cognitive Theory (SCT), Innovation Diffusion Theory (IDT), and combining TAM and Theory of Planned Behaviour (C-TAM-TPB),

Venkatesh et al., (2003), developed a formal premise/concept unifying all other existing models and theories. UTAUT by Venkatesh et al. (2003) becomes relevant when managers are introduced to new technology assessment tools, for it describes motivating factors that control technology acceptance. Managers can forecast or foresee and explain pertinent behavioural intentions or patterns of users' technology acceptance, leading to a more holistic platform for users' acceptance of new technology (Lee et al., 2010).

Table 3.1: Constructs used in UTAUT (Venkatesh et al., 2003)

Construct	**Explanation**	**Source from previous models**	**Mediators**
Performance Expectancy (PE)	Signifies the extent to which an individual believes the use of IT/IS system will help them achieve goals in job execution	Five constructs of PE – perceived usefulness (TAM); extrinsic motivation (MM), job fit (MPCU); relative advantage (IDT); outcome expectations (SCT)	Gender, Age
Effort Expectancy (EE)	Measure/scale of ease accompanying use of technology/innovation	Three constructs are important here – perceived ease of use (TAM, TAM2); complexity MPCU); ease of use (IDT)	Gender, Age, Experience
Social Influence (SI)	Signifies the extent any person perceives others think they should use the new technology/innovation	Three constructs – are subjective norm (TRA, TAM2/IDTPB, TPB); social factor (MPCU); image (IDT)	Gender, age, voluntariness, and experience
Facilitating Conditions (FC)	The extent that any person believes the existence of infrastructure (such as technical,	Three constructs, including behavioural control (TPB, DTPB, C-TAM-TPB) facilitating	Age, experience

	organisational, governmental) supports the use of the system	conditions (MPCU) and compatibility (IDT).	

The UTAUT model has proved useful in predicting behavioural intention to use technologies critically in organisations. UTAUT has proved useful in explaining 70 percent variance in behavioural intention to use technology and about 50 percent fluctuations about technology use. In this context, UTAUT has become the baseline model used to study several technologies in organisational and non-organisational settings (Neufeld et al., 2007).

The extension of UTAUT into UTAUT 2 (Venkatesh et al., 2012) has been possible due to the emergence of new factors to increase the predictive capacity of user- intent. The three (3) indicators are Hedonic Motivation (HM)—representing the excitement derived from technology use (Brown & Venkatesh, 2005); Price Valuation (PV) – "users are responsible for the cost, which can dominate consumer adoption decisions'' (Brown & Venkatesh, 2005) and Habit (HT), for "habit has a direct effect on technology use and habit weakens or limits the strength of the relationship between Behaviour Intention (BI) and technology use". These underlying factors (effects, monetary constraints, and automaticity) are part of UTAUT (Venkatesh et al., 2012). The use of studies centring on UTAUT 2, according to Venkatesh et al. (2012), would lead to an improvement in the "variance explained in behavioural intention from 56 to 74 percent and in technology use from 40 to 52 percent."

Significantly, the theory of UTAUT, as embedded in this study, deals with assessing the e-readiness of the SA informal sector for technology support. *Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Conditions* are variables to be factored into the work. Perceived Usefulness (PU) in TAM is represented by Performance Expectation. Effort Expectancy is identical to Perceived Ease of Use (PEOU) in TAM. Social Influence can be viewed as an environmental barrier, while Facilitating Conditions can be represented by organisational challenges. Gender, Age, Experience and Voluntariness of Use are introduced as moderating indicators to the four key constructs, and Change, Risk, Knowledge and Uncertainty to moderate some key impediments to technology support. The constructs are shown in Table 3.1.

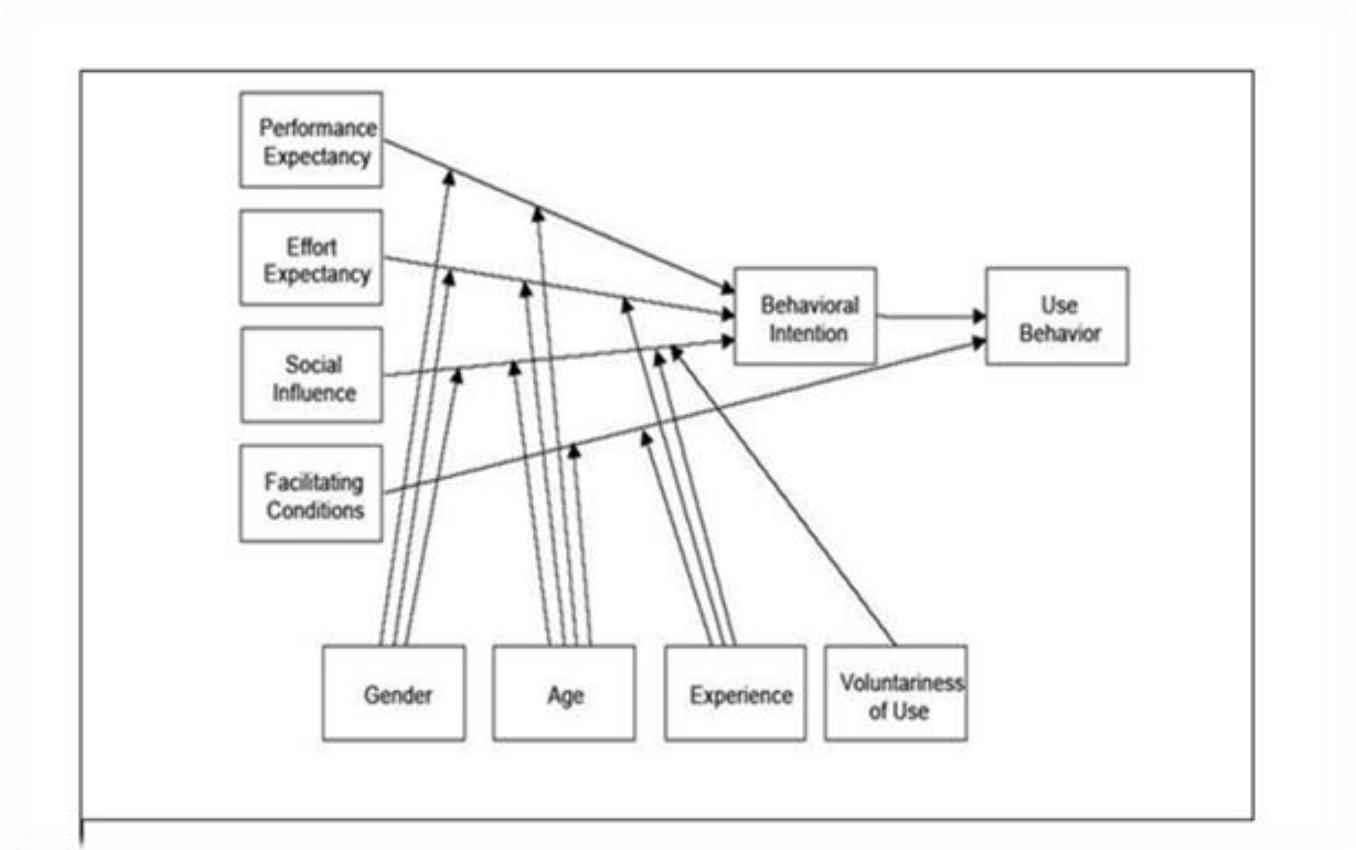

Figure 3.2. The UTAUT model (Venkatesh et al., 2003)

3.4 Technology Readiness Index (TRI)

The technology readiness index (Parasuraman, 2000; Parasuraman & Colby, 2001) measures beliefs individuals have about technology in general or the ability to ascertain people's thinking and beliefs on information systems utilisation. Technology-readiness (TR) represents a person's desire to embrace and utilise fresh innovations for achieving specific objectives in the home, life, and at work (Parasuraman, 2000). The readiness-for-use construct (four dimensions and 36 variables) are divided into accelerating and inhibiting factors for technology adoption (Pires, da Costa-Fillio & da Cunha, 2011).

a) Optimism: the ability to view technology positively and believe that individuals can have a controlled, flexible, and efficient life. Here, the SA informal sector service providers can be motivated to use technology support to control their lives and efficiency in business operations.

b) Innovativeness: the possibility of being a pioneer in the use of technology, a leader or opinionated in the adoption of technology. SA informal service providers are pioneers (being the first among their peers) in new technology adoption/usage (web portal technology).

c) Discomfort: the notion of no control over technology and the perception that one is oppressed by it. Negatively, SA informal sector service providers might have the impression

that the technology support (web-portal) was not designed for the informal sector (because of complexity or can be used for monitoring by the government).

d) Insecurity: not trusting innovative technology and sceptical of the intended use; apart from their inability to properly use technology. Therefore, SA informal sector service providers might be sceptical in using technology support for conducting business online.

Hence, two constructs (innovativeness and optimism) are enhancers, while discomfort and insecurity are inhibitors that may impede the adoption of new technology (Pires, da Costa-Fillio & da Cunha, 2011).

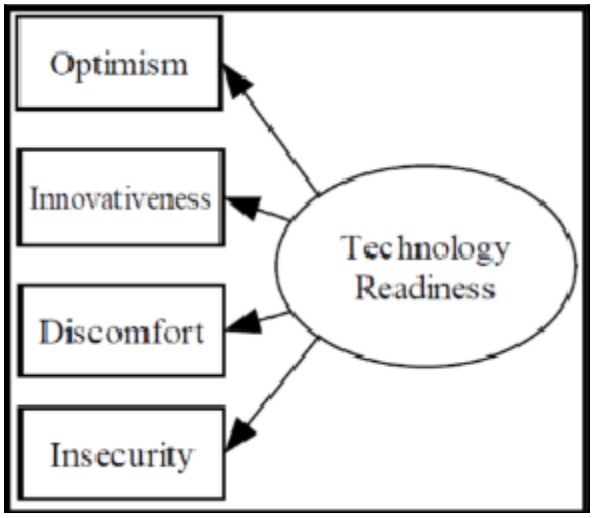

Figure 3.3: Technology Readiness Index Model (Parasuraman, 2000).

3.5 Development of the Conceptual Framework

A careful examination of the models mentioned above (Table 2.7: e-readiness assessment models at the macro-level) indicates that these models apply at the macro-level. However, this research is focused on the e-readiness determination at the micro-level /organisation.

ICT usage (micro-level) has the potential to contribute to the developmental goals of the individual (through education, economic opportunity, health, empowerment, and environmental sustainability) (Beig, Montazer & Chavamifar, 2007). Equally, very few studies in South Africa have been directed at determining the e-readiness of the informal sector to leverage web technology portal support, given the underlining importance of the informal sector in SA socio-economic development.

To answer the main research question, it became imperative to collect relevant, context-specific information on e-readiness and technology adoption and usage. More-so, the critical Research Question raised in the study was:

*RQ: What is the degree of e-readiness of the South African informal sector service providers to utilise an electronic technology portal support**?***

A synthesised conceptual framework was developed. The conceptual framework guided the empirical investigation and provided the structure for evaluating the degree of e-readiness and socio-economic imperatives that can affect web technology portal support.

This framework is designed to help understand what socio-economic factors affect the informal sector providers adapting to a web technology portal support.

The theoretical concepts underpinning IS theories (UTAUT, SET, and TRI) mentioned above become the underlying framework for this research. It stems from subjects such as sociology, psychology, management, and information systems. The synthesised conceptual framework (Figure 3.4 with constructs obtained from Table 3.2) formed the basis for a lens that facilitated the extent of e-readiness of the SA informal sector service providers to a web technology portal support.

Table 3.2: Information Systems Theories and Constructs (Adapted from IS Theories)

S/N	Model/Theory	Theory Constructs	Selected Constructs
1	**SET** (Bandura, 1977; Bandura, 1982 (A model)	Beliefs control actions/behaviours. Motivation controls behaviour; self-efficacy	Self-efficacy Mastery experience, Vicarious experience, Verbal persuasion Physiological information
2	UTAUT (Venkatesh et al., 2003) (IS theory)	Performance expectancy (PE), Effort expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC)	Performance expectancy, Effort expectancy, Social influence, Facilitating conditions
3	**TRI** (Parasuraman, 2000; Parasuraman & Colby, 2001) (A framework)	Optimism, innovativeness, discomfort, insecurity	Optimism, Innovativeness, Discomfort, Insecurity

The conceptual model was developed to show the nexus between IS constructs and the e-readiness of the informal sector service providers.

A construct represents *a conceptual term used to describe a phenomenon of theoretical interest* (Edwards & Bagozzi, 2000:156-157). A construct phenomenon may/may not be observable directly, and, therefore, called latent constructs. Generally, constructs can be measured using indicators (Diamantopolous & Winklhofer, 2001), items (Law et al., 1998) or measures. Observable variables/scores can be collated via self-reports, interviews, observations (Edwards & Bagozzi, 2000:156). Directly, constructs measure real phenomena, though incompletely, the remainder/left-over represent the measurement errors. The measurement model (as a component of SEM) represents the relation between a construct with its measure, bridging measured/observed variables with unobserved/ latent constructs. (Byrne, 2001).

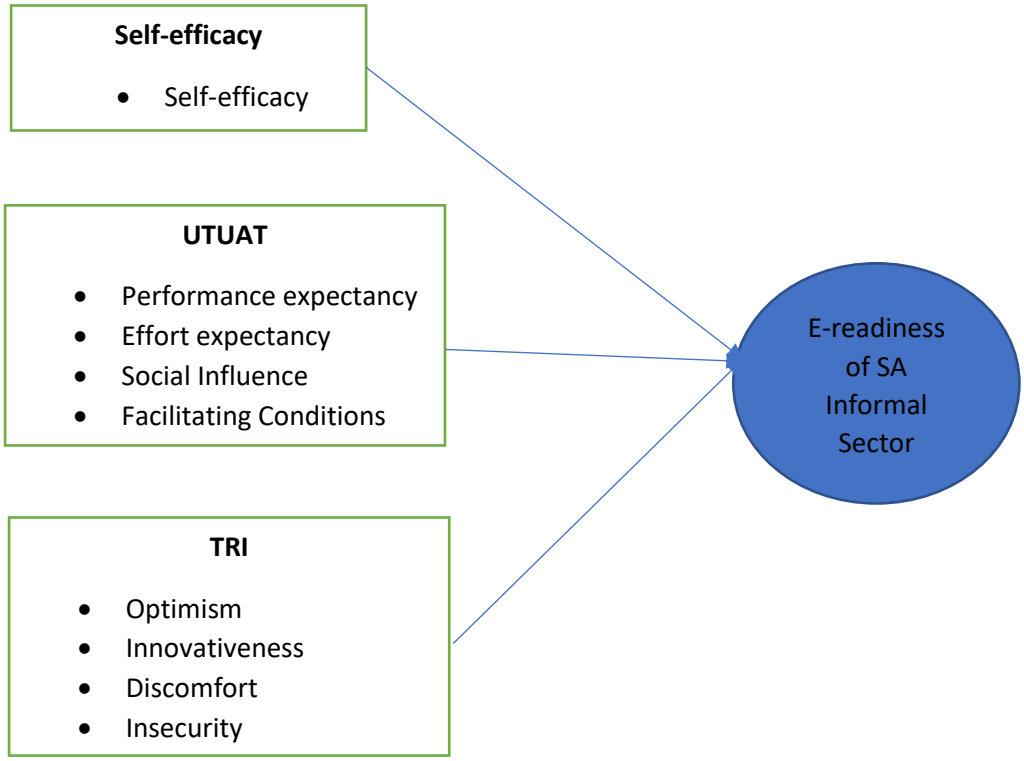

Figure 3. 4: Conceptual Framework for the Study

The constructs used in the study and their description are presented in Table 3.3.

3.6 Hypothesis Development

A hypothesis represents a statement testable by scientific research (McCombes, 2020). Generally, it is a predictive statement tailored to the expectations from any research. In circumstances that research is exploratory (inductive) in nature, then hypotheses can be omitted from such a process. Additionally, a hypothesis can be viewed as an integral part of scientific methodology, forming the foundation of scientific experiments. The hypothesis must be robust and testable with appropriate experimentation (William, 2021). For this to be possible, the hypothesis must be operationalised. The operationality is dependent on constructs (exogenous/endogenous) which are interrelated. The conditions for testability must include the following:

i. The possibility of accepting the hypothesis
ii. Possibility of rejecting the hypothesis because it is false, and
iii. Results must be reproducible

Also, the hypothesis states several predictions to be ascertained by the research (McCombes, 2020) and thus is/are tentatively the answer (s) to the research question (s). In reference to this study, the hypotheses are based on IS theories conceptualised earlier, refuted, or accepted using statistical analytical methods.

Experimental or correlational research includes hypotheses, which are related by two or more variables, an exogenous variable (either controlled or changeable), and an endogenous variable (which is either observable or measurable)

3.6.1 Hypotheses

(a) Self-efficacy theory

An individuals' judgement of abilities to use information systems/technologies under differing conditions (Campeau & Higgins, 1995). Not concerned with acquiring new skills but rather what can be achieved with already acquired skills' (Bandura, 1986:391). The individual variables include:

i. ***Performance accomplishment/mastery experience*** – prior accomplishments or the mastery of something related to the new behaviour in question.
ii. ***Vicarious experience/modelling others*** –acquiring expertise through observation or watching someone /colleague succeed.
iii. ***Social persuasion*** – performance with encouragement from peers/colleagues
iv. ***Physiological and emotional states*** – physiological and emotional states one experiences during the thought process of undertaking the new behaviour.

Table 3.3. Constructs used in this Study

Construct	Source	Description
Internal factors (INFs)		Inherent factors which affect business operation
External factors (EXFs)		Environmental/institutional factors which impede business activities
Self-efficacy (SE)	Self-efficacy Theory	Perceptions of an individual in his/her capabilities to attain the goal in job performance
Performance expectancy (PE)	UTAUT	The concept of a person being receptive to the idea that utilisation of the system/technology will aid him/her in attaining the required job performance
Effort expectancy (EE)	UTAUT	Signifies the degree of ease that comes with acceptance and adoption of a web technology portal
Social Influence (SI)	UTAUT	Signifies the degree/level an individual attaches to the importance others believe he/she should utilise the web technology portal
Facilitating conditions (FC)	UTAUT	Signifies consumers' perceptions of the availability of resources (technical, institutional/governmental support) available for the use of technology
Optimism (OPM)	TRI	A positive opinion about technology and the perception that it enables people to be in control, efficient, and flexible in maintaining a productive life.
Innovativeness (INNO)	TRI	The tendency to be a technology pioneer and a thought leader among peers.
Discomfort (DISC)	TRI	The absence of discipline over technology and a feeling that one is overwhelmed by it
Insecurity (INSEC)	TRI	The skepticism about technology due to lack of trust

H1: Self-efficacy has a positive effect on the use of web technology portal (WTP)

(Q18, Q21) SE →WTP

b) Unified Theory of Acceptance and Use of Technology (UTAUT)

i. Performance expectancy (PE)

H2: Performance expectancy has a positive influence on the use of web technology portal (WTP)

(Q22, Q23, Q24) PE → WTP

ii. Effort expectancy (EE)

H3: Effort expectancy has a positive effect on the use of web technology portal (WTP)

(Q25, Q26, Q27) EE → WTP

iii. Social Influence (SI)

H4: Social influence has a positive influence on the use of web technology portal (WTP)

(Q28, Q29) SI → WTP

iv. Facilitating conditions (FC)

H5: Facilitating conditions has a positive influence on the use of web technology portal (WTP)

(Q30, Q31, Q32, Q33) FC → WTP

c) Technology Readiness Index

v. Optimism (OPM)

H6: Optimism influences users' readiness to use web technology portal (WTP)

(Q41, Q42, Q43) OPM → WTP

vi. Innovativeness (INNO)

H7: Innovativeness influences users' readiness to use web technology portal (WTP)

(Q34, Q35) INNO → WTP

vii. Discomfort (DISC)

H8: Discomfort significantly affects user's readiness to use web technology portal (WTP)

(Q36, Q37, Q38) DISC → WTP

viii. Insecurity (INSEC)

H9: Insecurity significantly affects users' readiness to use web technology portal (WTP)

(Q39, Q40) INSEC → WTP

ix. Internal Factors

H10: Internal factors significantly influence users' readiness to use web technology portal (WTP)

(Q12, Q13, Q14) INTF → WTP

x. External Factors

H11: External factors significantly influence users' readiness to use web technology portal (WTP)

(Q15, Q16, Q17) EXTF → WTP

Web technology portal

Web technology portal (WTP) is operationalised using (Q19, Q20)

3.7 Conceptual Research Model

The conceptual research model was synthesised by utilising several constructs from SET, UTAUT and TRI. (Figure 3:5)

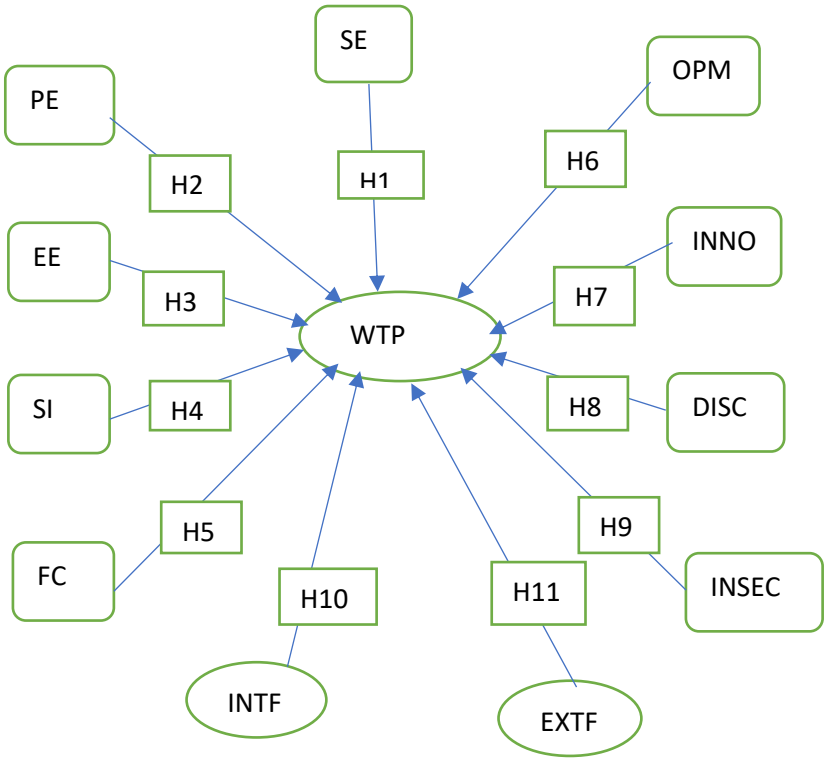

Figure 3.5: Conceptual Research Framework for the Study

Table 3.4: Constructs and Question Items

Construct	Associate Questions
Internal factors (INTF)	Q12, Q13, Q14
External factors (EXF)	Q15, Q16, Q17
Self-efficacy (SE)	Q18, Q21
Performance expectancy (PE)	Q22, Q23, Q24
Effort expectancy (EE)	Q25, Q26, Q27
Social influence (SI)	Q28, Q29
Facilitating conditions (FC)	Q30, Q31, Q32, Q33
Optimism (OPM)	Q41, Q42, Q43
Innovativeness (INNO)	Q34, Q35
Discomfort (DISC)	Q36. Q37, Q38
Insecurity (INSEC)	Q39, Q40

3.7 Perspective on Technocentricism

Technocentricism from a sociological perspective, can be viewed from two important criteria – technological determinism or the social construction of technology (Johnson & Wetmore, 2009). Technological determinism emphasises how technology as an artefact drives history (Marx, 1847; 1963). Hence technological determinism implies that technology should be viewed as the driving force necessary for changes and progression. Social constructivist theories of technology imply how the conceptualisation of technological development is shaped by the imprints of individuals or groups on technological artefacts (Pinch & Bijker, 1987; 2009). Additionally, Hughes (2009) supports the perspective that technology and society are mutually inter-related, and that socio-technological research should explore this dynamism.

Overall, strong, and weak determinists play a critical role in the theories of technological determinism. Strong determinists stance proposes that technological development is devoid of social climatic conditions and concerns. Likewise, any advancing technological development mandates a certain frame of mind and force upon people who use and interact with the technology. This view re-enforces the opinion that our lives are fashioned with the technology we interact with daily, and the outcomes we experience cannot be altered. The weak determinists believe that technology (e.g., the wheel, internal combustion engine, the TV, and the internet) drives societal change

From the above perspectives and the underlying foundational approaches to the use of technology, the research aims to assess the e-readiness of the SA informal service providers for an electronic portal technology support. This incorporates a social context (informal sector service providers) and a technology context (web technology portal). Technological determinism assumes that newer technologies/innovations propel social and historical changes at the macrosocial level (social structures/processes), but more specifically drive profound social/psychological changes at the microsocial level. Hence, technology is viewed as tools/artefacts for solutions to pertinent problems faced by society. Thus, irrespective of the type of innovation, technology determinists (optimistic/pessimistic) agree that it acts as a compelling driving force leading to profound consequences. Apart from the stance of neutrality of technology posited by technological determinists, we are absolved with the notion that we not only use technology but are often used by technology. Technology is presented as autonomous when in fact the use of a particular tool/mediim regularly may influence us in subtle ways

Generally, this thesis does not promote nor subscribe to technocentricism, but that technology is utilised merely as a tool for constructing a holistic solution that is sensitive and relevant to the social context in which the SA informal sector workers are operating. An attempt at assessing the e-readiness of the informal sector service providers, which is the focal point of this study, provides a convincing starting point for achieving this objective.

3.8 Chapter Summary

Chapter three presents an overview of pertinent IS theories used in today's IS research. A discussion of the base models – Self-efficacy theory (SET), Unified theory of acceptance and use of technology (UTAUT), and Technology readiness index (TRI) (framework) as is contextualised for IS studies were provided.

A synthesised conceptual framework from several (IS) theories, with constructs and research hypotheses, were presented. The use of several constructs (from the synthesised conceptual model) was mainly to increase the predictive power of this model in trying to ascertain the degree of e-readiness of the informal service providers to a web technology portal support. The perspective of this thesis on the notion of technocentricism is also presented.

CHAPTER FOUR
RESEARCH METHODOLOGY

Chapter four presents the methodology adopted for this study. It outlines the philosophical stance, adopted research design, strategy, methods for data acquisition, research population, and the research instrument. The data analysis technique is also presented. In the view of Meyers (2009), a research design uniquely represents an overview of the plan, guide, and procedure adhered to in any research to accomplish the research objectives. The methodology is structured after the research onion (Saunders et al., 2007).

4.1 Positivism Research Philosophy

Research philosophy represents the process behind a researcher's thought pattern. It signifies the very basis of any research and involves the pertinent motivation or rationalisation for the choice of strategy, problem development and formulation, collection of data, processing of the collected data, and analytical methods. Social scientists need to understand and defend their beliefs about reality, what information is known, and what appropriate steps can be taken to acquire this knowledge. The understanding of these elements makes up the paradigms of the research. A paradigm is a core belief structured around the theory and assumptions about ontology, epistemology, methodology and methods. Thus, the scientific research paradigm presents a narrative that considers ontological, epistemological, methodological, and methods.

Positivism was adopted as the research philosophy. It states that "the world" can be objectified in a social context. The researcher becomes the analyst operating independently (minimal interactions with participants) and objectively. They are limited to data collection and interpretation. Positivism, as a philosophy, maintains an empirical view regarding the acquisition of knowledge as being solely dependent on the human experience.

Additionally, it is predicated on an atomic, ontological perspective of the world as made up of distinct, observable components/events interacting in a regular, observable, and determinate way (Collins, 2010:38). The researcher is mandated to concentrate on facts deductively accumulated (Growther & Lancaster, 2008). These facts, which are deductively accumulated (form an acceptable body of knowledge), are testable by hypotheses or research questions derived from existing foundational theories. Positivists rely on the scientific approach for acquiring and advancing to ensure validity, confidence, and precision (Cottley, 1998:29). In the same vein, Remenyi and Pather (2004) posit that the positivist paradigm is driven by the presumption of repeatability, reductionism, and reliability. Equally, positivists, consistent with the realist ontology, equate independence and sovereignty to both the researcher and the

researched (Lincoln & Guba, 2000). Anything that threatens independence, such as interference, could question the study's validity. Therefore, the focus of positivism is to provide a logical explanation that is predictive. Consequentially, the body of knowledge generated using the philosophical stance can then be quantified and replicated by standard statistical analysis.

The converse is true of the interpretivist research philosophy. Here, one believes that understanding the social world from existing principles is riddled with several problems. Interpretivists maintain that social phenomena (social world) can be observed and referenced objectively. Additionally, attention is focused on ways that people understand and experience the social world. The fundamental principle behind interpretivism is established on the critical role researchers play in observing the social world. Interpretivist research is driven solely by the interests of the researcher. The interpretivist philosophy uses qualitative analysis over quantitative or statistical analysis for obtaining results. This is the converse of positivism and realism.

4.1.1 Significance of Positivism in this Study

This research aims to assess the level/degree of e-readiness of the South African informal sector service providers for electronic technology portal support.

While it can be stated empirically that no one research methodology is substantially more appropriate than the other (Benbasat et al., 1987), the positivist methodology has been adopted for investigating the degree of e-readiness. This calls for the quantification of the degree/level. This study, however, is theory and data driven. Several hypotheses formulated relative to the synthesised conceptual framework were subjectively and deductively tested statistically to ascertain if they fit the model. The interest and focus were drawing up a body of knowledge from the IS/IT theories given above (sections 3.2 to 3.5), identifying a social phenomenon amenable to observation and quantification. Additionally, positivism focuses on presenting an explanation that is predictive in characteristics. Thus, would the collected data be sufficiently reliable to predict the e-readiness of the informal sector service providers to leverage on a web technology portal support?

4.1.2 Ontology

Simplistically, one's perceptions or perspectives of reality are termed ontology. Ontology is primarily concerned with the question "what is". Paradoxically, physical objects, events, values, and abstract entities (sets of numbers) are all representative aspects of the world's ontology (or inventory).

Ontology is antecedent to all research (Grix, 2004), followed by epistemological and methodological perspectives. Grix (2004:59) opines that ontology and epistemology are the foundations of any research compared to the foundation of a house.

According to Blake (2000), cited in Grix (2004:59), ontology provides information about the essence of social reality, its existence, how it can be characterised, the description of the components or units that constitute it, and how these units interact with one another. Therefore, ontological assumptions are associated with what we believe constitutes reality (Blake, 2000:8).

Therefore, ontology is the nature of our assumptions/convictions about reality (Richards, 2003: 33), what explicit assumptions can be made per this reality, its existence, and what knowledge can be acquired. These ontological questions often lead researchers to inquire whether there is a single, verifiable reality and truth or socially constructed multiple reality. (Patton, 2002:134).

In this context, the ontological stance for this study is objectivism. Objectivism positions social entities to be independent of measurable and quantifiable social actors (Saunders et al., 2009; Orlikkowski & Baroudi, 1991 cited in Tarute &Gutuatis, 2014). Hence, the investigator is to determine the "degree of e-readiness" (an identifiable reality that can be observed and quantified) of the informal sector providers (social context) to leverage web technology portal support (technology context).

4.1.3 Epistemology

Epistemology is a branch of philosophy dealing with the potential origin of knowledge, its possible limitations in the field of study. There are certain assumptions on how best to study the world, and epistemology provides the researcher with the criteria to classify what does and does not constitute the body of knowledge. It is the opposite of ontology. It concentrates on what is acknowledged to be true. Sources of knowledge (intuitive, authoritarian, logical and empirical) could all be integrated into single research, and technically, perceptions/opinions, intuition, reason, or faith all constitute the approach to knowledge acquisition regarding epistemology.

Researchers with better epistemological perspectives can draw up narratives covering debate on objectivity, validity, and generalisability (Patton, 2002:134). Hence, certain epistemological assumptions can be maintained based on ontological beliefs (either explicitly or implicitly). If one singular truth (which is verifiable) is the narrative, "then the knower must be detached" to be able to determine 'how things really work' (Guba & Lincoln, 1994:108).

The study assesses the e-readiness of the South African informal sector providers to leverage web technology portal support. Positivism as a paradigm maintains that social structures provide the foundation for social events and discourse; therefore, reality (as determined by e-readiness) can be identified, observed, and quantified both under a social and technological context.

The theoretical underpinnings embedded in this study define being “e-ready” (at the micro-level) as a person's capability to be strategically positioned to effectively use the opportunities that come with Information and Communication Technology. These perceptions can be determined or assessed at the micro-level, and an aggregate score relative to the degree of e-readiness can be statistically quantified.

In summary, extant literature has provided a positivist lens of a single tangible reality demanding discovery and presented in causal relationships. Therefore, this study is interested in establishing the relationship between exogenous constructs/variables (self-efficacy, performance expectancy, effort expectancy, social influence, facilitating conditions, optimism, innovativeness, discomfort, and insecurity) on the endogenous variable (web technology portal adoption).

4.2 Research Design

The design in this context represents the overall strategy adopted to consolidate the different sections of the work into a sequential, cohort, and logical manner which ensures that the research problem is addressed adequately or forcefully. It lays out the framework (methods and procedures) adopted for collecting, measuring, and analysing data (De Vaus, 2006). It can be articulated that the sole purpose of any design (research) is the assurance that information presented in the study enables one to determine aspects of the research problem logically and unambiguously. Thus, in social science research, the information gathering approach related to the research problem tries to specify the type of evidence for testing a theory, evaluating any programme or assessing and articulating perceptions on any observable phenomenon (Creswell & Creswell, 2018; Gorard, 2013).

The research question (RQ) determines the degree of e-readiness of the SA informal sector providers for web technology portal support. Therefore, a quantitative research design was adopted based on the scientific method of deductive reasoning (because of hypothesis formulation). According to Bhat (2019), aspects dealing with neutrality, reliability, viability, and generalisation were considered during the study. The adopted research design (Figure 4.1) included the articulation of the research question, development of the conceptual framework (from IS theories – Self-efficacy (SET), Unified theory of adoption and use of technology (UTAUT), and Technology readiness index (TRI), hypothesis formulation, questionnaire

design, and data collection after electronic portal artefact demonstration and questionnaire administration. After analyses were made and conclusions reached, the data obtained from this investigation was utilised to either accept or reject the various hypotheses embedded in the research. The research design is presented in Figure 4.1.

4.3 Research Approach

Saunders et al. (2007) posit that a research approach that occupies the second layer of the research onion could be either deductive or inductive. Its selection is dependent on previously made choices, aims of the research, limitations, and personal opinions.

Research approaches can be viewed as representing plans and procedures spanning assumptions and detailed methods for data collection, analysis, and interpretation. It can be taken as the decision-making process informed by the assumptions embedded in the research philosophy, the procedure of inquiry, and defined methodology for data acquisition, analytical processes, and eventual interpretation (De Vaus, 2006). The selection of the approach is informed by the research problem, experiences of the researcher in question, and the audiences.

Hence, there are basically three essential components to any research approach (Maxwell, cited in Sage 2005):

i. Philosophical world view – from epistemological considerations per the paradigm. The chosen philosophy orientates the research approach
ii. Research design – the overall blueprint adopted to help solve the problem by integrating different study elements in a logical, sequential and cohort manner. This is the blueprint, including collection/acquisition, measurement, data analyses, interpretation and outlining the conclusions
iii. The research method is an informed decision on information acquisition from the sample. The chosen method (s) should help address research questions and the hypotheses. The outline should be clear and detailed enough to enable repeatability (Grover, 2015)

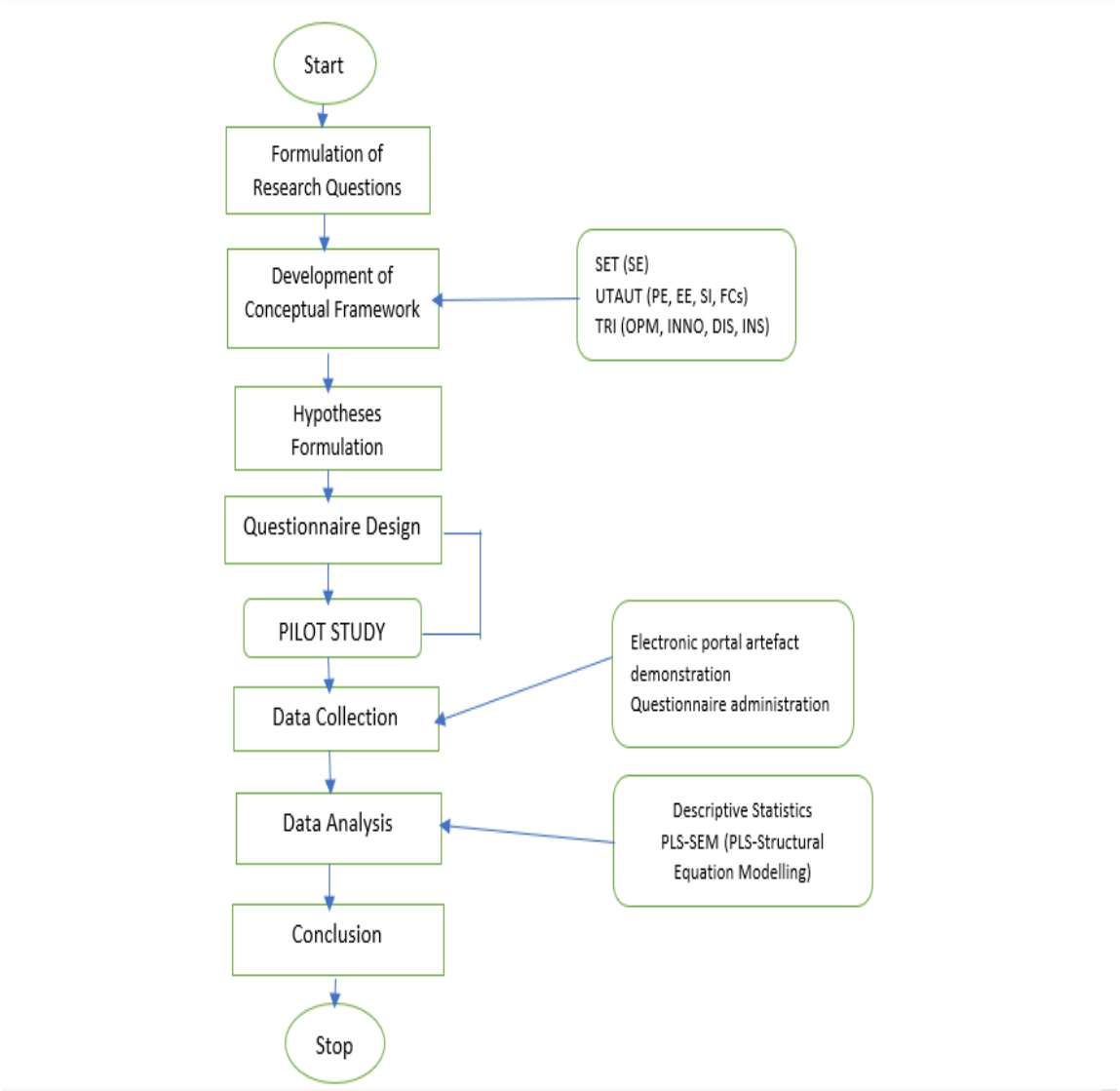

Figure 4.1: The Research Design for the Study

A deductive approach was utilised for this study. It involved formulating hypotheses based on a conceptual framework motivated by existing IS theories (SET, UTAUT, and TRI). Data was collected and analysed to validate these hypotheses.

4.3.1 Justification for a Quantitative Approach

This study adopted a survey strategy. It focused on assessing the degree and factors (external or internal) that acted as impediments or enhancers to SA informal sector service providers leveraging web technology portal support. A sampling procedure was initiated, centred on a

target population's numerical description (trends/opinions/perceptions). A structured questionnaire became the instrument for data collection after demonstrating the electronic portal artefact to the respondents. Ideally, the end game is to generalise the findings from the sample to the general population (Fowler, 2008). Therefore, e-readiness was assumed to be directly related/equated to web technology portal adoption. In summary, see Table 4.1.

Table 4.1: Summary of the Methodology

Type	**Comments**
Philosophy	Positivism
Ontology	Realism/Objectivism
Epistemology	Positivism
Design/strategy	Survey
Approach	Deductive
Methodology	Quantitative
Instrument	Questionnaire

4.4 Research Strategy

According to Saunders et al. (2009), the research strategy can be envisaged as the general plan adopted to elucidate the research questions. Bryman (2008) opined that a research strategy should be thought of as a general orientation necessary for the conduct of the study. In the view of Saunders et al. (2009), the appropriateness of any research strategy is predicated on (a) the research questions and objectives, (b) the constraints of time and resources, and (c) the philosophical stance adopted for the research. In the same vein, Yin (2003b) recommended that the selection of a research strategy should be determined by three conditions: (i) the research questions, (ii) the control level of the investigator over behavioural events, and (iii) the prevalence of historical events.

The strategy adopted for this study is a survey.

4.4.1 Survey Design

A survey strategy represents a technique of elucidating information dealing with opinions, attitudinal tendencies, and characteristics of a large segment of society or group generally called a population (Krosnick, 1999). The overarching importance of the survey strategy is the generalisation of findings obtained from a selected sample to the target population to allow for inferences concerning some form of attitude or characteristics of this study population (Babbie, 1990). The thrust of the measure is the use of a sample of members to score/scale population characteristics by using either a semi-structured or structured set of questions (Creswell,

2009). An array of subjects studied might include communities, groups, organisations, individuals, applications, and projects (Babbie, 1990; Berg, 2004). Surveys are inherently and predominantly quantitative methods.

The purpose of a survey design selection might include efficiency, providing unbiased representation when correct sampling procedures are introduced and employed, the availability of a large sample, and straightforward questions. Also, the propensity for administration, either via paper or electronically, to reach many individuals within a short time and minimal intervention increases its appeal (Creswell, 2013; Fink, 2012). Respondents' need to be literate to understand the questions and the need for ethical considerations restrict its applicability (Fink, 2012).

The study employed a stratified random sampling technique (collecting data from groups at a time). A questionnaire (as an instrument) was self-developed, and a pilot study was conducted in the Cape Town metropolis. Steps were taken for a reliability/internal consistency test (using Cronbach's alpha results as a guide). The instrument was divided into sections covering demographics, factors affecting daily operational activities of the informal service providers, and the core section on e-readiness for web technology portal adoption (a Likert scale on a 5 – point scores of 1= strongly disagree, 2 = disagree, 3=neutral, 4= agree, and 5=strongly agree formed part of the questionnaire). These questions were developed based on the literature review.

4.5 Ethical Considerations

It was necessary to obtain ethical approval from the Cape Peninsula University of Technology in line with the research integrity of CPUT. The Unit of Research Integrity promotes ethos and culture of research ethics by monitoring all proposals, performances, reporting, teaching, and reviewing research conducted in the University.

Ethics is often considered an important aspect of any research and includes philosophical considerations dealing with the dynamics behind what can be considered ethical in research (Fouka & Mantzarou 2011). Scientifically, any research undertaken deals with persons, groups, communities, and social values (Fouka & Mantzarou 2011). Thus, ethics affords the protection of the subject (Fouka & Mantzarou 2011) and the publication of accurate information from the findings.

Great care was taken in aspects covering informed consent, beneficence (no harm to the respondents), respect for anonymity and confidentiality, privacy (non-inclusion of names, addresses, or forms of identification), and the publication of information pertinent to the

research for the respondents' benefit. These respondents' names were not required in their responses, but consent was obtained through their signatures.

Intrinsically, harm to the participants might come from:

i. Physical harm
ii. Harm from psychological discomfort and stress
iii. Social disadvantage
iv. Negative financial status
v. Invasion of the privacy and anonymity of the respondent

To mitigate the risk of causing harm: (a) informed consent of each participant was obtained through their signature on the questionnaire, and (b) participants had the right to disengage their participation at any time during the study.

All collected information (as data) from respondents was stored in the Cape Peninsula University's Repository. The ethics approval form for the study is presented in Appendix E.

4.6 Analysis of Data

The steps taken for data analysis by using a Structur4al Equation Modelling (SEM) are outlined below.

4.6.1 Structural Equation Modelling

The imperative for utilising structural equation modelling (SEM) rest solely on the fact that SEM is suitable for testing of theory or theory development, as well as being an excellent statistical analytical tool for variable determination (unobservable/latent variables), which might be of interest to the investigator (Washington, Karlaftis & Mannering, 2003). SEM is important and relevant in this research because the overarching variable of importance (web portal technology support adoption by the informal sector service providers) is latently, quantifiable only through perceptions/opinions, and behavioural variables.

Information Systems (IS) holistically assesses socioeconomic structures characterised by the relationships between systems hardware and software on one side of the spectrum, and on the other side, groups, individuals, and organisations. Technology adoption, utilisation, and its eventual success are issues embedded in IS research. Their analyses mandate the scrutinisation of constructs (the beliefs, opinions, motives, attitudinal tendency, and judgement) of the individual being investigated (Urbach & Ahlemann, 2010). Technically and operationally, constructs are typically modelled as unobserved variables (Latent Variables), measured by introducing a set of indicators. Thus, structural equation models are employed to outline the relation between LVs. Algorithms and software programmes have been

developed to estimate their relation based on datasets. Presently, partial least squares (PLS) algorithm increasingly tends to be the norm in IS/IT research, in marketing (Albers, 2010; Henseler et al., 2009), and management (Hullard, 1999).

The introduction and beginnings of structural equation modelling with underlying latent variables have contributed immensely to the nature and thrust of research in many disciplines. Jȍreskog (1967) presented maximum likelihood (ML) factor analysis and subsequent reworking to estimate structural equation systems. From this approach, Jȍreskog (1972) has transformed SEM into a versatile tool for empirical research. Its applications have been extended to various subjects such as psychology (MacCallum & Austin, 2000), management (Williams et al., 2003), marketing (Baumgartner & Pieters, 2003), and IS/IT (Urbach & Ahlemann, 2010). Presently, there are two approaches to analytical utilisation of SEM, structural equation modelling that is covariance-based – Structural Equation Modelling (CB-SEM) and the Partial Least Squares – Structural Equation Modelling (PLS-SEM), which is variance-based. The (CB-SEM) approach uses software such as LISREL, AMOS and EQS

Generally, covariance-based SEM focuses on estimating model parameters (as a set), implying that the theoretical covariance matrix, which forms part of the structural model equation, is very close to an approximated empirical covariance matrix observable within the model fit. In circumstances that the Maximum Likelihood (ML) is used as the fit, then a set of presumptions or inferences must be met in the estimation. This includes observed estimators (must exhibit multivariate normal distribution) and presumably a large or sufficient sample size. When these inferences are not met, PLS-SEM should be a viable option for analytical research (Hair et al., 2006; Wold, 1975; Peng & Lia, 2012). Table 4.2 shows the differences between PLS-SEM and CB-SEM. Unlike CB-SEM, PLS-SEM analytical research is not encumbered by distributional assumptions (Wold, 1975). It can also be adaptable to smaller sample sizes (Tenenhaus et al., 2005a; 2005b), resulting in model fits that are both accurate and robust.

Structural equation modelling (SEM) is composed of different analytical techniques, including confirmatory factor analysis (CFA), modelling (causal) with latent variables, analysis of variance, path analysis, together with multiple linear regression. SEM could be an extension of the general linear model (GLM) and an enabler allowing the researcher to examine a set of regression equations simultaneously. SEM software can run traditional models but equally analyse more complex relationships such as CFA and time series analysis (Hoyle, 2011; Kline, 2005; 2011; Byrne, 2013).

Although most structural equation modelling exercises tend to utilise CB-SEM, generally PLS-SEM can be used alternatively if the problem attempted, shows the following characteristics (Chin, 1998; Chin & Dibbern, 2007):

i. The paradox of interest to be examined is new, and the development of a measurement model is the goal
ii. The structural equation model is complex, consisting of several latent and indicator variables
iii. An interdependence between latent and indicator variables modelled in formative and reflective measurement models
iv. Conditionality of sample size, independence, or normal distribution is not satisfied
v. Predictive, rather than parameter estimates, seems to be more important

Although in retrospect, PLS-SEM is more accommodating, CB-SEM has attained wider applicability because of the goodness of fit (GoF) metrics, more appropriate parameter accuracy, and acceptable methods for the model validation process, which tend to be more rigorous (Henseler & Fassott, 2010). Although PLS-SEM can perform favourably considering its distribution-free characteristics, CB-SEM comparatively has its distribution-free model fitting. (Asymptotic distribution-free fitting - ADF). Fortunately, PLS-SEM and CB-SEM do have advantages as well as disadvantages, qualifying both for specific settings (Mohd Jamil, 2012; Urbach & Alhemann, 2010).

Table 4.2: Differences between PLS-SEM and CB-SEM (Chin & Newsted, 1999)

Criteria	**PLS-SEM**	**CB-SEM**
Goal/ Objective	Tailored toward predictive study	Tailored to parameter-based analysis
Type of Analysis	Variance-based	Covariance-based
Important Assumption	Non-parametric	Parametric based on independent observations (which must have multivariate normal distribution)
Estimation of parameters	Consistency at large (preferably increase in indicators and sample size)	Consistent
Scores for Unobserved variable	Provides explicit estimates	Indeterminate
Epistemic relationship (between Latent Variables (LVs) and its measure)	Modelled in formative or reflective model	Generally, with reflective indicators, however formative the mode, can be supported
Pertinent implications	Good for predictive accuracy determination	Good for parametric accuracy assessment
Model complexity	Largely complex (for 100 / 1000 indicators)	Smaller to moderate complexity (<100 indicators)

Required sample size	Power analysis tailored to the model having the largest number of indicators (minimum from 30 to 100 cases)	Power analysis tailored to models which are specific (minimum range from 200 to 800 recommended)
Optimisation	Iterative locally	Iterative globally
Significance tests	Use of restrictive validity	Available
Global Goodness of Fit (GoF) metrics	These are presently being developed	Estimations of GoF metrics presently available

PLS-SEM applications in (IS/IT as a discipline) can examine media conditions and group cohesion on the social presence (Yoo & Alavi, 2001), task participation, or assess group consensus. Inherently, the limitation of large sample size availability was the driver to using PLS-SEM against CB-SEM tools (AMOS and LISREL). Likewise, Miranda and Saunders (2003) used PLS-SEM in assessing an alternative function to information sharing because it was not sample-size sensitive. Also, during the investigation of psychological contract violation (PVC) in the online marketplace, Pavlou and Gefen (2005) adopted the PLS-SEM approach due to its perceived ability in dealing with complex relationships. Likewise, Komiak & Benbasat (2006) chose PLS-SEM over CB-SEM to assess perceived personalisation and familiarity on emotional trust. This was centred on theory development, not theory testing.

Also, an assessment of the assimilation of enterprise systems within organisations as a theoretical model by Liang et al. (2007) became the foundation for other advanced models. Embedded in this research model were reflective and formative constructs and small sample size. PLS-SEM instead of CB-SEM was chosen for data analysis. Another model, as posited by Choudhury & Karahanna (2008), for the appraisal of understanding of choices for consumer channels as a function of vendor selection, determination, purchase, and after-sales services, was tested with PLS-SEM. The tested model with embedded formative constructs was predicated on PLS-SEM analysis and not on CB-SEM, which unfortunately cannot handle these types of constructs.

The steps involved in SEM analysis includes:

i. Model specification based on acceptable theoretical foundations
ii. Determination of the pathway for the measurement of the constructs
iii. Data collation
iv. Data imputing into the SEM software
v. SEM software carries out a model fit for the specified model chosen
vi. Result presentation (fit statistics and estimates of parameters)

Usually, inputted data has a covariance matrix of variables previously measured (scores of surveyed items). In other circumstances, correlation matrices, covariances matrices and means can also be imputed. The initial step is to provide raw data to the software package, which converts these into covariances and means for further use. The results, which comprise indices of model fit, estimates of parameters, standard errors, and test statistics for each variable contained in the adapted theoretical model, will be part of the output.

In ascertaining any anomaly/paradox of interest, a “measurement model” as part of a bigger network shows pertinent dependent relations between constructs. These constructs become relevant to the understanding of the phenomena of interest. This larger model is called the “Path Diagram/Structural Model," generally composed of endogenous and exogenous constructs. Exogenous construct is an “independent variable acting as a predictor/ or cause only for constructs” which form sections/units of the model (Gefen et al., 2000:67), inherently leading to differences in validations of other constructs in the model. On the other hand, endogenous constructs can be viewed as “dependent on other variables (Gefen et al., 2000:67) in one causal relationship”.

This study utilised the partial least squares structural equation modelling (PLS-SEM) to analyse the collected data.

4.6.2 Assumptions of Structural Equation Modelling

Structural Equation Modelling (SEM) makes important pertinent assumptions to enhance the operational abilities of regression equations both at the measurement model and the structural model section. According to Bayram (2013), these assumptions include the following:

i. Observed variables are expected to have multivariate normality
ii. Latent variables must have a multivariate normal distribution
iii. Linearity
iv. Absence of outliers

Multiple measurements

v. No multicollinearity
vi. Large sample size
vii. No correlation between error terms

4.6.3 Structural Equation Modelling Characterisation

There are four types of SEM: path analysis, confirmatory factor analysis model, structural regression model, and latent change model.

a) Path Analysis

Path analysis represents models established only with observed variables. This forms the basis of SEM. Initially advanced by biometrician Sewall Wright (Taskin & Akat, 2010), path analysis is related to multiple regression but inherently superior to multiple regression. Uniquely peculiar to regression is the presence of one dependable variable. Path analysis can work with more than one dependent variable and have both an endogenous and an exogenous variable (Civelek, 2018). Notably, path analysis has more than one regression model, which often can be analysed concurrently while measuring the indirect and direct effects.

b) Confirmatory Factor Analysis:

The best-known approach to assessing the interplay among data sets comprising observed and LVs is through factor analysis. This affords researchers the ability/means to gather information relative to the observed and latent variables (constructs/factors). Factor analysis is both exploratory and confirmatory. In exploratory factor analysis (EFA), observable constructs/factors can be loaded to a factor or on multiple factors (Civelek, 2018). Comparatively, in confirmatory factor analysis (CFA), a fixed theoretical factor structure is proven by the existing data set because the loading of factors on observable variables is predetermined. Using EFA, latent variables can be ascertained from observable variables, while CFA confirms discovered scales with the collated data.

c) Structural Regression Models

The solution to the regression models (between latent variables) combines measurement and structural models. The coexistence of CFA and multiple regression analysis enables more accurate results for the analytical process. Measurement/residual errors as part of both the measurement model and structural model acting in consonance can be determined, leading to more accurate results (Civelek, 2018)

d) Latent Change Models

“Latent change models”/ “latent growth curve models”/ or “latent curve analysis” is used to ascertain longitudinal variations as a function of time (Raykov & Marcoulides, 2006). These models can assist researchers in explaining the growth or decay of any event over time (Dogan, 2015) and similarities and dissimilarities within and between units. It is essential to carry out repeated measurements as a function of time to be able to utilise the latent growth curve models. Such generated data are referred to as longitudinal data/ or vertically cross-sectional data (Civelek, 2018).

4.7 Partial Least Squares Structural Equation Modelling (PLS-SEM)

Structural equation modelling (SEM) represents a family of statistical techniques increasingly employed in disciplines (such as strategic marketing/business, social sciences, and information technology/information systems). Its inherent ability to be applied for modelling latent variables in cognisance of measurement and residual errors and to test several theories increases its potential to handle several research questions.

Classification of SEM into covariance- and variance-based SEM has been the trend for several years now. Firstly, the covariance-based SEM, using the empirical variance-covariance matrix (for model parameter estimates), is preferred if one or more common factors/constructs are embedded within the hypothesised model. Secondly, the variance-based SEM initially evaluates the constructs/factors and then creates proxies (observable variables as combinations), followed by model parameter estimates using these proxies. When the hypothesised model has composites, then the preferred option is variance-based SEM.

Within the suite of variance-based SEM analytics, partial least square (PLS) path modelling, according to McDonald (1996:240), should be accepted as a fully developed and general system, referenced as “a silver bullet” (Hair et al., 2011). It finds wider applicability in IS research (Marcoulides & Saunders, 2006). Its versatility across disciplines lies in its capability to model (by employing factors and composites), increasing its use in innovation research and IS/IT research (Marcoulides & Saunders, 2006). Generally, composites are used to model concepts (Hook & Lowgren, 2012) ranging from dealing with artefacts (part of management instruments), newer innovations, IT/Information Systems (Henseler, Hubona, & Ray, 2016).

Recent discussions on PLS-SEM have centred on conceptual supporting structures (Rigdon, 2012; 2014; Sarstedt et al., 2014), weaknesses and inherent strengths (Ronkko & Evermann, 2013; Henseler et al., 2014; Rigdon et al., 2014). Substantial improvements came from these deliberations to further PLS as a statistical tool. These ranged from bootstrap-based tests for model fit (Dijkstra & Henseler, 2015a), consistent PLS (PLSc) for factor model estimation (Dijkstra & Henseler, 2015b), to heterotrait-monotrait ratio of correlations (HTMT) acting as a newer form of criterion for determining discriminant validity (Henseler et al., 2015).

Advantageously, Benitez et al. (2020) opine that using partial least square path modelling PLS-PM, structural equation modelling can determine linear, non-linear, recursive, and non-recursive structural models (Dijkstra & Schermelleh-Engel, 2014; Dijkstra & Henseler, 2015b). Importantly, its ability to analyse models embodying emergent and latent variables (Dijkstra & Henseler, 2015), second-order emergent variables (Van Riel et al., 2017) and ordinal categorical indicators (Schuberth et al., 2018) deal with measurement errors (correlated) as part of a block of indicators (Rademaker et al., n.d.), and address multicollinearity in constructs

within the structural model (Jung & Park, 2018) increases its applicability. Furthermore, it can be utilised for comparing multiple groups (Sarstedt et al., 2011), determining endogeneity (Hult et al., 2018), and finally, performing map analysis representing results on the structural model (Ringle & Sarstedt, 2016). See Table 4.3

Table 4.3: Assessment of PLS Path Modelling for Explanatory Research (Henseler et al., 2016)

S/N	Assessment	Criterion
1	**Overall model**	
	Test of model fit (estimated model)	SRMR, <95% bootstrap quartile (H195 of SRMR) d_{ULS} < 95% bootstrap quartile (H195 of d_{ULS}) d_G < 85% bootstrap quartile (H185 of d_G)
	Approximate model fit (estimated model)	SRMR < 0.08
2	**Measurement model**	
	Confirmatory composite and/or factor analysis (saturated model)	SRMR <95% bootstrap quantile (H195 of SRMR) d_{ULS} <95% bootstrap quantile (H195 of d_{ULS}) d_G < 95% bootstrap quantile (H195 of d_G)
	Approximate model fit (saturated model)	SRMR < 0.08
	Internal consistency reliability	Dijkstra-Henseler's p_A > 0.7 Dillon-Goldstein's *p*c > 0.7 Cronbach's alpha > 0.7
	Convergent validity	AVE > 0.5
	Discriminant validity	HTMT is significantly smaller than 1 Fornell-Larcker criterion Loading exceeds cross-loading
3	**Structural model**	
	Endogenous variables	R^2, adjusted R^2
	Direct effects	Path coefficient (absolute size, sign) Significance (p-value, confidence interval) Effect size
	Indirect effects	Coefficient (absolute size, sign) Significance (p-value, confidence interval
	Total effects	Coefficient (absolute size, sign) Significance (p-value, confidence interval)

4.7.1 Rule of Thumb guiding the Use of PLS-SEM or CB-SEM

The rationale for selecting either PLS-SEM or CB-SEM is based on the assumptions and the strength of either method. The reasons for utilising either PLS-SEM or CB-SEM is based on guiding research objectives, type specifics of the measurement model, the intended modelling of the structural model, dataset characteristics, and model evaluation (Hair et al., 2011). These rules include the following:

(i) The objective for conducting the investigation. CB-SEM can be employed when the research objective is the testing/confirmation of an existing theory. The process of testing an existing theory involves the ability of the researcher to demonstrate how well the collected/observed dataset fits the theoretical model (Barclay et al., 1995). The inherent strength of CB-SEM is for modelling when the primary objective is the maximisation of the covariance matrix. Comparatively, PLS-SEM is suitable for the prediction and development of theory. The modelling here is specifically intended to focus on identifying the predictive relationships between variables. This is achieved by maximising the amount of covariance existing between latent/unobserved variables, thus enhancing the interpretation of the model (Sosik et al., 2009).

(ii) CB-SEM is mostly applied to research models that focus on reflective constructs. Attempts to include formative constructs often lead to identification problems (Henseler et al., 2009; Chin, 1998b). On the other hand, PLS-SEM can handle formative and reflective constructs within the research model (Chin, 1998b). This potential allows researchers to utilize either formative, reflective or a combination of both constructs in one analysis.

(iii) The utilisation of CB-SEM can only be possible after meeting certain criteria. The assumptions before the commencement of any analysis include i) data multivariate normality, ii) observed independence, and iii) variable matric uniformity (Sosik et al., 2009). A large sample size and a normally distributed dataset must be satisfied before using CB-SEM. Without adherence to these assumptions, any results obtained after CB-SEM analysis are questionable (Hair et al., 2011). Comparatively, PLS-SEM is more robust, and can handle non-normally distributed datasets. Data normality is not an important criterion because the PLS-SEM algorithm utilises standardised mechanisms for the transformation of non-normally distributed data into datasets that adhere to the central limit theorem (Beebe, et al., 1998).

(iv) The relative strength of PLS-SEM depends on its main objective, — testing and /or predicting the theoretical model based on literature and not on any other alternative

model that fits the data (Sosik et al., 2009). The residuals on unobserved and manifest variables happen to be correlated properly in PLS-SEM allowing PLS to "estimate" (Falk & Miller, 1992:10).

4.7.2 Assessment of Measurement and Structural Models with PLS-SEM

The conceptual research model used for this study was assessed by estimating the measurement model and (2) the structural model. Hence, the overall purpose of model validation was to examine whether both the measurement and the structural model do meet quality assurance for empirical research (Urbach & Ahlemann, 2010).

The steps taken for the determination of the measurement and structural models employed in this investigation are outlined below:

4.7.3 Measurement Model

This represents part of the model utilised to examine the relationships between latent constructs and their respective measures. Testing the measurement model requires that one saturates the structural model by allowing all the latent constructs to correlate. Any misfit is shown in the measurement model. According to literature, the assessment of the measurement model is to utilise internal consistency, indicator reliability, convergent validity, and discriminant validity (Lewis et al., 2005, Straub et al., 2004).

(i) Internal Consistency

In most research and statistical analysis, internal consistency (or internal consistency reliability) signifies the extent that a measure based on correlational relationships between different measures/items on a similar test (or in terms of a larger test, the same subscales), within the research instrument determines several aspects of the constructs. Thus, what is the likelihood that several items adapted for the measure for the general constructs yield similar scores/ or numbers during each administration, irrespective of the circumstances and conditionality (Hays & Revicki, 2005)?

Generally, internal consistency reliability for any measurement model is assessed using Cronbach's alpha (CA). Cronbach (1971) posits that constructs with higher Cronbach's alpha values/scores (>0.70) indicate that the items embedded in the constructs/variables exhibit a similar range and meanings. In PLS, internal consistency can also be assessed by utilising component reliability (Chin, 1998b). It is inherently possible to employ both Cronbach's alpha values and composite reliability for internal consistency; however, composite reliability assumes that measurement indicators could exhibit different loading criteria. Werts et al., (1974), posit that Cronbach's alpha can underestimate internal consistency reliability, where

equivalence is not assumed among the measures, but rather considers all indicators to be weighted equally. Cronbach's value of 0.8 to 0.9 are not uncommon, and values below 0.6 are indicators of the absence of consistency (Nunnally & Bernstein, 1994). Composite reliability/Cronbach's alpha of 0.6 to 0.7 is acceptable, and greater than 0.7 in more advanced research (Hair et al., 2014). However, values (> 0.9 are not desirable, while those greater than 0.95 are out of the question) (Nunnally & Bernstein, 1994).

(ii) Indicator Reliability

The rationale for determining indicator reliability is to assess the extent to which a construct/or a set of constructs consistently measure what it is intended to measure (Urbach & Ahlemann, 2010). Indicator reliability technically is obtained from squares of outer loadings in reflective constructs, and in agglomeration, they produce a sufficient measure of the measurement model. This describes the relation between the latent constructs and their respective measures. It is interesting to observe that the reliability of any construct is independent with distinct calculated scores from other researched constructs. A significance level of at least 0.05 is recommended for indicator loadings with loadings of 0.7 (Chin, 1998b). In circumstances that the outer loadings are between 0.40 and 0.70, its removal should be given attention if it contributes to an expected increase in composite reliability or average variance extracted (AVE) (Hair et al., 2014). However, indicators below 0.40 for the outer loadings should always be deleted (Hair et al., 2011; Hulland, 1999). There is no consensus on the acceptable value, for authors such as (Truong & McColl, 2011) and Hulland, (1999) propose acceptable factor loading of above 0.5 for better determinations, but Chen and Tsai (2007) proffer the cut-off point of 0.5. Recently, Hair et al., (2010) proposed factor loadings to range from 0.5 to 0.7.

Bootstrapping or resampling techniques are used to determine the significance of indicator loadings. Care should be exercised when one decides to eliminate an indicator because of the compelling characteristics of PLS. To be safe, indictors should only be eliminated when their reliability is low. Composite reliability is greatly enhanced during this procedure (Henseler et al., 2009).

(iii) Convergent Validity

Convergent validity (CV) is used to assess the agreement of the measure with to the level of correlation of multiple indicators of the same construct. Or according to Urbach and Ahlemann (2010), CV reflects the degree of convergence of individual constructs compared to other items that measure different constructs. Convergent validity is established when one considers the factor loading of the indicator, its composite reliability (CR) and the average variance extracted (AVE) (Hair et al., 2014). AVE range from 0 to 1. AVE values for constructs

should be at least 0.5 (Fornell & Larcker, 1981; Bagozzi & Yi, 1988; Henseler et al., 2009; Hair et al., 2014) for adequate Convergent Validity.

(iv) Discriminant Validity

Discriminant validity (DV) is represented when there is evidence that measures of constructs are unrelated to each other, contrary to what theory stipulates. Hence, discriminant validity differentiates one construct measure from another (Urbach & Ahlemann, 2010), and might provide a measure of differences of constructs that overlap (Hair et al., 2014) In unique difference from convergent validity, discriminant validity assesses whether items unintentionally determine something else in respect of the intended construct. Two procedures, (a) cross-loading (Chin, 1998b), and (b) Fornell-Larcker's criterion (Fornell & Larcker, 1981), are utilised to measure DV in PLS. Notably, discriminant validity coefficients should be smaller in values than convergent validity coefficients.

The employment of these two methods in the assessment of DV is supported by several authors, who are of the notion that variance extracted estimates generally ought to be larger than the squares of the correlation estimate (Hair et al., 2012; Sinkovics, 2009; Bollen & Diamantopoulos, 2017; Bagozzi & Yi, 1988).

When Fornell-Larcker's criterion is used, a latent variable/construct must share more variance with its indicators (assigned) than with another latent construct. Thus, this technique compares the square root of the average variance extracted (AVE) with the correlation of the latent constructs. The requirement is that a latent variable should be able to effectively explain the variance per its indicator than the variance of another construct. Therefore, according to Hair et al., (2014), the square root of the AVE of each construct should be larger than correlations of other latent constructs.

Lately, several researchers have suggested using Heterotrait-Monotrait ratio of correlation (HTMT) to assess of discriminant validity (Henseler et al., 2015). HTMT, on the other hand, can achieve higher specificity and sensitivity rates compared to cross-loading and Fornell-Larcker criterion. Findings of HTMT results having values significantly lower than 0.85, indicate the absence of discriminant validity issues/problems and imply that the HTMT criterion could not detect aspects of collinearity among the latent constructs (Henseler et al., 2015).

In this study, the measurement model's validity was considered acceptable/satisfactory when:

a) Composite reliability is larger than 0.70 (except for external factors, which was 0.42)
b) Item's loading factor is greater than 0.50 at the significant level of 0.05
c) AVE value for each construct is greater than 0.5 (except for external factors, 0.34)

d) Item's loading factor on each indicator is greater for its corresponding designated construct, and
e) The square root of the AVE of each construct exceeded the correlations between the construct and other constructs contained within the model.

Table 4.4: Validity Guidelines for the Assessment of Reflective Measurement Model (Literature)

	Validity Type	**Guidelines**
1	Internal Consistency	CR> 0.7 (exploratory analysis) CR > 0.8 (for more advanced research); CR < absence of reliability
2	Indicator reliability	Items' loading >0.7 and considered significant at the 0.05 level
3	Convergent validity	AVE > 0.50
4	Discriminant validity	Cross loading: item's loading of each indicator is greatest for its designated construct The square root of AVE of any construct > than the correlations between the construct and other constructs in the mode (Fornell & Larcker, 1981)

4.7.4 The Structural Model

The structural model can estimate the relationships between latent constructs, test the overall model together with individual paths, and model individual disturbances. During statistical analysis, the structural model can only be determined after the elucidation of the measurement model has been achieved successfully. Validation of the structural model provides the premise for determining whether the hypotheses are supported by the dataset (Urbach & Ahlemann, 2010). The reliability and validity of the measurement model is a precursor to the elucidation of the inner model, and then steps taken to determine the hypothesised relationships existing in the structural model. This feature of PLS-SEM as opposed to CB-SEM, mandates that the model utilises data for parameters that can best predict the dependable/endogenous constructs. In the case of CB-SEM, parameters are determined by minimising the difference between the observed covariance matrix (sample) and the covariance matrix estimated by the model (Hair et al., 2014). Following this conditionality, PLS-SEM analytical techniques are devoid of established ***goodness-of-fit statistic (NFI, chi-square, SRMR),*** and attempts at providing counter measures have been problematic (Henseler & Sarstedt, 2013). However, inner model quality assessment is best achieved on how the endogenous constructs can be predicted accurately.

The employment of PLS algorithm enables the evaluation of the structural model using the coefficient of determination (R^2) and path coefficients. The starting point is the utilisation of coefficient of determination (R^2) of path coefficients to evaluate endogenous latent variables. This provides a measure of the relationship of any construct with its corresponding variance to the total variance. Hence, R^2 represents a measure of the model's predictive accuracy /or R^2 (ranging from 0 to 1—highly complete) provides a metric for a combined effect of exogenous constructs on endogenous constructs. Chin (1998b) posits that critical values for (R^2) around 0.67 is substantial; about 0.333 (is average), and 0.19 or lower should be considered as low. Hair et al., (2014) suggested 0.75 (substantial), 0.50 (moderate) and 0.25 (weak). Overall, it is advisable not to rely solely on R^2 values, but rather on adjusted (R^2) values when additional constructs are introduced into the research model (Hair et al., 2014).

(i) Cross-validated Redundancy (Q^2)

This is employed for assessing the predictive relevance of the inner model. This metric revolves around the sample re-use technique (parts of the data matrix are omitted), followed by estimates of model parameters, while predicting the omitted parts by utilising the estimates. The lower the disparity between (predicted and original) values, the greater the model's predictive propensity, hence the greater Q^2. The rule of thumb is:

when $Q^2 > 0$, for any endogenous construct, then a model's path predictive relevance is achieved for that construct. It should be noted that Q^2 values greater than 0, only are indicative of predictive relevance for the endogenous construct but do not provide the quality of the prediction (Rigdon, 2014; Sarstedt et al., 2014).

(ii) Path Coefficient

PLS algorithm provides path coefficient estimates (hypothesised relations for linking endogenous/exogenous constructs. The standardised path coefficient values range from -1 (strongly negative) to +1 (strongly positive) relationships. To examine the existing relationships between two latent constructs, the investigator should note the path coefficients, their algebraic signs, magnitude, and significance (*p* values). Helm et al (2009) posit that values close to either -1 or +1 are bound to be statistically significant: - the use of bootstrapping introduces elements of standard error for ascertaining significance. Additionally, for drastic impact, path coefficients should be greater than 0.100 and be significant at $p = 0.05$ significance level (Huber et al., 2007).

(iii) Effect Size (f^2)

The effect size for each path model is elucidated by calculating Cohen's f^2. The computation of f^2 is possible by evaluating changes in R^2 with the elimination of a specific construct from the model. Two PLS path models must be estimated. (a) calculate the path model for the full model with specified hypotheses, yielding R^2 (i.e., R^2 included), (b) estimate the second model excluding selected independent/exogenous variables (R^2 excluded). Thus:

$$f2 = \frac{R2\ included - R2\ excluded}{1 - R2\ includedx} \qquad (4.2)$$

Based on f^2 values, Cohen (1998) stipulated 0.02 (small); 0.15 (medium), and 0.35 (large) effects respectively.

Table 4.5: Validity Guidelines for the Assessment of Reflective Structural Model

	Criterion	Guidelines
1	Coefficient of determination ($\mathbf{R^2}$)	0.67 (substantial) 0.333 (moderate) 0.190 (weak)
2	Path coefficient	Path coefficient must be at least 0.100 (significant at least 0.05)

This research elucidated the structural model with these criteria:

(a) The coefficient of determination (R^2) > 0.10.
(b) Path coefficients between latent variables (LVs) at least 0.1 (followed by the correct algebraic sign of either -ve/+ve; and having a significant value (at least at 0.05).

This would be considered satisfactory.

4.8 Moderating Variables

Generally, moderation is found when the effect of an independent construct (ID VAR) on a dependent construct (DP VAR) depends on the value of another variable introduced into the model. These other variable influences (or moderates) the relationship (Hair et al., 2014; Cohen et al., 2003). Venkatesh et al., (2003) used UTAUT/UTAUT2 model to assess technology adoption and opined that UTAUT/UTAUT2 was moderated by age, gender, experience, and voluntariness of use. There are differences in the gender decision-making process regarding technology (Venkatesh & Morris, 2000).

Normally, in statistical analysis, the moderation construct/variable is an interaction either as (a categorical variable gender, business type) or (a quantitative variable--level of one's self-

efficacy). More so, a moderating variable can be either qualitative (taking names/labels—such as gender, educational level (high school, bachelors' master's degree), marital status—single, married/ divorced), or quantitative (age, height, population size).

It should be emphasised that internal and external factors could not be utilised as moderating variables. These factors acting as variables cannot be categorised. This is possible with gender (1=male; 2=female) and business subsectors (1=services; 2=trade/retail etc).

This thesis partly investigates the moderating effect of gender on the independent variable per the dependent variable's e-readiness to use web technology portal support.

4.9 Multiple Group Analysis

Multigroup analysis (MGA) between-group analysis in the context of partial least squares structural equation modelling (PLS-SEM) is a technique for testing pre-defined data groups to evaluate if there might be significant disparities in group-specific parameter estimates (outer weights, outer loadings, path coefficients). Any analysed result is significant at the 5% error level, if ($p < 0.05$ or > 0.95 for observed differences of coefficients for a group-specific path. PLS-MGA in SmartPLS method according to Henseler et al., (2009) is just an extension of bootstrapping MGA technique in PLS-SEM (Sarstedt et al., 2011).

In applying multigroup analysis, Elbanna et al., (2013) investigated the role of intuition in strategic decision-making, results indicating marked differences under low vs high environmental hostility. Research on multigroup analysis builds on several approaches (a) standardised independent sample t-test (Keil et al., 2000); (b) permutation techniques (Chin, 2003; Chin & Dibbern, 2010); and (c) bootstrap confidence intervals (Sarstedt et al., 2011a; 2011b).

Statistically, MGA enables the investigator to evaluate if predefined data groups exhibit significant disparities in their group-specific parametric estimates (such as outer weights, path coefficients). More so, when the variable used as a moderator is categorical (such as gender), the preferred analytical technique is MGA, as it enables the comparison of tests specifically tied to the effect of a structural path across multiple groups (Aguinis et al., 2017).

In this study gender and business types (subsectors) are used as moderating variables (categorical in nature) to evaluate their effect on the dependable variable (e-readiness for web technology portal).

4.10 Common Method Bias (CMB)

Common method biasness was used for assessing the dataset, as is often the case that all self-reported data are prone to common method bias. Several methodologies can be utilised

to test CMB (i.e., Harman's single factor, correlation matrix, common latent factor, and marker variable) (Podsakoff et al., 2003). In reference to this research, the correlation matrix approach was the preferred technique, and CMB exists when the correlation is higher than 0.90 (Kim et al., 2013)

Podsakoff et al., (2003) opine that the degree of variance accounting for CMB differs between disciplines (e.g., marketing, management, psychology). For behavioural studies, the collection of data is likely to experience some form of bias, and to try to limit or carter to this concern, the researcher introduced procedural remedies (Podsakoff et al., 2003). These included making the participants understand that there were no hard rules to right/wrong answers, and strict adherence to confidentiality and anonymity. These approaches ensured that CMB's possibility and corresponding impact could be kept at a minimal level.

4.11 Justification for the use of PLS-SEM

The following are the justification for selecting a PLS-SEM approach:

1: Experimentally, PLS analysis does not place limitations on sample size. Regarding the informal sector hotspot of the Cape Town metropolis, the researcher was not obligated to ascertain an adequate sample size for this study.

2: The synthesised conceptual framework as the study model has embedded complex constructs (proxies), making it ideal for applying the PLS-SEM method. According to Henseler et al., (2009), PLS-SEM can handle very large complex models with several latent variables (LVs).

3: The inability to assess the existence of multivariate normally distributed data from the beginning meant that the researcher had to overlook the importance of this conditionality.

4: The predictive nature of the study required the need to employ PLS-SEM rather than CB-SEM. Determining the degree and factors affecting the e-readiness of the informal service providers in the Cape Town metropolis for web technology portal support was predictive. The model adopted for the assessment can be predicted by the collated data.

5: The paradox of interest is new, requiring the development of a measurement/structural model as the goal. The aim of this thesis is the examination of relationships considering existing *prior* theoretical knowledge

4.11 Design of the Questionnaire

The researcher utilised a survey instrument (Appendices A and a translated version into Xhosa, the local spoken language as D) to collect data from study participants (SA informal sector service providers) on their e-readiness for a web technology portal support. A paper-based questionnaire that contains items on E-readiness of the South African Informal Sector providers to use an electronic E-portal that can promote their businesses was chosen as the research instrument for the quantitative study. The research did not employ the digital format (Google forms) for data collection due to the unavailability of a database of informal sector providers in Cape Town metropolis with names, e-mail addresses and micro-enterprise types. The absence of this vital information meant that there was no contact medium. The main respondents were South Africans, other Africans, and permanent residents. According to Creswell (2009), the rationale for using the questionnaire is because it is a powerful medium for gathering information (as data) on perceptions, opinions, attitudes, and actions of a large group of subjects. The questionnaire contained the following:

i. The demographics of the respondents (section A)
ii. The background information in terms of technology usage (section B)
iii. The factors that acted as enhancers or inhibitors to the daily operational activities of the informal sector providers (section C)
iv. The main research constructs of the conceptual framework of study – SET, UTAUT, and TRI are contained in sections E, F, G, H, I, J, K, L, M of the questionnaire (Appendix A)

The questions (43 items) made up the research instrument. The instrument had three parts with distinctive sections on (a) the demographics (age, gender, citizenship); (b) questions related to technology use, business location and type, rationale/frequency for using technology, (c) factors that enhance or impede micro-enterprise operational activities (Likert scaled) and (d) Likert scaled questions on research constructs. The constructs were assessed using a five-point Likert scale (1= strongly disagree. 2 = disagree, 3 = neutral, 4= agree, 5 = strongly agree). The indicators were scaled with continuous, string and categorical scales. Also, the instrument contained questions to determine the business type, description or specificity of job type and business location.

The development of the instrument (questionnaire) was based on the procedure recommended by Creswell (2009): These are literature review, conceptual development, gleaning of information, questionnaire formulation, self-critique with the application of external scrutiny, and re-inspection, revision, pilot test/study, and then a final draft. Fink (2006) recommended several skills in terms of questionnaire development. These are:

i. Make questions/items clear to respondents
ii. Use clear standard English
iii. Do not include jargon, abbreviations, technical terminologies
iv. Do not include biased language
v. Avoid insinuating personal bias; and
vi. Include a single item per each thought

It was necessary and important to present a questionnaire that features high-quality questions to ensure that data collected is genuine, valuable, and of interest to the investigator (Creswell, 2009), and Fink (2006) opine that the questions should follow a specific direction and purpose (not incoherent or un-related questions) to make it easier for the respondents to be open and forthcoming in the information provided.

4.11.1 Pilot Study

It became necessary to initiate a pilot study to ascertain the usefulness or appropriateness of the research instrument before it was presented to the participants for actual data collection (Creswell, 2009). The test (as part of the pilot study) was necessary to ensure the adopted methods were inherently valid, adequate, and reliable. The instrument had to be free from errors and unforeseen problems.

The initial designed version of the questionnaire was shared with fellow research students, then the supervisory board (all skilled in survey design) within the University. The use of peer and experts' reviews became part of the exercise to ensure that the instrument met the requirements for face and content validity. The questionnaire was then amended to reflect their suggestions. A preliminary pilot study with 20 purposely sampled respondents in the Cape Town metropolis was conducted. According to Fink (2006), a pilot study initiated with a small sample population ensures validity and contributes data quality to the analysis.

The collated data was coded into IBM SPSS vs 26 software, and the program ran. Initial results gave low Cronbach's alpha values. This proved that the internal consistency was low. It was necessary to frame the questionnaire in such a way as to guard against acquiescence bias from the respondents. The literature highlighted the possible rationale for the low or negative Cronbach's alpha values to be:

i. Included number of items; the scale of <10 variables might be responsible for low Cronbach's alpha values.
ii. Absence of normality in collected data. Sometimes data that are skewed decrease alpha values

iii. A negative-worded questionnaire that leads to negative Cronbach's alpha should be reverse coded before scoring (Oluwadiya, 2013)

Reframing some of the questions and indicators gave more reliable results presented below (see Table 4.4). It should be emphasised that reliability is concerned mainly with the propensity of the research instrument to determine/assess consistency, and validity indicates the degree to which the intended measure is satisfied. Inherently, any research instrument cannot be described as valid unless accepted as reliable (Tavakol & Dennick, 2011).

4.11.2 Reliability

Reliability for a quantitative/survey design represents the propensity that the responses or scores collected from the participants are stable, and consistent over a specific timeframe (Creswell & Clark, 2011). Reliability can be viewed as consistently repeated research trials or measuring tests (McLeod, 2013). When research findings can be repeated consistently, the measurements/observations are reliable (McLeod, 2013). Hence, "reliability signifies the degree to which a measure or procedure leads to results which are replicable" (Last, 2001; Rothman et al., 2008). Thus, a questionnaire, measurable procedures, tests, or observations give similar results even after several repetitions. Generally, the ability for responses from participants (obtainable scores) during a quantitative study/work to stay the same relative to time is usually considered a measure of reliability (Miller, n.d.). Also, lack of reliability might be attributable to divergences between observers or instruments used during the measure or the absence of instability of the measured attributes (Last, 2001). The use of correlation coefficients (Cronbach's coefficients) (Cronbach, 1951; Cronbach & Meehl, 1955) makes it possible to determine reliability, and a higher positive correlation value indicates the reliability of the study (McLeod, 2013). It should be noted that in research involving disciplines such as the social/ medical sciences, business, and IT/IS, Cronbach's alpha has become the acceptable determinant of internal consistency or reliability of the research instrument (Fink & Litwin, 1995). Large sample size also increases/improves reliability (Flick, 2011).

Despite the notion that Cronbach's alpha coefficient is frequently adopted, it is riddled with several limitations. Typically, Cronbach alpha assumes that all items have equal significant contributions to reliability (Bollen, 1989). However, in the same vein, Bollen (1989) opines that composite estimate for reliability use standardised loadings and measurement errors for each singular item. Consequently, using composite reliability should reflect more accurate results than methods using Cronbach's alpha estimates.

According to results of data analysis using IBM SPSS version 26, results for reliability showed values of ($\alpha = 0.775$) and McDonald's value ($\omega = 0.752$). Furthermore, item reliability statistics

varied from (a minimum of α=0.728 to α = 0.786 as maximum), signifying good reliability values (Table 4.6).

Table 4.6: Reliability Test

Scale Reliability Statistics

	Mean	sd	Cronbach's α	McDonald's ω
scale	3.55	0.289	0.775	0.752

Item Reliability Statistics

	if item dropped
	Cronbach's α
Q19	0.774
Q20	0.780
Q21	0.786
Q22	0.782
Q23 [a]	0.763
Q24 [a]	0.776
Q25	0.777
Q26 [a]	0.769
Q27	0.769
Q28	0.775
Q30 [a]	0.768
Q31	0.777
Q32	0.767
Q33 [a]	0.776
Q34	0.781
Q35 [a]	0.784
Q36	0.740
Q37	0.736
Q38	0.736
Q39	0.733
Q40	0.728
Q14 [a]	0.762
Q13 [a]	0.774

[a] indicates reverse scaled item.
Q 18 and Q29 are dropped because there is no variation in the response.

4.12 Sampling and Instrument Administration

The sampling technique adopted in this research reflected attempts to represent the total population (informal sector hotspot in Cape Town metropolis). The criteria for inclusion in the target population were (a) the respondent had to be 18 years or older and be a practitioner and resident in Cape Town metropolis; (b) one must have been involved in informal activities as a practitioner for at least one year, which involved working in the informal sector. The aim was to elucidate the perceptions regarding e-readiness for web technology support. The sampling frame is shown in Table 4.7.

Table 4.7: Sampling Frame

S/N	Community/Township	Locality	Time frame
1	Cape Town	Cape Town city	18 January to 27 January 2021 (8 days).
2	Khayelitsha	Site C, Mahkaza, ZweZwe, Kuyasa, Mfuleni, Harare, Nkanini, Litha Park, Town Two, Makhaya, Site B, Macassar, New Cross Road	08 February to 04 March 2021 (25 days)
3	Delft	Delft	29 March to 07 April (5 days)
4	Phillipi	Phillipi	07 Apr to 13 April (5 days)
5	Gugulethu	NY124 Gugulethu, NY110, NY24, NY34, NY149, NY10, NY115, Gugulethu	08 Mar to 26 Mar 2021 (15 days)

Table 4.7 itemises communities and localities that form part of the sampling frame/process. A purposive random stratified sampling for the target population became necessary to mitigate the lack of a database. Attention was placed on key types of micro-business prevalent in the communities. Notably, the limitations of time, critical resources, and the inability to collect data from all the target population meant that sampling became necessary.

According to the “10 times rule” recommended by Peng and Lai (2012), the minimum sample size was determined for SEM. The “10-time rule” states that the minimal sample size for any

work must relatively be over “10 times” the maximum number of inner/outer links leading to the constructs in the model (Goodhue et al., 2012). Using Table 3.4 as the reference, the minimum sample size for SEM is 10 times the maximum inner/outer links (here represented by the construct of facilitating conditions); the number of links is four each. Thus 10 x 4 = 40.

However, utilising equation (1), a priori sample size for a structural equation model can be calculated. Here, the number of observed variables (32), the effect size (0.3 – moderate), number of latent variables (14 from the conceptual research model), the desired probability levels (0.05), and the recommended statistical power level (0.8 or above) were imputed into the formula (Soper, 2021; Cohen, 1988; Westland, 2010). The structural equation model (SEM) lower bound sample size: *n = max (n_1, n_2), where computed according to equation (1).*

Soper (2021) opines that Equation (1) can be expressed as:

$$n_1 = \left[50 \left(\frac{j}{k}\right)^2 - 450 \left(\frac{j}{k}\right) + 1100 \right]$$

$$n_2 = \left[\frac{1}{2H} \left(A \left(\frac{\pi}{6} - B + D\right) + H + \sqrt{A \left(\frac{\pi}{6} - B + D\right) + H)^2 + 4AH \left(\frac{\pi}{6} + \sqrt{A} + 2B - C - 2D\right)} \right) \right]$$

(4.1)

Where A = 1 - ρ^2, B = p arcsine ($p/2$); D = A/√3-A; H = $\left(\frac{\delta}{z_{1-\alpha/2} - z_{1-\beta}}\right)^2$

Variable definitions:

J = number of observed variables

K = number of latent variables

P = estimated Gini correlation for a bivariate normal random vector

δ = anticipated sample size

α = Sidak correlated Type I error rate

β = Type II error rate

z = a standard normal score.

A, B, D, and H are constants introduced into the equation.

The calculation showed that the maximum sample size required to detect effect is 208, while the minimum sample size for the model structure was 333. Hence, the recommended minimum sample size is 333. This study utilised data from 419 respondents.

However, according to O’Reilly Media (2021), using Mplus software, there was no formal agreement in the extant literature regarding the appropriate sample size for SEM analysis. Several instances are found or do exist where testing SEM with a small sample size has been

reported (Hoyle, 1999; Hoyle & Kenny, 1999; Kock, 2018), but Tinsley and Tinsley (1987), Tabachnick and Fidell (2001) posit N = 100 to 150 can be considered as minimum sample size. Others consider N = 200 (Hoogland & Boomsma 1998; Kline 2005) large sample size. In circumstances where normally distributed indicator variables (with no missing data is the norm) is considered, then a reasonable or acceptable sample size for Confirmatory Factor Analysis (CFA) model, according to Muthen and Muthen (2002), is about N= 150. Across multi-group modelling, the accepted rule of thumb as recommended is 1000 cases per group (Kline, 2005).

Using the N: q principle, Jackson (2003) posits that researchers should focus on minimum sample size as a ratio of items/cases (N) to the number of available/adopted model parameters requiring statistical estimation (q). Therefore, ideally, it is better to carry out an SEM analysis with a large sample size as technically feasible, especially for Covariant-based SEM (CB-SEM). A sample size of 500 or 1000 is advisable for CB-SEM. Under conditions where a large sample size cannot be obtained, PLS-SEM would be the best approach, for it is not sample size sensitive.

The main feature of this study is presented in Table 4.8

Table 4.8: Main Features of the Study

Summary of Main Features of the Research Study	
Field of study	Informal sector service providers and web technology portal support
Theoretical framework	Self-efficacy theory, unified theory of acceptance and use of technology, technology readiness index
Primary study purpose	e-readiness assessment
Quantitative work	
Sample size	N = 419
Sampling technique	Stratified random sampling of informal sector providers in Cape Town metropolis (18 years and older who have been in practice for at least one year)
Data collection	Survey strategy: structured questionnaire including demographic, attitudinal and general perceptions acquired by scores (scales)
Data analysis	Descriptive statistics Factor analysis PLS-Structural equation modelling

4.13 Chapter Summary

The thrust of chapter four was the philosophical worldview (as well as the study's ontological and epistemology stance). The justification for adopting the positivist philosophy, a survey

strategy, a quantitative method for data collection, and reliability, validity and ethical considerations was discussed. Structural equation modelling as a sophisticated and necessary statistical analytical tool was also covered. The sample frame covered informal hotspots in the Cape Town metropolis.

CHAPTER FIVE

DATA ANALYSIS AND RESULTS

This chapter discusses the results after data analysis with SPSS software vs. 27 and Smart PLS software (vs. 3.3.5) for structural equation modelling. The descriptive statistics and the inferential statistics for the participants are presented.

5.1 Data Collection Procedure

A deductive approach and a quantitative strategy were adopted. The quantitative/surveyed data was collected using a research instrument (in a structured questionnaire) from 419 respondents as part of a cross-sectional survey. The core items included in the survey comprised a 5-point Likert type scale (represented by 1= Strongly Disagree, 2= Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree) as determinants of the demographics and information about perceptions/personal opinions. The relevant attitudinal survey items and scales gleaned from the respondents had been developed from constructs obtained from IS theories synthesised from literature. These were grouped into eight sections (see Appendix A).

The outline of processes and products as part of data collection after questionnaire administration and analysis is shown in Table 5.1.

Table 5.1: Outline of research procedures and products

Procedures	Products
▪ Structured questionnaire (n=419)	▪ Demographic ▪ Behavioural information ▪ Perceptions
▪ Descriptive statistics ▪ Inferential statistics • Factor analysis • Partial least squares-SEM	▪ Sample profile ▪ Frequency scores ▪ Final SEM model ▪ Generalised measurement of e-readiness

A total of 480 questionnaires were administered to informal sector service providers after the electronic portal artefact demonstration. The performance/functionality of the artefact (a web portal **-- https://www.uvuyo-prod.firebaseapp.com**) was presented to each respondent, followed by the administering of the questionnaire. Two assistants were employed to assist in the data collection process. This was important because some respondents did not speak English. Here, the language of communication was Xhosa. Where the informal service provider did not know English, a translated version of a similar questionnaire in Xhosa

(Appendix D) was provided to the informal service provider. Depending on the nature of their work, some informal service providers preferred each question read while the assistants would then fill the questionnaire based on the verbal response provided. After administering the questionnaire, 61 returned questionnaires were discarded/rejected because of several missing data, non-completion (discontinuity/opting out of the exercise), or repeatability (scores) in the type of response. The response/return rate was 87.29% [(419/480) x 100%]

Section 5.2 details the demographics and behavioural information of the respondents, while section 5.3 covers results of data analysis (PLS-SEM).

Table 5.2 represents important variables used to retrieve information (as data) from the respondents.

Table 5.2a: Demographic Information

Demographic Information		
S/N	Item	Variable
1	Q1	Gender
2	Q2	Age group
3	Q3	Business type
4	Q4	Job type
5	Q5	Job description
6	Q6	Business location
7	Q7	Citizenship/residency
8	Q8	No of years in informal business
9	Q9	How often do you use online technology
10	Q10	Types of devices used
11	Q11	Purpose for the use of web technology

Table 5.2b: Assessment of E-readiness

Factors affecting business performance		
Internal factors		
S/N	Item	Variable
1	Q12	Interested in the use of web technology for business
2	Q13	Not skilled in the use of web technology
3	Q14	Insufficient earnings to invest in web technology
External factors		
4	Q15	Government's support for informal practitioners is necessary

5	Q16	Infrastructural problems (data, power) affecting online businesses
6	Q17	Lack of internet hotspots in communities/localities
Self-efficacy theory		
7	Q18	Capable of using online/web technology for business
8	Q21	I have strength and perseverance in the use of web technology portal
Web technology portal		
9	Q19	Aware of colleagues who use web technology portal
10	Q20	Support from family/peers to facilitate the use of web technology
Unified theory of acceptance and use of technology (UTAUT) Performance expectancy		
11	Q22	Benefits of online/web technology
12	Q23	Increase of productivity /service delivery
13	Q24	Built-in security which enhances use
Effort expectancy (UTAUT)		
14	Q25	Design features easy to use
15	Q26	Knowledge in the use of online/web technology
16	Q27	Ease of use
Social influence (UTAUT)		
17	Q28	Encouragement from acquaintances /peers necessary for the use of web technology
18	Q29	Expectation from peers/colleagues
Facilitating conditions (UTAUT)		
19	Q30	Adequate resources
20	Q31	Government support necessary
21	Q32	Online/web technology improves the quality of life
22	Q33	More productive personal life

Table 5.2b (continued)

Technology Readiness Index (TRI) Innovativeness		
23	Q34	First among peers to use web technology portal
24	Q35	Ability to use web technology portal
Discomfort (TRI)		
25	Q36	Maintaining traditional modes of business operation
26	Q37	Afraid of web technology
27	Q38	Perceptions about difficulties in the use of web technology

Insecurity (TRI)		
28	Q39	Depending solely on technology is harmful to business and personal life
29	Q40	The use of web technology can lead to disruptions and business failures
Optimism (TRI)		
30	Q41	I am optimistic about the use of web technology
31	Q42	Web technology brings about more control
32	Q43	Web technology use increases the quality of life

5.2 Demographic and Behavioural Information

The following sections present data obtained from the participants relative to their demographic characteristics using questions (Q1 to Q11) in Table 5.2A.

5.2.1 Demographic of the Sampled Population

Demographic profiling is introduced in most research to segment the sample regarding the similarities and differences within a unit, such as gender, age, educational status, marital status, residency/citizenship, and income. It captures specific/possible patterns that might emerge along these lines that give a better perspective per any phenomenon. Extant literature in the IS domain involving technology acceptance and use has stressed the relevance of their inclusion (Van den Bulte, 2000; Pedersen, 2005; Ha & Stoel, 2004). Specific mapping could be accorded to the following: Gender (Rogers, 1995; Ha & Stoel, 2004); Age (Rogers 1995; Tellis et al., 2009); Education (Rogers, 1995; Van den Bulte, 2000); Income (Rogers, 1995). Under these studies, some of these were included here.

The 419 samples obtained from the survey consisted of 50.4% men and 49.6% women from the informal sector hotspots around Cape Town (Nyanga, Delft, Gugulethu, Phillipi, and Khayelitsha) metropolis. The ages of the respondents ranged from 18 years to greater than 60. The class distribution was between 18 and 25 years (24 or 5.7%); from 26 to 30 years (89 or 21.2%); from 31 to 40 years (144 or 34.4%); from 41 to 50 years (114 or 29.2%); 51 to 60 years (41 or 9.8%) and above 60 years (3 or 0.7%) see Tables 5.3a and 5.3b; Figures 5.1 and 5.2

The type of informal businesses spread across sampled communities were retail (12.9%); trade (23.9%); construction (8.8%), manufacturing (5%); health and beauty (22.0%); waste recycling (1.7%); home maintenance/repairs (6.4%); short courses and training (1.9%); appliance repairs (4.3%); deep cleaning (4.3%), and others (13.1%). Within these business types were specific concentrations of informal sector providers in landscaping/plumbing

(13.1%); mechanics/manufacturing (5.7%); hairdressers and barbers (23.0%); retail/trade (30.5%); recyclers/waste pickers (2.4%); short courses and training (1.2%); deep cleaning/domestic workers (6.4%); taxi drivers/security (4.5%) and other (12.4%). See Figures 5.3; and 5.4 together with Tables 5.4a and 5.4b

Table 5.3a Gender distribution

	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Male	211	50.4	50.4	50.4
Female	208	49.6	49.6	100.0
Total	**419**	**100.0**	**100.0**	

Table 5.3b: Age group

	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
18 to 24 yrs	24	5.7	5.7	5.7
25 to 30 yrs	89	21.2	21.2	27.0
31 to 40 yrs	144	34.4	34.4	61.3
41 to 50 yrs	118	28.2	28.2	89.5
51 to 60 yrs	41	9.8	9.8	99.3
Above 60 yrs	3	0 .7	0 .7	100.0
Total	**419**	**100.0**	**100.0**	

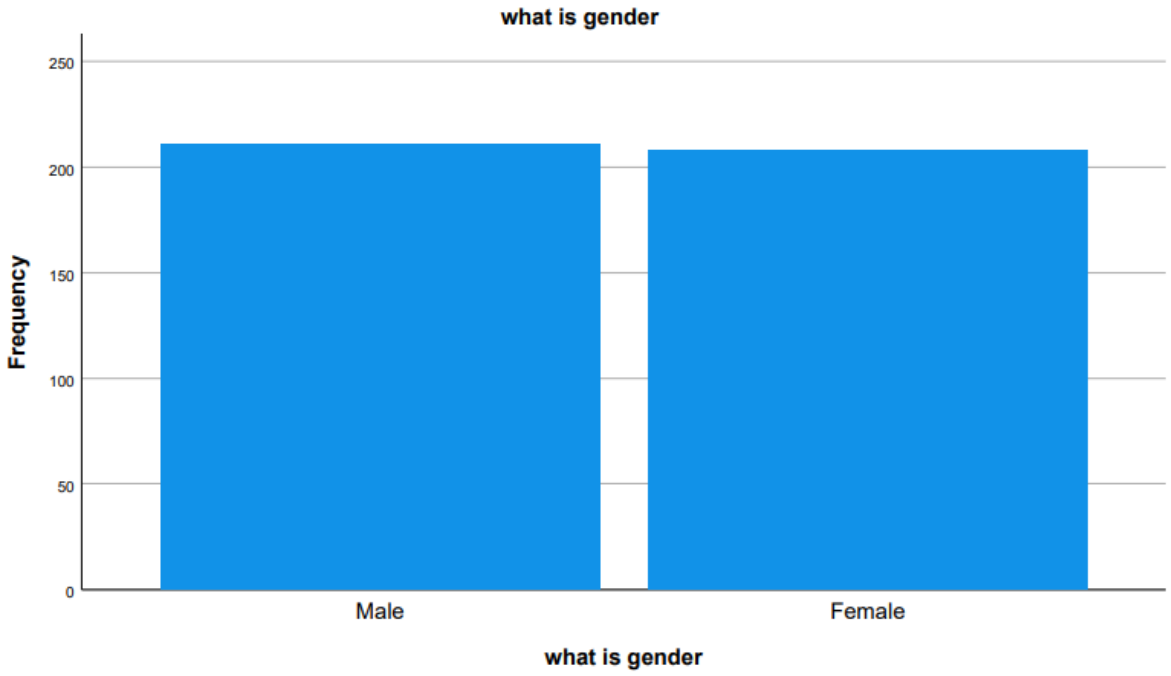

Figure 5.1: Gender distribution of respondents

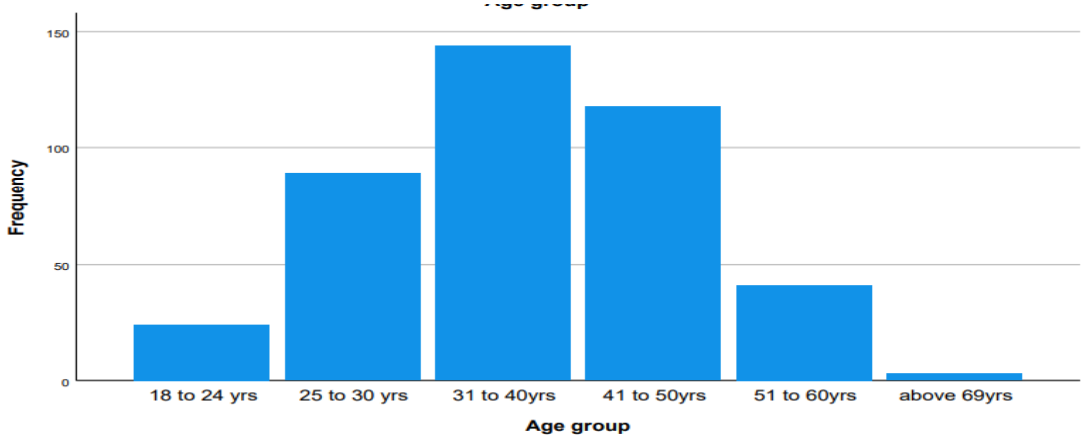

Figure 5.2: Age distribution of respondents

5.2.2 Types of Businesses

Table 5.4a: Type of Business

	Frequency	Percent	Valid percent	Cumulative Percent
Retail	54	12.9	12.9	12.9
Trade	100	23.9	23.9	36.8
Construction	37	8.8	8.8	45.6
Manufacturing	2	0.5	0.5	46.1
Health and beauty	92	22.0	22,0	68.0
Waste re-cycling	7	1.7	1.7	69.7
Home maintenance /repairs	27	6.4	6.4	76.1
Short courses and training	8	1.9	1.9	78.0
Appliances repairs	18	4.3	4.3	82.3
Deep cleaning	18	4.3	4.3	86.6
Other	55	13.1	13.1	99.8
Other	1	0.2	0.2	100.0
Total	**419**	**100.0**	**100.0**	

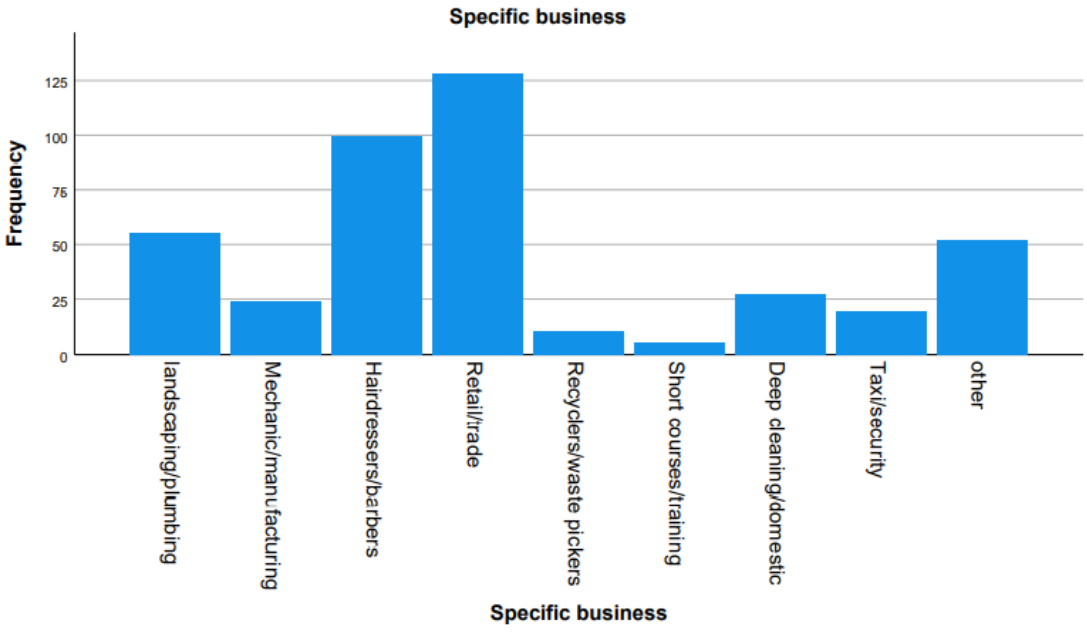

Figure 5.3: Specific businesses in informal Communities

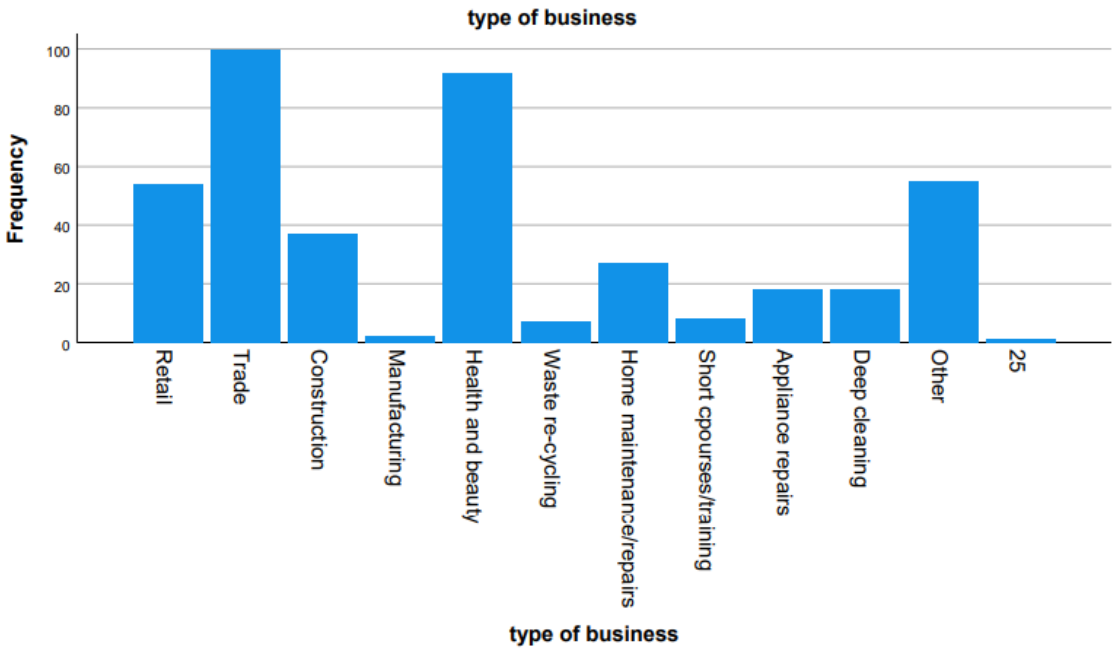

Figure 5.4: Type of businesses

5.2.3 Citizenship/Residency Status

The result for citizenship/residency status indicated that 81.4% of the respondents were South Africans, 15.5% comprised African foreigners, while 3.1% were South African residents (Figure 5.5)

Table 5.4b: Micro-enterprises in informal communities

S/N	Micro-enterprises/businesses	Percent
1	Appliance repairs	0.4%
2	Aluminum frames (windows/doors)	2.2%
3	Barbers/barber shops	4.7%
4	Beauticians	7.7%
5	Butchers	0.2%
6	Car /auto mechanics	3.0%
7	Car wash	2.4%

8	Carpenter/Upholstery	1.6%
9	Cleaning materials/products	0.7%
10	Clothing (sales/repairs)	6.1%
11	Computer training	1.0%
12	Cosmeticians/cosmetic shops	3.4%
13	Deep cleaning/domestic workers	1.7%
14	Electricians	4.3%
15	Fashion design	1.7%
16	Food/takeaway	8.6%
17	Fruits/vegetables	1.4%
18	Haircare	6.6%
19	Hairdressers	4.5%
20	Herbalist/traditional herbal products	0.8%
21	Internet café/services	1.9%
22	Laundry services	0.8%
23	Logistics	0.2%
24	Manicuring	3.9%
25	Painters	1.4%
26	Phone repairs	1.6%
27	Plumbers	2.5%
28	Recycling/waste pickers	2.0%
29	Spaza shops	3.0%
30	Shebeen	5.0%
31	Street hawking	2.0%
32	Taxi services	6.0%
33	Landscaping	2.0%
34	Cobbling	1.0%
35	Security services	1.0%
36	Others	2.0%
	Total	**100.0%**

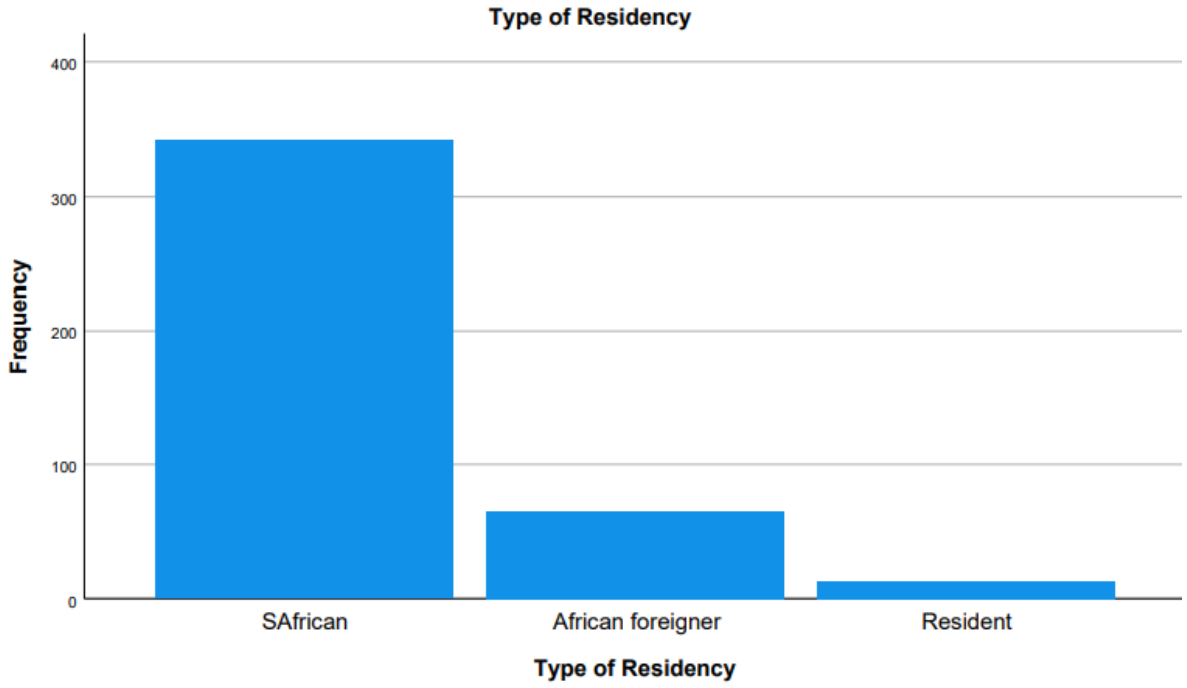

Figure 5.5: Citizenship/Residency Status of Respondents

5.2.4 Number of Years in Informal Business

The number of years for which participants were active in informal businesses ranged from less than 5 years (27.7%), between 5 and 10 years (37.9%), and greater than 10 years (34.4%). See Figure 5.6 and Table 5.5

Table 5.5: Number of Years in Informal Business

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 5 years	116	27.7	27.7	27.7
5 to 10 years	159	37.9	37.9	65.6
More than 10 years	144	34.4	34.4	100.0
Total	**419**	**100.0**	**100.0**	

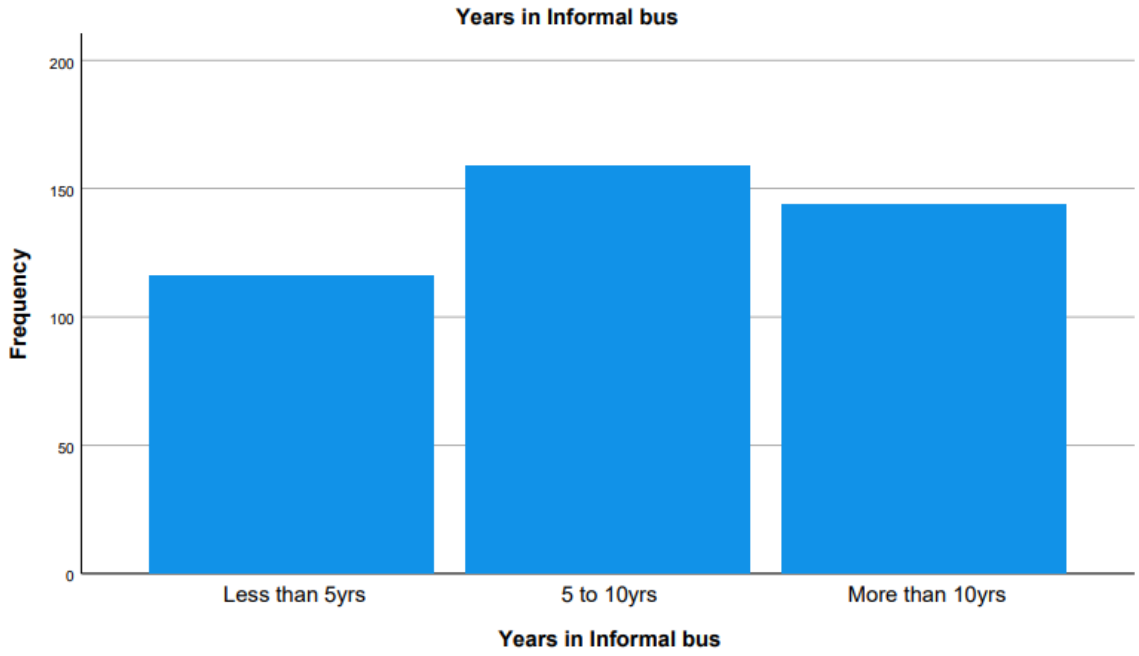

Figure 5.6: Number of Years in Informal Business

5.2.5 Frequency of Use of Online Technology

Generally, the behavioural patterns of the respondents to the frequency of use of online technology varied from daily (46.8%), to occasionally (23.2%), and never (30.1%), and types of devices employed in using online technology were- pc/notebook (4.1%), mobile phones (28.4%), smartphones (66.3%), PC tablet (7%) and other (5%). See Figure 5.7.

5.2.6 Purpose of Use of Device

The purpose of using the devices varied from business activities (29.6%) to personal activities (42.0%), and finally, for social networking (28.4%). See Table 5.6

Table 5.6: Purpose of Use of Device

	Frequency	Percent	Valid Percent	Cumulative Percent
Business activities	124	29.6	29.6	29.6
Personal activities	176	42.0	42.0	71.6
Social networking	119	28.4	28.4	100.0
Total	**419**	**100.0**	**100.0**	

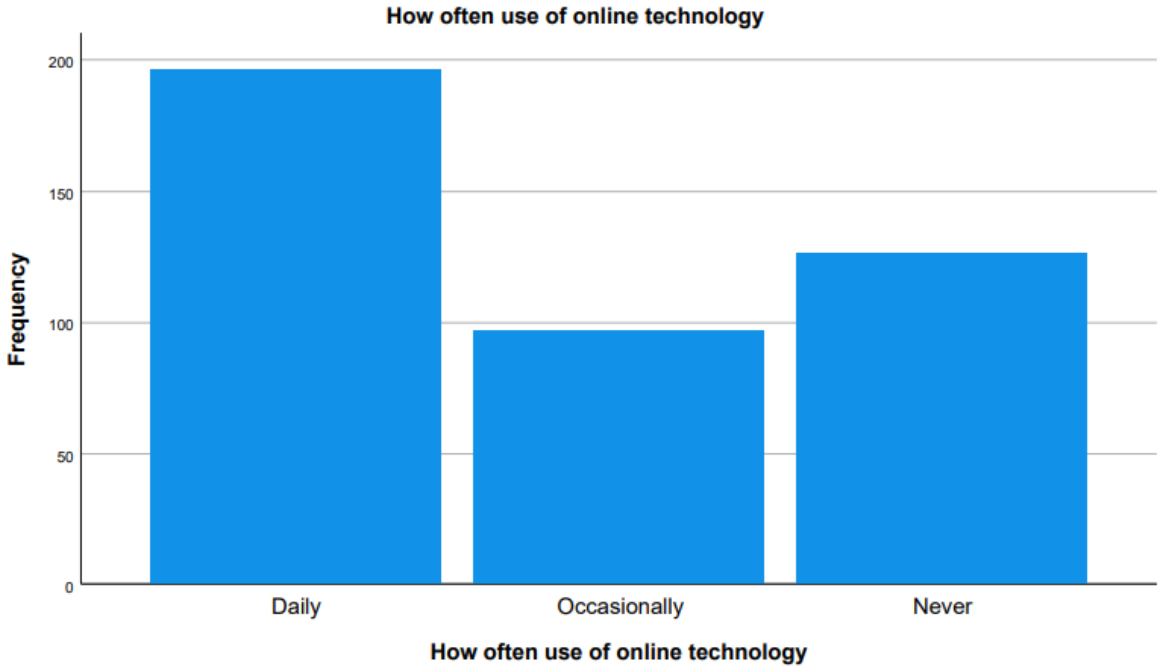

Figure 5.7: Frequency of use of Online Technology

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5.3 Results of Data Analysis (PLS-SEM)

The results presented here were obtained by utilising Ringle, Wende, and Becker's (2015) Smart-PLS software for data analysis. The version. used was 3.3.5.

Figure 5.8 represents the research model, which explains web technology portal support for the informal sector service providers in SA. The model's accuracy was assessed along with two measures of the PLS-SEM techniques; - a measurement model and a structural model assessment (Barclay et al., 1995). The resulting indicators of the assessment are presented in Tables 5.8a; 5.8b; and 5.8c.

5.3.1 Measurement Model Assessment

The research model's validity and reliability indices were examined thoroughly for a reflective measurement model (Hair et al., 2013b). The investigator used composite reliability (CR) and Cronbach's alpha coefficients (Table 4.6) to assess internal consistency reliability in this study.

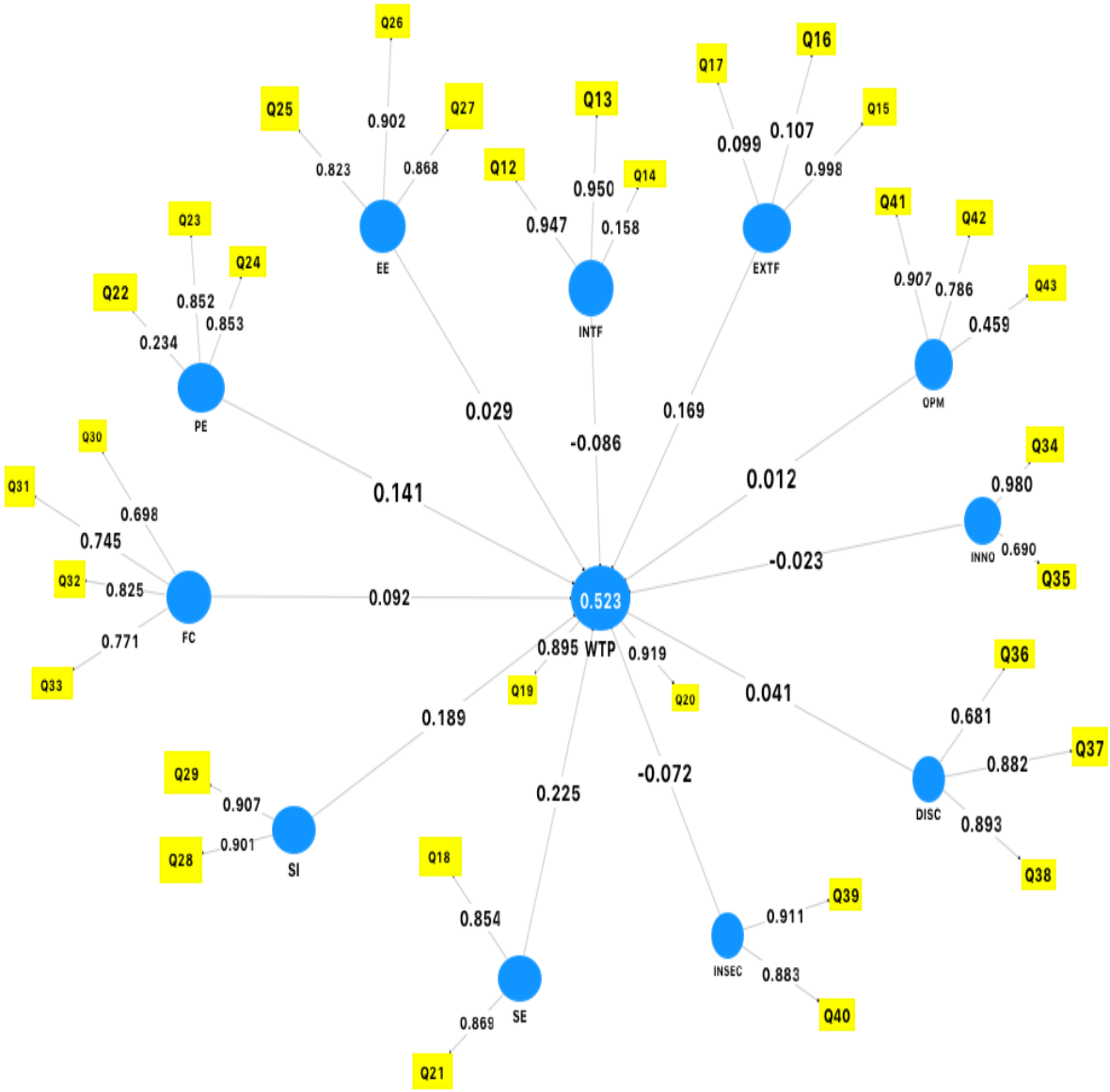

Figure 5.8: Estimated Measurement Model

Table 5.7 and Table 4.6 show that both CR and Cronbach's alpha exceed the recommended thresholds, 0.60 (Bagozzi & Yi, 1988) as well as 0.60 to 0.70 (Nunnally & Bernstein, 1994; Hair et al., 2014). Thus, most constructs have achieved internal constructs reliabilities except external factors in which items (RQ16 and RQ17) loaded below 0.11. For internal factors (INTF), RQ 14 loaded at about 0.16. Equally, for performance expectancy RQ 22 loaded at

0.23. (These questions were not deleted as advised because too few items/indicators for the constructs would be obtained. These items were deemed central to the overall analysis)

Table 5.7: Composite reliability (CR), Average variance extracted (AVE)

Variable	Indicator	Loading	CR	AVE
INTF	Q12	0.95	0.78	0.61
	Q13	0.95		
	Q14	0.16		
EXTF	Q15	1.00	0.42	0.34
	Q16	0.11		
	Q17	0.10		
SE	Q18	0.85	0.85	0.74
	Q21	0.87		
PE	Q22	0.23	0.72	0.5
	Q23	0.85		
	Q24	0.85		
EE	Q25	0.82	0.9	0.75
	Q26	0.90		
	Q27	0.87		
SI	Q28	0.90	0.9	0.82
	Q29	0.91		
FC	Q30	0.70	0.85	0.58
	Q31	0.74		
	Q32	0.82		
	Q33	0.77		
INNO	Q34	0.98	0.83	0.72
	Q35	0.69		
DISC	Q36	0.68	0.86	0.68
	Q37	0.88		
	Q38	0.89		
INSEC	Q39	0.91	0.89	0.81
	Q40	0.88		
OPM	Q41	0.91	0.77	0.55
	Q42	0.79		

	Q43	0.46		
WTP	Q19	0.89	0.9	0.82
	Q20	0.92		

Additionally, the validity of the reflective model is dependent on the convergent validity and the discriminant validity. According to Carlson and Herdman, (2012), convergent validity can be observed when two measures act on a common construct. The investigator used average variance extracted (AVE) for each measured latent variable to assess convergent validity. Table 5.7 showed that all constructs have their AVE (except External Factor =0.34) greater than 0.50, the minimum recommended threshold (Kline, 2015). Interpretatively, RQ14 did not converge effectively on the construct Internal Factor; also, RQ16, and RQ17 did not converge properly on the construct External Factor. (The researcher did not delete these items for few indicators would have been responsible for these constructs (INTF and EXTF)).

(i) Discriminant Validity

The factor loading (Table 5.8b), Fornell-Larcker test and the application of heterotrait-monotrait ratio of correlations (HTMT), have been assessed and taken into consideration to determine determination of discriminant validity.

As is suggested by Fornell and Larcker criterion, the average variance extractor (AVE) of each researched construct must be greater than its corresponding squared correlation with another construct (Fornell-Larcker, 1981). At a factor loading of 0.05 significant level, AVE should be equal or greater than 0.70 (Chin, 1998b); and in circumstances where AVE is between 0.40 and 0.70, attention should be paid to it with possible deletion. According to Hair et al., (2010), the cut-off range is 0.50 to 0.70.

Henseler, Ringle and Sarstedt (2015), utilising simulation study, indicate that the Fornell-Larcker criterion and cross-loadings are not sufficiently robust to provide substantial evidence for the lack of discriminant validity in most research situations. These authors then opine that the appropriateness of an alternate approach is based on multitrait-multimethod matrix, for the assessment of discriminate validity, which is based on the employment of heterotrait-monotrait ratio of correlations (HTMT). According to Henseler et al., (2015) the HTMT approach was far superior to and more robust than Fornell-Larker criterion or factor loadings after performing a Monte Carlo simulation.

The pertinent guidelines for variance-based structural equation modelling have been suggested by Henseler et al., (2015). However, discriminant validity is established, if HTMT value is less than 0.90.

The results after the HTMT analysis were quite low (Table 5.8c), and contributions from this measure was less important. However, the results showed distinctiveness between the various constructs in the synthesised research model (HTMT< 0.9). Therefore, the study then relied more on Fornell-Larcker criterion and factor loadings.

(ii) Good-of-Fit (GoF)

The goodness-of-fit measure has been advanced for models employed in PLS-SEM analysis. However, this is disadvantaged because GoF cannot provide a reliable distinction between valid and non-valid models, resulting in limitations of its applicability (Henseler & Sarstedt, 2013). GoF measures are used frequently in multigroup analysis (PLS-MGA) (Ringle, Wende, & Becker, 2015).

There is no optimised global scalar function for PLS-SEM, and the absence of a globally accepted goodness-of-fit measures places obstacles on the applicability of PLS-SEM. Goodness-of-Fit statistics in this thesis uses PLS-SEM on the basis that GoF represents the discrepancy between observed variables, or approximated (latent variables-LVs) values obtained for the dependable variables and values. Tenenhaus et al., (2004) had proposed global goodness-of-fit measures, which has been discounted by Henseler and Sarstedt (2013), because these measures are unsuitable for mis specified models. In the same vein, Henseler et al., (2013), and Hair et al., (2017) opined that when PLS-SEM is the chosen analytical tool, GoF measure can be employed for the model's quality.

Following Henseler and Sarstedt (2013), the researcher did not place too much emphasis on GoF results obtained after the analysis with SmartPLS-SEM (3.3.5). The rationale is that this is a synthesised research model that has not yet been established. This is the first attempt at predicting the quality of the research model with a dataset obtained from informal sector practitioners in the Cape Town metropolis. It will be necessary to validate the model with several datasets before generalisations can be made.

The results for goodness-of-fit (GoF) test are presented in Table 5.8a

Table 5.8a: Goodness of Fit Values

	Saturated Model	Estimated Model
SRMR	0.07	0.08
Chi-square	2311.97	2504.15
NFI	0.65	0.62

The scientific experimental fit value for SRMR is (0.07/0.08), while NFI is (0.65/0.62). The ideal/recommended NFI value should be above 0.95 (or 0.90) (Lohmoller, 1989). The RMS_theta value was 0.15. Henseler et al., (2014) recommended RMS_theta value ≤ 0.12 – 0.14 for a well-fitting model (Lohmoller, 1989).
In this research, therefore, Goodness-of-Fit statistics was moderately satisfied.

In literature, the approximate fit indices, SRMR, is less than 0.10 or 0.08 (Hu & Bentler, 1999), and NFI > 0.90. Thus, using SmartPLS3, after Bollen-Stine bootstrapping procedure (complete bootstrap option) in SmartPLS3, the critical threshold values are (***SRMR < 0.08 and NFI >0.90)*** (Dijkstra & Henseler, 2015a; Bollen & Stine, 1993; Yuan & Hayashi, 2003), and RMS_theta ≤ 0.12 – 0.14 (Lohmoller, 1989; Henseler et al., 2014).

5.3.2 Structural Model Assessment

PLS-SEM can evaluate the inner latent model (structural model), and model quality is assessed with the coefficient of determination (R^2); cross-validation redundancy (Q^2); path coefficients, and effect size (f^2).

In Table 5.9a, the results show that the independent variables (Internal factors, external factors, self-efficacy, performance expectancy, effort expectancy, social influence, facilitating conditions, optimism, innovativeness, discomfort, insecurity) accounted for the variance of 51.0% observed in the web technology portal support for the SA informal practitioners. Since R^2 is applicable to several disciplines, a rough 'rule of thumb' for R^2 is 0.75 (substantial), 0.50 (moderate), and 0.25 (weak levels), respectively (Henseler et al., 2009; Hair et al., 2011).

This study, according to Table 5.9a exhibited moderate R^2 value.

TABLE 5.8b: DISCRIMIANT VALIDITY OF RESEARCH MODEL CONSTRUCT (FORNELL LARCKER CRITERION)

	DISC	EE	EXTF	FC	INTF	INNO	INSEC	OPM	PE	SE	SI	WTP
DISC	0.82											
EE	-0.36	0.86										
EXTF	-0.19	0.27	0.58									
FC	-0.44	0.65	0.38	0.76								
INTF	0.37	-0.62	-0.36	-0.60	0.78							
INNO	-0.14	0.39	0.08	0.41	-0.30	0.85						
INSEC	0.60	-0.35	-0.14	-0.36	0.40	-0.31	0.90					
OPM	0.20	-0.21	-0.07	-0.21	0.24	-0.15	0.45	0.74				
PE	-0.36	0.64	0.27	0.66	-0.57	0.34	-0.34	-0.17	0.71			
SE	-0.42	0.62	0.36	0.66	-0.67	0.36	-0.39	-0.22	0.61	0.86		
SI	-0.33	0.64	0.36	0.65	-0.61	0.27	-0.31	-0.20	0.57	0.57	0.90	
WTP	-0.32	0.54	0.43	0.59	-0.57	0.26	-0.33	-0.18	0.56	0.62	0.59	0.91

Table 5.8c: HETEOROTRAIT-MONOTRAIT RATIO

	DISC	EE	EXTF	FC	INTF	INNO	INSEC	OPM	PE	SE	SI	WTP
DISC												
EE	0.42											
EXTF	0.27	0.29										
FC	0.55	0.82	0.48									
INTF	0.43	0.78	0.46	0.78								
INNO	0.27	0.47	0.10	0.44	0.47							
INSEC	0.72	0.44	0.18	0.47	0.50	0.36						
OPM	0.27	0.27	0.18	0.26	0.31	0.22	0.60					
PE	0.57	1.01	0.41	1.08	0.96	0.54	0.52	0.28				
SE	0.56	0.84	0.45	0.94	0.95	0.45	0.56	0.30	1.09			
SI	0.40	0.80	0.35	0.85	0.77	0.30	0.40	0.24	0.93	0.79		
WTP	0.38	0.66	0.39	0.76	0.68	0.28	0.42	0.21	0.92	0.86	0.75	

Table 5.9a: Coefficient of determination (R^2) of the research model

	R Square	R Square Adjusted
WTP	0.52	0.51

The blindfolding-based cross-validated redundancy measure/ or predictive relevance (Q^2) of the model is high (Table 5.9b). The application of blindfolding (Stone, 1974; Geisser, 1974) on the sample re-use technique, allowed the determination of the Stone-Geisser's Q value. In circumstances that PLS-SEM exhibits predictive relevance ($Q^2 > 0$), the data point indicators would be predicted. A $Q^2 > 0$ for several endogenous latent variables shows the PLS path model has been able to predict relevance for this construct (Hair et al., 2017) Q^2 values are classified into three levels: (a) 0.02 (small); (b) 0.15 (medium); and (c) 0.35 (large) (Cohen, 2013). According to Table 5.9b, this study had a Q^2 value of 0.41 (large).

Table 5.9b: Predictive Relevance of the Constructs in the research model

	SSO	SSE	Q^2 (=1-SSE/SSO)
DISC	1257	1257	
EE	1257	1257	
EXTF	1257	1257	
FC	1676	1676	
INTF	1257	1257	
INNO	838	838	
INSEC	838	838	
OPM	1257	1257	
PE	1257	1257	
SE	838	838	
SI	838	838	
WTP	838	497.24	0.41

5.4 Common Method Bias

As outlined in the section on structural model (section 4.10), common method bias (CMB) was determined using the common matrix technique. To facilitate assessing the CMB, each of the variables in the research model was taken as a dependable construct/variable (DV) during model estimation, and the resulting Variance Inflation Factor (VIF) of the constructs/variables extracted. The results are presented in Table 5.10. The Table shows that all the constructs/variables returned VIF values less than the 3.3 criterion. Additional procedures --- such as the maintenance of confidentiality and the respondents' anonymity, during artefact demonstration and data collection, helped the researcher minimize CMB.

5.5 Moderation of Web Technology Portal

(a) Gender

Gender classification of the SA informal service providers, regarding all independent constructs (INTF, EXTF, SE, PE, EE, SI. FC, OPM, INNO, DISC, INSEC) did not affect their tendency to leverage web technology portal support.

The result is presented in Table 5.12 after multigroup analysis.

(b) Business Type

Business type was classified into two main subsectors: (a) services and (b) trade/retail for multigroup analysis to be performed. All the independent constructs (ID VAR) were operationalised on e-readiness for web technology portal support. The results are presented in Table 5.13

Table 5.10: Common Method Bias Assessment

	WTP	INSEC	DISC	INNO	OPM	EXTF	INTF	EE	PE	FC	SI
DISC	1.83	1.35		1.50	1.79	1.60	1.85	1.85	1.88	1.78	1.86
EE	2.48	2.51	2.46	2.37	2.52	2.48	2.46		2.40	2.48	2.34
EXTF	1.25	1.26	1.30	1.23	1.07		1.30	1.29	1.28	1.24	1.30
FC	2.84	2.81	2.82	2.53	2.78	2.81	2.85	2.77	2.72		2.68
INTF	2.35	2.30	2.37	2.01	2.33	2.08		2.26	2.28	2.33	2.26
INNO	1.36	1.29	1.31		1.27	1.38	1.33	1.30	1.34	1.31	1.34
INSEC	2.08		1.50	1.83	1.67	1.85	2.05	2.07	2.12	2.07	2.11
OPM	1.29	1.09	1.25	1.30		1.28	1.27	1.26	1.27	1.25	1.29
PE	2.21	2.22	2.17	2.22	2.07	2.26	2.25	2.16		2.14	2.26
SE	2.48	2.57	2.55	2.55	2.52	2.49	2.38	2.56	2.57	2.54	2.59
SI	2.23	2.29	2.28	2.22	2.26	2.27	2.23	2.18	2.28	2.16	
WTP		2.07	2.08	2.03	1.97	2.01	2.04	2.10	2.03	2.04	2.02

Table 5.11: Hypothesis

Hypothesis	Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Remark on hypothesis
H1	SE -> WTP	0.23	0.22	0.06	3.53	0.000	Supported
H2	PE -> WTP	0.14	0.15	0.06	2.22	0.030	Supported
H3	EE -> WTP	0.03	0.02	0.06	0.48	0.630	Not supported
H4	SI -> WTP	0.19	0.18	0.07	2.84	0.000	Supported
H5	FC-> WTP	0.09	0.09	0.07	1.41	0.160	Not supported
H6	OPM -> WTP	0.01	0.00	0.04	0.33	0.740	Not supported
H7	INNO -> WTP	-0.02	-0.02	0.05	0.49	0.620	Not supported
H8	DISC -> WTP	0.04	0.04	0.04	0.98	0.330	Not supported
H9	INSEC -> WTP	-0.07	-0.06	0.04	1.60	0.110	Not supported
H10	INTF -> WTP	-0.09	-0.09	0.06	1.35	0.180	Not supported
H11	EXTF-> WTP	0.17	0.17	0.04	3.84	0.000	Supported

Table 5.12: Effect of Independent Variables on WTP with respect to Gender (Moderating Variable)

Path	Path Coefficients-diff (MALE - FEMALE)	t-Value (|MALE vs FEMALE|)	p-Value (MALE vs FEMALE)
SE -> WTP	-0.15	1.08	0.280
PE -> WTP	0.01	0.09	0.930
EE-> WTP	0.20	1.51	0.130
SI -> WTP	-0.03	0.18	0.850
FC-> WTP	-0.21	1.56	0.120
OPM -> WTP	-0.14	1.81	0.070
INNO -> WTP	0.01	0.11	0.910
DISC -> WTP	-0.04	0.50	0.620
INSEC -> WTP	0.00	0.04	0.970
INTF-> WTP	-0.06	0.45	0.650
EXTF-> WTP	0.05	0.56	0.580

Here the *p* values are not significant at all after multigroup analysis. The *p* values are greater than 0.05

Table 5.13: Effect of Independent Variables on WTP with respect to Business Type (Moderating Variable)

Path	Path Coefficients-diff (TRADER - SERVICE_PRO)	t-Value (|TRADER vs SERVICE_PRO|)	p-Value (TRADER vs SERVICE_PRO)
DISC -> WTP	-0.14	1.50	0.13
EE -> WTP	-0.04	0.32	0.75
EXTF-> WTP	0.07	0.62	0.53
FC -> WTP	-0.05	0.40	0.69
INTF -> WTP	-0.07	0.58	0.57
INNO -> WTP	-0.01	0.06	0.95
INSEC -> WTP	0.04	0.39	0.70
OPM -> WTP	-0.06	0.73	0.47
PE -> WTP	-0.18	1.37	0.17
SE -> WTP	0.03	0.24	0.81
SI -> WTP	0.08	0.55	0.58

The results showed that *p* values were not significant after multigroup analysis.

Multiple group analysis was conducted to assess the effects of the independent variables on the use of a web technology portal in the subsectors of SA's informal sectors. Tables 5.12 or Table 5.13 show no significant differences in the predictive power pattern of the independent variables on web technology portal use by the SA informal sector with respect to gender/or subsectors. For example, the effect of self-efficacy on web technology portal use by the SA informal sector among the male sample was not different statistically from the effect of self-efficacy on web technology use by the SA informal sector among the female sample

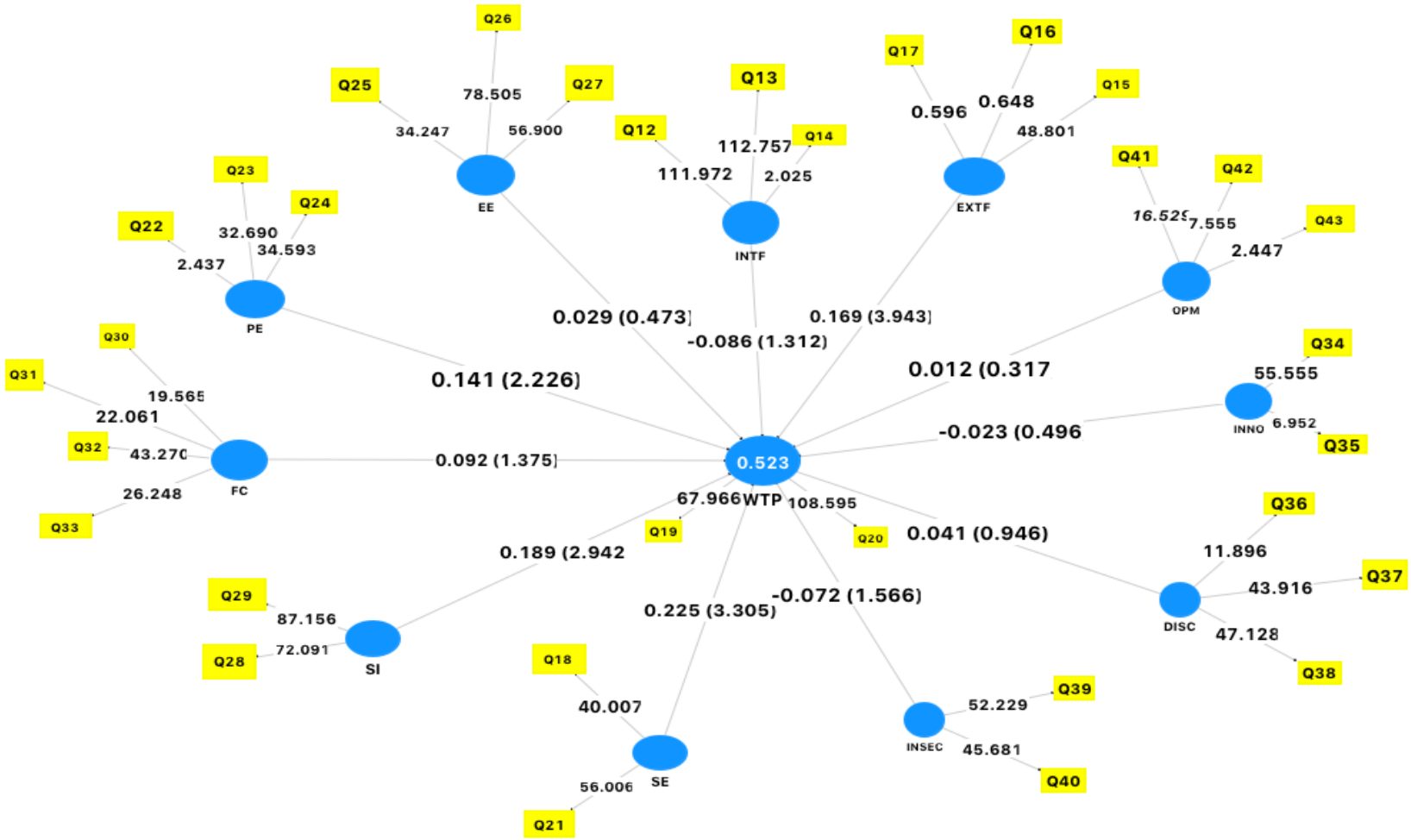

Figure 5.9: The structural model

The Size Effect on Web Technology Portal

Table 5.14: The Size Effect on WTP

Predictor	**WTP**
DISC	0.00
EE	0.00
EXTF	0.05
FC	0.01
INTF	0.01
INNO	0.00
INSEC	0.01
OPM	0.00
PE	0.02
SE	0.04
SI	0.03

From Table 5.14, we observe the results for effect sizes, f^2 for the respective path coefficient. According to Hair et al., (2014), a path with a high value of f^2, does imply that the endogenous construct is explained by the exogenous construct. Established as well as acceptable size effect f^2 values follow similar levels of predictive relevance (Q^2) with 0.02 (small); 0.15 (medium); and 0.35 (large) effect size (Hair et al., 2014). The size effect for this study exhibits small f^2 values.

5.6 Summary of the Chapter

The chapter dealt with data analysis and results. The demographics of the respondents in terms of age, gender, business type, residency, rationale, and the frequency of using online technology were presented. The inferential statistics consisted of extracted sums of squared loadings (% variances and cumulative %). A factor matrix (from principal axis factoring) was presented, and eventually, using partial least squares-SEM for determination of the various hypotheses (when supported and not supported) are discussed. The assessment of both the measurement and structural models was presented.

CHAPTER SIX

DISCUSSION OF THE FINDINGS

This chapter discusses the study's findings in relation to the objectives and research questions. This was achieved by focusing mainly on the results of the data analysis and the proposed hypotheses

6.1 Study Findings and Research Objectives

The thrust of the discussions would be the research objectives based on the following:

Aim

The aim is to assess the e-readiness of the South African informal sector service providers to utilise electronic web technology portals for increased visibility, brand promotion, and profitability

Objectives

i. To determine the degree of e-readiness of specific subsectors of the SA informal sector

ii. To determine the effect of gender type on the degree of e-readiness of service providers in the SA informal sector.

iii. To examine the effect of external factors on the e-readiness of SA informal sector service providers

iv. To examine the effect of internal factors on the e-readiness of SA informal sector service providers

v. To determine how the beliefs and perception of technology by SA informal sector providers affect their e-readiness

Main research question

What is the degree of e-readiness of the South African informal sector service providers to utilise web technology portal support?

Sub-research questions

SRQ1: What is the degree of e-readiness of specific subsectors of the SA informal sector?

SRQ2: What is the effect of gender type on the degree of e-readiness of SA informal sector service providers?

SRQ3: What is the effect of external factors on the e-readiness of the SA informal sector service providers?

SRQ4: What is the effect of internal factors on the e-readiness of the SA informal sector providers?

SRQ5: What is the impact of the beliefs and perceptions of technology by SA informal sector providers on their e-readiness?

6.2 Sub-sectors of the South African Informal Sector and E-readiness (SRQ 1)

The core sub-sectors included retail (12.9%), trade (23.9%), construction (8.8%), manufacturing (0.5%), health and beauty (22.0%), waste/recycling (1.7%), home maintenance/repairs (6.4%), short courses/training (1.9%), appliance repairs (4.3%), deep cleaning/domestic workers (4.3%), and others (13.1%). (Table 5.4a and Figure 5.3)

Using Table 5.13 (independent variables on the use of web technology portal with respect to business type), we observe that (t-statistics is positive, and $p > 0.05$). This indicates a non-significant positive influence of the SA informal sub-sectors on the degree of e-readiness of the service providers. Therefore.

The characterisation of the South African informal sector by sub-sectors has no significant influence on the degree of e-readiness of the informal sector.

Regarding SRQ1 of this study, there are no significant advantages to be obtained in assessing the e-readiness of the South African informal sector in terms of stratification based on the subsector. This might require further studies across several SA informal hotspots in other Provinces to validate this claim.

6.3 Gender and degree of e-readiness of the South African Informal Sector providers (SRQ 2)

Results showed that 50.4% of male and 49.6% of female respondents made up the sample. The percentage composition of men and women per age grouping showed that 45.8% men and 54.16% women were distributed in the age group (18 to 24 years), while 30.33% of men and 69.70% of women made up the age group (25 to 30 years). 56.25% of men and 43.75%

of women were in age grouping (31 to 40 years), while 58.47% of men and 41.52% of women were in the age grouping (41 to 50 years). The higher age grouping (51 to 60 years) were 51.21% men and 48.18% women, and above 60 years, 66.66% men to 33.33% women. Thus, this study showed that more men in the age groups from 31 to above 60 years took part in informal micro-enterprises.

Equally from Table 5.12; (t-statistics is positive, and $p > 0.05$), gender has a non-significant positive influence on the operational activities of informal businesses.

Even though men proportionately than women are more active in the informal sector, gender has a non-significant positive influence on the degree of e-readiness of the South African informal sector providers. Thus, gender has a minimal influence on the degree of SA informal sector providers to leverage web technology portal support.

Nguyen et al. (2014a) posit that entrepreneurial activities are impacted by age, gender, experience, educational status, and financial constraints. Morris and Doss (1999), Obisesan et al. (2014) and Mishra et al. (2015), in the African context, observed that men had more propensity to adopt technology than women. The main argument to substantiate this statement was that men were more financially endowed than women. Obisesan et al. (2014), using Nigeria, observed 26% more adoption propensity for male adopters than female adopters. This result was influenced by gender, off-farm activities, distance to market, cultivated acreage, farming experience in several years, availability of credit, and educational status.

However, this study found no significant relationship between gender type and degree of e-readiness. This finding satisfies SRQ2, but more research is needed in the future to ascertain what impact gender might have on the degree of e-readiness of South African informal service providers to use web technology.

6.4 Effect of external factors and the degree of e-readiness of South African Informal Sector (SRQ3)

Using Table 5.11, for external factors (H11: $t = 3.84$, $p=0.000$), we conclude that external factors such as governments' support for the informal sector by providing free data, unavailability of constant power supply, and no internet hotspots in informal communities, have a significant positive influence on e-readiness. This means that external factors can positively affect e-readiness. - Therefore, H11 is supported.

With a 95% confidence level (CI) / or 5% significant level, the study showed that government support by providing data, non-availability of constant power supply, and non-availability of internet hotspots in informal sector communities did significantly affect the propensity of micro-

entrepreneurs to leverage on web technology portal support. These factors can positively influence their degree of e-readiness.

Hence, SRQ3 in the study is satisfied. External factors are major determinants of the degree of e-readiness of the South African informal sector service providers.

6.4 Effect of internal factors and the degree of e-readiness of SA informal sector (SRQ4)

PLS-SEM analysis showed that the internal factors: such as not being interested in the use of online technology, not being skilled in the use of online technology, and not earning enough to warrant investments in technology, had a non-significant influence on e-readiness.

Tables 5.11: showed the significant value for internal factors as:

H10: t = 1.35, p= 0.180, (hence p > 0.05). The observed p-value is more than the accepted value of *0.05*. Hence, ***H10*** is rejected (not supported), therefore we assume that the relationship is not significant, but due to chance.

Therefore, internal factors do not significantly influence the ability of informal sector service providers in the Cape Town metropolis to use web technology portals, and thus their degree of e-readiness. This satisfies (SRQ4) of the study.

6.6 Effect of the belief and the perception of technology by the SA informal sector providers on their e-readiness (SRQ5)

The perceptions of the informal sector service providers about the use of web technology portals (e-readiness) were assessed by testing the relevant hypotheses in the study with the conceptual research model.

6.6.1 H1: Self-efficacy has a positive effect on use of web technology portal (WTP)

SE→WTP

Self-efficacy (*H1*; *t = 3.53, p=.000*); thus, p < .05 (Tables 5.11) indicates a positive effect (positive influence) on the use of web technology portals, and therefore the hypothesis was supported.

According to Bandura (1977; 1986, 1997), self-efficacy signifies the personal beliefs that an individual has relative to his/her ability to execute behavioural tendencies required to complete specific tasks. The study showed that despite contributions from professional accomplishment/experience, vicarious experience, social persuasion, and psychological/emotional states to improved levels of self-efficacy, internal factors played a more dominant role in web technology portal use. Self-efficacy has a significant positive influence on the use of web technology portal support. Internal factors such as (i) no interest

in using technology, (ii) not being skilled in the use of technology, and (iii) not having substantial earnings to invest in technology can be overcome easily with sustained training in skills improvement and financial empowerment.

H1 has a significant positive influence on the use of web technology portals, and therefore, on the e-readiness of the informal sector service providers.

Using a TAM model and LISREL as SEM software, Chau (2001) opined that computer self-efficacy had a very small but negative effect on perceived usefulness (PU) and no significant effect on perceived ease of use (PEOU). The rationale for including computer attitude and self-efficacy in TAM, in the views of Chau (2001), was to greatly improve the explanatory power of the hypothesised model on the variance governing perceived (PU) usefulness. This was to enhance the behavioural intention of using Information Systems.

Usually, it is theorised that perceived usefulness (PU) can be predicted by computer self-efficacy because perceptions of competence to use technology infers the ability to use it for increased productivity and effectiveness at work and in life.

6.6.2 H2: Performance expectancy has a positive influence on the use of web technology portal (WTP)

PE→ WTP

Performance expectancy (H2; t = 2.22, p = 0.030), has a significant positive influence on the use of web technology portals. *Therefore, p < 0.05 and H2 is supported* (Table 5.11)

Performance expectancy represents the personal belief that actions will lead to intended performance objectives/goals. This belief is driven by past experiences, self-confidence, and perceived difficulty attaining the goal. Competence, goals, difficulty, and control are factors that act on perceptions of individuals' performance expectations (Vroom, 1964; Sair & Danish, 2018; Engotoit, Kituyi & Moya, 2016). Regarding SA informal service providers, moderate levels of self-efficacy enhance performance expectancy, and therefore on beneficial outcomes (performance expectancy) to be derived from the use of web technology portals.

6.6.3 H3: Effort expectancy has a positive effect on the use of web technology portal (WTP)

EE→ WTP

Effort expectancy (*H3*; *t = 0.48, p =0.630*); showed *a non-significant positive effect on the* use of web technology portals and hence on the e-readiness of the informal sector workers. (Table 5.11). Therefore, *H3 has a non-significant positive influence on e-readiness and is not supported*.

The SA informal sector service providers believe that using a web technology portal will be relatively easy. However, not being skilled in using technology, and not being interested in using technology negatively affected their desire to use web technology portals. This then impacted the degree of ease associated with the use of web technology portals.

6.6.4 H4: Social influence has a positive influence on the use of web technology portal (WTP)

SI → WTP

Social influence (*SI*) (*H4*; *t = 2.84, p=.000, p =0.000*) has a significant positive influence on users' intention to use web technology portals and, therefore, on their degree of e-readiness. Hence, using established rules, H4 is supported (p <.05) (Table 5.11)

Therefore, social influence (persuasion from friends, colleagues, family members, peers) helped to enhance their propensity to use web technology portals.

6.6.5 H5: Facilitating conditions have a positive influence on the use of web technology portal (WTP)

FC → WTP

Facilitating conditions (H5; *t = 1.41, p = 0.160, p > 0.05*), show that there is a non-significant positive influence on users' desire/intention to use the web technology portal (p > 0.05) and therefore H5 is not supported. It is observed as a chanced occurrence (Table 5.11)

According to Venkatesh et al. (2003) UTAUT model shows the relationship between intent to behave (behavioural intention) and behaviour to use a technology (user behaviour). These are typically influenced by the expectation of performance (represented by performance expectancy), expectations during business operations (effort expectancy), social influence, and what supporting conditions (as facilitating conditions) are available. All these constructs are moderated by age, gender, experience, and voluntariness of use. The model - UTAUT is a combination of eight other models – theory of reasoned action (TRA), technology adoption model (TAM), motivational model (MM), theory of planned behaviour (TPB), combined TAM and TPB, model of PC utilization (MPCU), innovation of diffusion theory (IDT) and social cognitive theory (SCT). Using UTAUT is more adaptable to each of the eight theories and explains 70% of the variance (Venkatesh et al., 2004).

An initial evaluation of the (UTAUT) model by Venkatesh et al. (2003) indicated that these constructs such as Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), attitude toward the use of technology, and self-efficacy, showed significant direct determinants of behavioural intentions/use behaviour. A further

evaluation presented four main constructs (PE. EE, SI and FCs) as primary determinants of behavioural intention, while others might not be significant.

This study showed that facilitating conditions had a non-significant positive influence on the use of web technology portals, which translates to behaviour to use technology (or users' behaviour). Thus, the SA informal service providers were unaware of possible access to technical, institutional, and governmental help that might facilitate perceived ease of use (PEOU) of web technology portal and their degree of e-readiness.

6.6.6 H6: Optimism influences users' readiness to use web technology portal (WTP)

OPM →WTP

Optimism (*H6: t=0.33, p=0.740, with p>.05*) showed a non-significant positive influence on users' desire to use web technology portals. Thus, there is no optimism about using web technology portals despite the added advantage of bestowing more control on the user and enhancing the overall quality of life. H6 is not supported in this study.

Parasuraman (2000), devised the Technology Readiness Index (TRI) as a measure for people to use newer technologies/innovations to achieve specific life goals. Peoples' tendency to embrace and use new technologies to accomplish goals in either home life or at work represents technology readiness (Ling & Moi, 2007). People's perceptions of technology have positive and negative sides. Optimism dimensionally signifies a positive view of technology and the belief that it will be advantageous to use technology to improve an individual's efficiency and performance at work or in the home. As a construct, optimism portrays control, flexibility, and efficiency in peoples' lives. Optimism looks at technology holistically per its usefulness and ease of use with little emphasis on the negative aspect of its use (Kuo & Liu, 2013).

Consequently, optimists are more predisposed to the use of new technologies, not running away from reality. Here, the SA informal providers are not optimistic about using web technology portal. Compelling factors such as discomfort, and unawareness of the availability of facilitating conditions probably impede their intention to use web technology portals.

6.6.7 H7: Innovativeness influences users' readiness to use web technology portal (WTP)

INNO → WTP

Innovativeness (*H7*; *t =0.49, p= 0.620; p > .05*). The readiness to use web technology portal immediately it is introduced into the marketplace showed a non-significant positive influence on web technology portal usage and their technology readiness. H7 is not supported.

Innovativeness, as a construct, refers to being a pioneer and an important determinant of the perceptions of convenience to be derived and perceived usefulness (Kuo & Liu, 2013). People with very high technological innovativeness experience thrills in using new technologies and exhibit intrinsic motivation to try fresh innovations. This translates into their being early adopters (Walczuch et al., 2017). The wage earnings of 78% of the SA informal sector service provider is about ZAR 79,000 per annum or (USD 4,647/annum) (Rogan & Skinner, 2019). According to the SA Internal Revenue Board (Rogan & Skinner, 2019), this is below the base threshold of taxable income for South Africans. Typical hourly wage earnings for a one-account worker in the informal sector are R 18 (USD 1.20) for men compared to R13 (USD 0.88) for women. Insufficient wage earnings affect their innovativeness. Granted that the informal sector service providers are "digital immigrants" having exposure to technology during their productive lives, as opposed to "digital natives" born with technology (Prenskey, 2001), it is understandable why they have a lower tendency to innovativeness in web technology portal usage. This is compounded by the fact that they must adapt to new technology and feel comfortable around technology. More so, the SA informal worker lacks the necessary skills in using technology.

This finding could be explained further by using Roger's (1962; 1995) Diffusion of Innovation model (Figure 6.1). Informal sector providers in Cape Town metropolis might be considered not as 2.5% (innovators)/or 13.5% early adopters but may likely fall into the 34% (late majority and 16% laggards). This is due to their wage earnings. Laggards are, unfortunately, older individuals or older women with low earnings, a lower standard of education and lower employable skills.

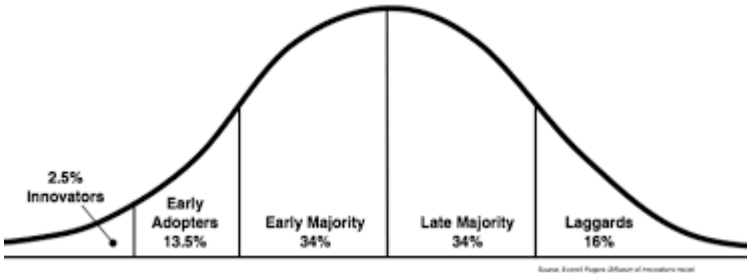

Figure 6.1: Diffusion of Innovation model (Rogers, 1962; 1995).

This hypothesis (H7) is not supported

6.6.8 H8: Discomfort significantly affects user's readiness to use web technology portal (WTP)

DISC → WTP

Discomfort (*H8*; *t = 0.98, p= 0.330, thus p > .05*) showed a non-significant positive relationship to the user's desire to use a web technology portal.

Discomfort gives the perceptions of lack of control over web technology portals because individuals are overwhelmed by technology (Kuo & Liu, 2013). People who show discomfort in using web technology portals believe that technology is complicated for an end-user. Thus, technology is not user-friendly and not meant for the public good. They prefer to use traditional modes of micro-enterprise operation with crude technologies.

This hypothesis (H8) – depending on traditional modes of business operations because one is afraid of technology or that web technology portal is difficult to use, is not supported. *Discomfort significantly does not affect/influence the ability of micro-entrepreneurs to use web technology portals.*

6.6.9 H9: Insecurity significantly affects users' readiness to use web technology portal (WTP)

INSEC → WTP

Insecurity *(H9*; *t = 1.60, p =0.110, hence p > 0.05*), has a non-significant positive effect on users' readiness to use web technology portals. Therefore, the argument that depending heavily on technology can be harmful to business, and (b) that using a web technology portal can lead to problems/disruptions in business operations has no significant effect due to p> 0.05. This ultimately affects their technology readiness. Hypothesis (H9) is not supported.

In the views of Parasuraman (2000), the TRI model utilises four psychological variables: (optimism, innovativeness, discomfort, and insecurity) to assess users' readiness for fresh innovation/technology: (a) optimism, reflects a positive attitude to technology with the perception that using technology would improve control and enhance flexibility and life efficiency; (b) innovativeness – depicts the tendency of an individual to be the first to employ technology when newly introduced to the marketplace. He/she likes to try new technology. Also, they are excited and are forerunners in experimenting with newer innovations; (c) discomfort – having difficulty controlling technology. They seem overwhelmed by it; (d) insecurity - signifying problems regarding technology security and questions about personal data. This introduces an element of distrust of technology-based applications, transactions, and workability (Rose & Fogarty, 2010). Generally, optimism and innovativeness are observed as "contributors" to technology readiness, while discomfort and insecurity are "barriers" to technology readiness.

According to Parasuraman (2000) and Parasuraman and Colby (2001), TRI determines one's perceptions/opinions or beliefs about technology. It considers one's innovative abilities /mastery capabilities. Using this perspective, the technology-readiness score characterises users into explorers, pioneers, sceptics, paranoids, and laggards. Optimism and innovativeness drive the highest score (as contributors), while discomfort, and insecurity led to the lowest score (as inhibitors). Explorers are interested in new technologies, becoming the first to explore and try newer technologies. Socio-economically, explorers are young, male, highly educated with high salaries. Comparatively, laggards are the least adopters of new technologies. They generally exhibit the highest scores in the measure of inhibitors and lowest scores in the dimensions of contributors. Laggards are typically older segments of the society, women with lower educational and income levels. In consideration of the other three groups - pioneers, sceptics, paranoids have rather complex perceptions of technology (Parasuraman, 2000; Parasuraman & Colby, 2001).

This study showed that discomfort, optimism, innovativeness, and insecurity have a non-significant positive influence on technology readiness. This supports the argument that most informal sector service providers are either paranoid/late majority (34%) or 16% laggards.

Employing the synthesised proposed model, the data analysis showed that four constructs, external factors, performance expectancy, self-efficacy, social influence had positive relationships with e-readiness to use web technology portal. The other seven, *effort expectancy, facilitating conditions, optimism, innovativeness, insecurity, and internal factors all had a non-significant positive influence on e-readiness.*

Comparatively, Rinjany (2020), utilising the unified theory of acceptance and use of technology (UTAUT) and technology readiness index (TRI) as a study model in relationship to e-government on a target population in Indonesia with a sample size of 225, opined that citizen living in Jakarta (SCR citizens) could still be characterised as possessing low TRI (are considered as belonging to the Low Technology Readiness Group, with a TRI value equal to 2.7). The data analysis was done with the help of descriptive statistics and multiple linear regression. However, he opined that the constructs (PE. EE. SI and FC) showed significant positive effects on behavioural intention to use the system (BIUS) – as the dependable variable.

Generally, the beliefs and perceptions of South African informal sector service providers to web technology portal support did not significantly affect their intention to use technology. Hence, for the sub-research question (SRQ5), only SE, PE, and SI out of nine constructs were supported

6.7 Chapter Summary

This chapter discussed the study's findings per the gender; sub-sector characteristics of web technology portal support/ or e-readiness. The various hypotheses were explained in terms of being supported or not supported. The relevance of the constructs from SET, UTAUT and TRI were explained with a broader interpretation from the study.

CHAPTER SEVEN

CONCLUSION AND RECOMMENDATION

This chapter presents the summary, conclusion, contributions, limitations of the study, direction for future work, and recommendations.

7.1 Summary

Generally, this thesis assessed the degree of e-readiness of SA informal sector service providers and the internal and external factors that affect the utilisation of web technology portal support. In this context, the study was based on a conceptual framework synthesised from three theories: the Self-Efficacy Theory (SET), the Unified Theory of Acceptance and Use of Technology (UTAUT), and the Technology Readiness Index (TRI). The constructs in the conceptual framework of the study are performance expectancy, effort expectancy, social influence, optimism, innovativeness, discomfort, insecurity of behavioural intent to use web technology portal, self-efficacy, and facilitating conditions on perceived ease of use. These constructs were used to assess the e-readiness of the South African informal sector to use electronic portal technology.

The objectives of this study were achieved as follows:

Objective 1: To determine the degree of e-readiness of specific sub-sectors of the South African informal sector

This study showed no significant advantage from assessing the e-readiness of the informal sector by stratification because of its different subsectors. Using business type as a moderating variable only brought minimal improvement to the theorised research model after analysis using structural equation modelling (PLS-SEM).

Objective 2: To determine the effect of gender type on the degree of e-readiness of service providers in the SA informal sector

Some authors have observed differences in technology adoption between gender in the African context: in Uganda (Mishra et al., 2015), Nigeria (Obisesan et al., 2014), and Ghana (Morris & Doss 1999). These authors posit that male entrepreneurs were more prone to adopting technology than their female counterparts. This is attributable to their financial endowment over women. Additionally, Nguyen et al. (2014a) posit that entrepreneurial activities are affected by gender, educational status, age, and experience. However, regarding objective 2, this study showed that gender as a moderating variable had a minimal significant influence on the degree of e-readiness of the SA informal service providers.

Objective 3: To examine the effect of external factors on the e-readiness of SA informal sector service providers.

This study showed that external factors such as governments' support for data acquisition, non-availability of constant power in communities/localities, and the absence of internet hotspots in informal settlements, significantly affected the propensity of micro-entrepreneurs to leverage web technology portal support. (H11 is supported).

Objective 4: To determine the effect of internal factors on the e-readiness of SA informal sector service providers.

Internal factors, such as showing no interest in using online technology, not being skilled properly in the use of online technology, and not earning substantially to allow for the investments in newer technologies contributed to a non-significant influence on web technology portal support. Thus, H10 is not supported.

Objective 5: To determine how the belief and perception of technology by the SA informal sector service providers affect their e-readiness.

The belief and perceptions were elucidated through the constructs adapted for this study. The hypothesised research model, synthesised from Self -efficacy Theory (SET), Unified Theory of Acceptance and Use of Technology (UTAUT), and Technology Readiness Index (TRI), contained nine (9) constructs. Of these, discomfort (DISC-TRI) had a non-significant positive influence on e-readiness, effort expectancy (EE-UTAUT), innovativeness (INNO-TRI), optimism (OPM-TRI), discomfort (DIS-TRI), insecurity (INSEC-TRI), and facilitating conditions (FC-UTAUT), all had non-significant positive influence on e-readiness of the SA informal sector providers; while self-efficacy (SE), performance expectancy (PE-UTAUT), social influence (SI-UTAUT), and external factors - all had a significant positive influence on e-readiness of the SA informal workers to use web technology portals.

This study observed a significant positive relationship between self-efficacy, performance expectancy, social influence, and external factors on using web technology portals. This implies that informal sector service providers who intend to adopt web technology portals exhibited significant positive behaviour despite inhibiting internal factors, feelings of discomfort in using technology, lack of innovativeness, absence of optimism, and feelings of insecurity towards technology. Their significant others (family members, peers, colleagues, friends) provide persuasive psychological motivation for them to overcome barriers to all internal factors; discomfort, optimism, innovativeness, effort expectancy, insecurity, and facilitating conditions. This then propels them to take decisive actions toward using web technology portals.

Performance expectancy (PE) social influence (modelling), self-efficacy, and external factors all drove the imperatives for a positive and significant relationship with their intent to use technology and, therefore, to technology readiness. This implies a strong relationship between the exogenous variables (PE, SI, SE, EXTF) and the endogenous variable e-readiness to use web technology portals. Interpretatively, although informal sector workers showed significant positive intent to use web technology portals, with others (friends, family members, peers etc.) playing a significant role in stimulating this intention, generally, these workers were not optimistic about technology, innovative enough per technology use, and did not feel secure with technology. More so, they did not trust available facilitating conditions as being sufficient to warrant the need to leverage web technology portal support. Thus, their intention to use web technology portals is impacted negatively due to the perceived difficulties in using technology to control, maintain a flexible life, and obtain more productive outcomes at home and work. Thus, informal sector service providers do not control all internal factors, ease of use (EE), or infrastructural challenges (FCs) that impede the necessity of using web technology portals for business venturing. These perspectives require more research and hypothesis building.

However, it could be argued that exogenous variables of Performance Expectancy (PE), Self-Efficacy (SE), and Social Influence (SI) all showed significant positive relationships with the intent to use web technology portals and technology readiness. All hypotheses were supported. These imply direct relationships between exogenous variables (PE, SE, and SI) and the use of web technology portals (endogenous variable). Therefore, informal sector service providers who showed a significant positive intent to use web technology portals for business operation are impacted positively by performance expectations, significant levels of Self-Efficacy, and Social Influence. Therefore, perceived performance expectations, enhanced social influence, and significant levels of self-efficacy could be accepted as the dominant drivers of using web technology portals by the SA informal sector service providers.

7.1.1 Moderating Variables: Gender and Business Type

In the Unified Theory of Acceptance and Use of Technology (UTAUT) model developed by Venkatesh *et al.* (2003), the important constructs of the model (Performance Expectancy (PE). Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FCs) are moderated by age, gender, innovativeness of use, and experience. Therefore, it became apparent that to provide reasonable and acceptable answers to the objectives of the study, it was necessary to introduce moderating variables of gender and business type into the analytical process. Entrepreneurial activities (represented by the SA informal worker / informal service provider) are driven by socio-demographic variables such as age, gender, experience, educational

status, and financial constraints (Nguyen et al., 2014a). In developing countries, several authors have emphasised the role of gender in technology adoption (Morris and Doss, 1999; Obisesan, 2014; Mishra *et al*., 2015). Hence, the imperative to assess the similarities or differences in web technology portal use or being "e-ready" by the SA informal service providers in terms of gender. Utilising a three-prong approach - (i) using laggard dependent variables by way of Dynamic Probit model to account for the dynamism in technology adoption, (ii) utilising CML Probit to account for technology adoption at the initial phase, and (iii) replicating earlier methodology for the investigation of the dynamism in technology adoption to cater for male and female-run households, Mishra *et al.,* (2015) found the following about Uganda: (a) for combined household analysis (with male and female occupants), technology adoption in the initial period is the primary driver of technology adoption in subsequent periods. Here, technology adoption is driven solely by male-headed households. Men formed part of the sample analysed. They were endowed financially, while for female-run households, the analysis showed that they were less prone to adopt technology initially because they were less financially endowed. Generally, laggard technology was the main driver, suggesting that female-headed households were more prone to migrating in and out of the adoption status, depending on their experiences with technology, and (c) the very poor were unlikely to ever adopt the technology.

Another perspective from Nigeria is given by Obisesan (2014), who employed Propensity Score Matching, descriptive statistics, and Foster-GreerThorbecke weighted poverty index for data analysis. He observed adoption levels of 26% more for male adopters than their female counterparts. Equally, adoption levels were significantly influenced by gender, off-farm activities, distance to market, cultivated acreage, farming experiences in terms of the number of years, availability of credit, educational status, and cassava yields. Improved technology access on the headcount index was 12.5% higher for male adopters than 5.62% for female adopters.

This study showed no apparent differences between gender and sub-sectors of the SA informal sector in web technology portal support and, therefore, their technology readiness.

7.2 Conclusion

This study attempts to increase the visibility, brand promotion, and profitability of informal sector workers by using web technology portals. The choice of this method (a survey strategy, a questionnaire as the instrument for data acquisition, and PLS-SEM as the analytical tool) was due to the uncertainty behind sample size, lack of firm knowledge of a multivariate distributed dataset, and the very complex nature of the constructs. Even though three hypotheses/constructs (PE, SE, and SI) were supported, other constructs, such as Effort

Expectancy, Facilitating Conditions, Optimism, Innovativeness, Discomfort, and Insecurity- were not supported but fell within the expected results. A study conducted by Rinjany (2020), using the Unified Theory of Acceptance and Use of Technology (UTAUT) and Technology Readiness Index (TRI) on citizens in Jakarta, Indonesia, found a low TRI value of 2.7, but significant positive values for performance expectancy (PE), effort expectancy (EE), social influence (SI) and facilitating conditions (FCs), on the dependable variable (behavioural intention to use the system - BIUS).

Additionally, the level of intent to use web technology portal support and thus their technology readiness (e-readiness) was low because most of the constructs in the study's hypotheses were not supported. Thus, considering that most of the informal sector service providers have various degrees/levels of contact with innovation in their adult lives, with a comparative disparity in their feelings of discomfort, optimism, insecurity around technology, low levels of innovativeness and effort expectancy, the study concludes that the informal sector service providers/workers are either late adopters or laggards in technology use.

7.3 Contributions

The contributions of the work were assessed from three different aspects: theoretical, methodological, and practical perspectives. This study focused on determining the e-readiness of the informal sector of SA for technology portal support and adoption.

7.3.1 Theoretical Contribution

Extant literature has shown that most studies on the SA informal sector (Skinner, 2016; 2018; 2019; Rogan & Skinner, 2017; 2019; Fourie, 2018) focused on policy and government legislation to enhance the productivity of the informal practitioners. South African e-government portals targeting the informal economy, detailed characterisation, challenges, spatial distribution, and policy as the pathway to protecting and facilitating productivity. However, Daramola (2018; 2021), Etim and Daramola, (2020); Larsson and Svensson, (2018); Berrou and Eckhout, (2019) opined that a technology-centric approach could also be employed for enhancing the productivity of the informal practitioners. From this perspective, this study utilised a synthesised research model to assess the e-readiness of the SA informal practitioners to use web technology portals for increased visibility, brand promotion, profitability, and semi-formalisation of the sector. In this regard, it is an extension of scholarship about studies on technology readiness of the informal sector in South Africa to use web technology portal specifically for business operations.

7.3.2 Methodological Contribution

This study provides a methodological contribution by combining Self-efficacy theory, Unified Theory of Adoption and Use of Technology, and Technology Readiness Index to synthesise a conceptual framework used to assess the e-readiness of the SA informal sector for web technology portal support. The synthesised conceptual framework (as a new theoretical lens) used for the study is novel because it has not been applied in prior studies.

7.3.4 Practical Contribution

Practically, this study will provide a good foundation for developing a web technology portal to support the SA informal sector. A prototype artefact was built for the study (https://uvuyo-prod.firebaseapp.com). The web technology portal representing a digital platform will be dedicated to servicing the needs of SA informal workers. Overall, the digital platform will contribute significantly to the SA digital economy.

Also, this study has significant implications for the informal sector of SA and the government of South Africa. The study contributes to the policy redress intended by the SA government to mitigate the constraints of informal sector service providers in terms of productivity, brand promotion, efficiency, and eventual semi-formalisation. Moreover, the findings in this study will enable relevant SA government agencies to understand better how best to support SA informal service providers. Gender characteristics and sub-sector differences should not drive any targeted support for the informal sector. A holistic approach is required for all informal practitioners.

7.3.5 Managerial/Design Implications

The findings have identified determinants that the SA informal sector practitioners emphasise, namely self-efficacy, performance expectancy, external factors, and social influence. All (4) constructs had significant positive influence on the degree of e-readiness to use web technology portals. The hypotheses related to these constructs were supported. From the findings, valuable insights for mobile software designers/developers, mobile sales personnel, mobile commerce merchants, online retailers, and other related stakeholders are conveyed. Regarding these valuable insights, designers must factor in performance expectations, self-efficacy, and social influence on web technology portals in the future. The dominant determinant is performance expectancy. Web technology portals must satisfy the core interests of SA informal sector service providers in that they must meet all expectations in business operations. When this phenomenon is satisfied, their self-efficacy per technology use would be enhanced, and social influence will come into play to incentivise them to leverage web technology portal support.

From a managerial perspective, effort expectancy, facilitating conditions, optimism, innovativeness, discomfort, and insecurity are non-significant determinants of their workers/employees using web technology portals. All these constructs are not supported. The most important requirement is for management to try to facilitate/induce high self-efficacy and performance expectations, by stressing the potential benefits to be obtained from the performance of the web technology portal. When this is achieved, all other non-significant constructs/determinants could be minimised, hence the eventual leveraging of web technology portal for daily business operations.

7.4 Limitations of the Study

The sample size is one of the limitations of this study. The totality of informal sector hotspots in the Cape Town metropolis could not be adequately ascertained due to the absence of a database from the government with a statistical number that was deemed accurate. Therefore, given this uncertainty, the collation of data from hotspots in Cape Town city, Khayelitsha, Delft, Phillippi, and Nyanga led to a sample size of 419. The QLFS (Q1, 2021) for the City of Cape Town (WC) states that 160,000 persons were employed in the informal sector and 63,000 in private households (Stats SA, 2021:64). However, most informal activities that occur in the grey area go unreported. Due to this uncertainty, PLS-SEM became the chosen analytical tool.

Also, demographics about the respondents, such as gender, age, residency status, business type, frequency, and reasons for using online technology, were skewed toward the older population from 31 to over 60 years old. These were mainly shop owners and persons whose businesses were in informal hotspots.

Secondly, the sampling and scope were limited to informal sector hotspots in the Cape Town metropolis. The study population in other SA provinces, such as KwaZulu Natal, Limpopo, and Eastern Cape with relatively high informal sector concentration, should be undertaken before generalising the informal sector population. Hence, replication studies in these provinces (Eastern Cape, Limpopo, KwaZulu Natal, etc.) would be needed to validate the study's findings further.

The collected data (as opinions/perceptions) on web technology portal support came from the present disposition of informal sector service providers. Therefore, the degree of e-readiness alignment with their intent to utilise web portal technologies in the future might change, depending on circumstances and financial constraints.

7.4 Directions for Future Research

This study provides various opportunities for further research on the e-readiness of the SA informal sector. These are outlined as follows:

a): Replication Studies

IS/IT research is built on opinions of a target population to the constructs (latent variables, factors, conceptual variables) and observable variables (indicators or measures) embedded in several IS theories. Because of demographic differences/disparity between individual informal sector workers, it would prove ideal and useful for other studies to be directed at other informal sector provincial hotspots (SA) for ascertaining the goodness-of-fit (GoF) of the conceptual model for determining e-readiness to be initiated. It will also create a basis for more robust generalisation on the state of e-readiness of the South African informal sector for technology support.

b): Focus on Specific Demographics

To ensure a deeper understanding of the e-readiness of the SA informal sector, it will be necessary to conduct studies that focus on specific groups and sub-sectors of the SA informal sector. This type of study could include female micro-entrepreneurs, young micro-entrepreneurs, and older people in specific sub-sectors.

c): Comparative Studies

Involve the determination of e-readiness across similar sub-sectors and similar demographics of the informal economy. Entrepreneurial activities are generally influenced by gender, age, financial constraints, type of business operations, and educational status of practitioners (Nguyen et al., 2018). This study is necessary to validate how the controlled variables of gender and business type (sub-sectors) affect the degree of e-readiness of the SA informal sector.

d): Use of Different Theoretical Lenses

Studies could be directed to the application of other IS/IT adoption models such as Technology Organisation Environment Framework (ToE), Theory of Diffusion of Innovation (Rogers, 1986), Technology Acceptance Model (TAM) (Davis et al. 1989), Theory of Task Technology Fit (TTF) (Goodhau & Thompson, 1995) Perceived e-readiness Model (PREM) (Molla & Licker, 2005). This will facilitate theory development on the e-readiness of the informal sector since not many studies have focused on this important issue globally.

7.5 Recommendations

The narrative for web technology support for the SA informal sector practitioners is based on the premise that it can enhance visibility, brand promotion, productivity, efficiency, profitability, and semi-formalisation. The recommendations would be considered according to the findings of the study: -

a): The characterisation of the SA informal sector into sub-sectors has no significant influence on the degree of e-readiness. Therefore, the government should initiate policies that will ensure technology support and adoption to all sub-sectors of the informal sector of South Africa.

b): Gender type contributes minimally to the degree of e-readiness of the SA informal sector service providers; hence governments' support for technology adoption by the informal sector should be holistic and encompassing irrespective of gender.

c): External factors did not significantly affect the propensity of micro-entrepreneurs to leverage on web technology portal support, and correspondingly on the degree of e-readiness. Government, multinational corporations, telecom providers in South Africa should invest in public infrastructures such as constant power supply, internet hotspots in informal sector communities, and the provision of free and cheap data to ensure that informal sector service providers can leverage web technology portal support.

d): Internal factors significantly influenced the ability of the SA informal sector service providers in Cape Town metropolis to adopt a web technology portal. The main determinants of internal factors are lower interest in online technology use, low interpersonal skills, and insufficient wage earnings from micro-enterprises to warrant investments in technology. Investments in sustained training for skills acquisition and development by other stakeholders (NGOs) is highly recommended. This will make the informal sector practitioners comfortable, skilled, and innovative toward web technology portal support.

Additionally, non-governmental organisations (NGOs) might expedite information content on web technology portal platforms targeted at indigenous communities. Languages such as Xhosa, Afrikaans, Venda, Tawana, Tsonga, Zulu, and Sotho may increase interest in future adoption and usage.

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APPENDICES

Appendix A

E-readiness of the South African Informal Sector providers to E-Portal Technology Support

Dear Respondent,

We are please asking your help to complete this questionnaire. The aim of this study is to assess the readiness of the South African informal sector to use web-portal Technology (website) to support their business activities. Your identity and response would be kept strictly confidential and no information that is provided would be used to your disadvantage. You can withdraw from this survey at any time.

Kindly put in your signature if you consent to participate in this survey.

Thank you for your time and corporation.

Signature…….

Section A: Demographics

1. What is your gender: [A] Male [B] Female [C] Non-binary [D] Prefer not to say?
2. Age Group: [a] between 18 and 24 yrs. [b] 25-30yrs [c] 31-40yrs [d] 41-50yrs [e] 51-60yrs [f] above 60 years.
3. Business Type [a] Retail [b] Trade [c] Construction [d] Manufacturing [e] Health and Beauty services [f] Waste re-cycling [g] Mining [h] Home maintenance and repair services [i] Short courses and training [j] Appliances repairs [k] Deep Cleaning services. [l] Other.
4. Specify job type: [a] landscaping, plumbing, electrician, mason, carpentry, handyman, pipe fitters, blacksmith, craftsmen, and painters.

   [b] Mechanics, vulcanizers, manufacturing, refrigeration

[c] Hairdressers, barbers, cosmeticians, beauticians, manicuring

[d] Retail/trade, road-side trading/hawkers, shops, spaza, shebeens

[e] Recyclers, waste-pickers

[f] Short course training, apprenticeship

[g] Deep cleaning, domestic workers, fashion design, tailoring, cobbling, business/internet centres

[i] Taxi drivers, security personnel

[j] Other

5. Description of job type……
6. What is the location of your business?
   ……..
7. Are you ? [a] South African [b] African Foreigner [c] Permanent Resident [d] Non-African Foreigner

Section B: Background Information

8 How long have you been in the informal business? [a] Less than 5 years. [b] 5-10 yrs. [c] More than 10 years.

9 How often do you use online technology/social media such as (Gumtree, TAKEALOT, BIDORBUY, Facebook, and Instagram) for your business?

[A] Daily [b] Occasionally [c] Never

10 What kind of device do you use? [Indicate as many as possible] [a] PC Notebook [b] Mobile phone [c] Smartphone [d] PC Tablet [e] Other?.....

11 For what purpose do you use online technology/social media such as (Gumtree, TAKEALOT, BIDOBUY, Facebook, and Instagram)? [A] Business activities [b] personal activities [c] social networking

INT/EXT

Please indicate with an (x) what best describes your opinion to the questions given below.

(1) Strongly disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

S/N	QUESTIONS	1	2	3	4	5
	Section C					
12	I am not interested in the use of online technology (such as Gumtree, TAKEALOT, BIDORBUY, Facebook, Instagram) for my business activities					

13	I am not skilled in the use of online technology (such as Gumtree, TAKEALOT, Facebook, Instagram)					
14	I do not make enough money from my business to enable me to invest in new technology					
	Section D					
15	The government should support informal workers with free data so that they can use online technology (such as Gumtree, TAKEALOT, Facebook, Instagram) for their businesses					
1 6	The power supply is always a problem; hence I will not be able to run my business online					
17	There are no internet hotspots where I live, therefore I cannot use online technology for my business					

S/N	QUESTIONS	1	2	3	4	5
	Section E—SET					
18	I have used platforms such as (Gumtree, TAKEALOT, BIDORBUY, Facebook, Instagram) for marketing my business before, so I believe that I can use online technology portal effectively					
19	I know other businesspeople like me that use this type of online technology portal, so I believe that I can use it also					
20	My family members and friends always encourage me to grow my business, so I believe using online technology portal for business operations will help me					
21	I have the strength and perseverance, so I believe I can use online technology portal to my advantage					
	Section F – PE					
22	The use of online technology portal will not be beneficial for my business					
23	Using online technology portal will increase my productivity, my service delivery, and profits.					
24	I will use online technology portal because of its built-in security and reliability for business transactions					
	Section G -EE					
25	Online Technology Portal is designed properly, and it is easy to understand					
26	I am knowledgeable in the use of digital technology, therefore the operation of online technology portal will not a problem for me					
27	I think that the use of online technology portal for business activities will be easy					

S/N	QUESTIONS	1	2	3	4	5
	Section H –SI					
28	I think that people who are important to me will want me to use online technology portal					

29	My peers and others will expect me to use online technology portal for business					
	Section I –FC					
30	I do have adequate resources –such as power, data to facilitate the use of online technology portal					
31	I think that the government's support will encourage more informal businesses to use online technology portal					
32	I think the use of online technology portal will help my business and increase my quality of life					
33	The use of online technology portal will enable me to be more productive in my personal life					
	Section K –INN					
34	I am among my peers to acquire and use new technologies as it becomes available in the market.					
35	I can figure out how new technologies and services work without help from my peers.					
	Section L –DIS					
36	I rather use traditional modes of business operation than be enslaved by technology					
37	I am afraid of technology; therefore, I will not be able to use online technology portal effectively					
38	I believe that online technology portal is difficult to understand, so I will not be able to use online technology portal					
	Section M – INS					
39	Depending heavily on technology will be harmful to me and my business					
40	The use of online technology portal con lead to problems/disruptions in business operations and might result in business failures in the future					
41	The use of technology gives me more control					
42	I am optimistic about use of web technology portal support					
43	The use of web technology portal increases quality of personal life					

APPENDIX B

SEDA
6th Floor, Pinnacle Building, 2 Burg Street,
Cape Town, 8001

22 November 2019

Dear Sir/Madam,

Re: INTRODUCTORY LETTER FOR THE COLLECTION OF RESEARCH DATA.

Mr. Ernest ETIM is a PhD student at Cape Peninsula University of Technology (Student No: 215294181)

THESIS TITLE: **"E-READINESS OF THE SOUTH AFRICAN INFORMAL SECTOR FOR ELECTRONIC PORTAL TECHNOLOGY SUPPORT"**

Supervisor: Prof Justine O. Daramola, Department of Information Technology (FID)
Email: daramolaj@cput.ac.za.

In order to meet the requirements of the university's Higher Degrees Committee (HDC) the student will need to obtain consent from SEDA in order to collect data. The survey method by use of a questionnaire would be adopted to collate data from South African informal service providers in Cape Town metropolis.

If you agree to this, you are requested to complete the attached form (an electronic version, will be made available to you if you so desire) and print it on your organisation's letterhead.

For further clarification on this matter please contact either the supervisor identified above, or the Faculty Research Ethics Committee secretary (Ms. V. Naidoo) at 021-469-1012 or naidoove@cput.ac.za.

Yours Sincerely,

Prof Justine Daramola.

22 November 2019.

APPENDIX B

-

Cape Peninsula University of Technology

SEDA
6th Floor, Pinnacle
Building, 2 Burg Street,
Cape Town, 8001

Sir/

,

Re: INTRODUCTORY LETTER FOR THE COLLECTION OF RESEARCH DATA.

Mr. Ernest ETIM is a PhD student at Cape Peninsula University of Technology (Student No: 215294181)

THESIS TITLE: "E-READINESS OF THE SOUTH AFRICAN INFORMAL SECTOR FOR ELECTRONIC PORTAL TECHNOLOGY SUPPORT"

Supervisor: Prof Justine 0. Daramola, Department of Information Technology (FID) Email: daramolai@cput.ac.za.

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22 November 2019.

Yours Sincerely,

Prof Justine Daramola. 22/11/2019.

CAPE PENINSULA UNIVERSITY OF TECHNOLOGY
IT DEPARTMENT
27 NOV 2019

APPENDIX C

UDEKWE TRADING CC

elusive shion

***Shop 733, Crape Town Station, South** Africa*

+27797188138

20th January 2020

To whom it may concern

I Mrs Emarelda Joanne Dodgen, in my capacity as the owner of the above mentioned company give consent inprinciple to allow Mr Ernest S. Etim, a student at the Cape Peninsula University of Technology, to collect data in this company as part of his PHO (IT) research. The student has explained to me the nature of his research and the nature of the data to be collected.

This consents in no way commits any individual staff member to participate in the research, and it is expected that the student will get explicit consent from any participants. I reserve the right to withdraw this permission at some future time.

In addition, the company's name may or may not be used as indicated below. (Tick as appropriate).

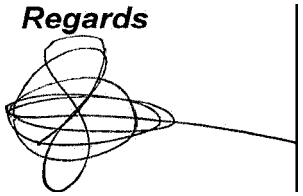
	Thesis	Conference paper	Journal article	Research poster
Yes	X	X	X	
No				X

E.J. Dodgen (Miss)

emarelda3@gmail.co

m 0833280191

Regards



APPENDIX D

QUESTIONNAIRE IN XHOSA

Mphenduli Obekekileyo

Sicela uncedo lwakho ngalamibuzo ilandelayo . Injongo yesisisfundo Kukukwazi nokuqinisekisa ukuba UMzantsi Afrika ukulungele na ukumisa nokuxhasa amashishini awo esebenzisa ubukhaxakhaxa balemihla? Ichukhacha zakho kunye nempendulo zakho azokuvezwa ezidlangalaleni kwaye akukho lwazi olukhuphileyo uluzakusenyenziswa ukucinezela .Ungarhoxa koluphando naninina ufuna .

Tyikitya apha ukuba uyavumelana ukuba uzathathi xaxheba kwezizifundo .

Tyikitya apha ……

Ucandelo A : Ichukhacha ngesimo sakho

1. Isini sakho : [A]uyiNdoda [B] ubhinqile [C] Engadibenanga [D] ndikhetha ungungazichazi
2. Iminyaka : [A] Phakathi ko 18 no 24 [B] 25-30 [C] 31-40 [D] 41-50 [E] 51-60 [F] Ndingapha ko60 weminyaka .
3. Uhlobo lweshishini : [A] Ivenkile [B] Ushishino [C] Ukusebenzendleleni [D] Uqhaphulo [E] Ezobuhle [F] ukulahla uphinde uchole [G] Ezomigodi [H] Ezokulungisa izindlu [I] Izifundo ezifutshane nokuqeqesha [J] Ukulungisa ezombane [k] ukucoca okunzulu [I] Enye engekhoyo apha
4. Cacisa umsebenzi wakho [A] Ukulungisa kwicala lamanzi,umbane ,ezangaphantsi , mntu onceda nkalo zonke ezifuna isandla ,ukulungisa imibhobho , ukusebenza ngokupainter

   [B] Ungumakheniki ,Ungumhambisi mpahla ,Ulungisa izikhecezisi

   [C] Ulungisa inwele ,Ucheba inwele,Ulungisa ulusu ,Ungunobuhle , Wenza amazipho

   [D] Uyathengisa ,Uthengisa esitrantweni , ivenkile , Isirhoxo , Ndithengisa utywala

   [E] Ndiyacholachola , Ndichola ndiphinde ndithengise

   [F] Izifundo ezifutshane

   [G] Ukucoca okunzulu , ndingumsebenzi wasekhaya ,ndiyakhupha ifashion , ndiyathunga ,ndineshitshini lobuxhakaxhaka balemihla

[I] Niqhuba itaxi ,ndingunogada

[J] Enye engekhoyo apha

5. Sichazele ngomsebenzi wakho ,luhlobo luni ? ……

6. Isakhiwo sayo sikweyiphindawo ? ……..

7. Ungumntu wase [A] South Africa [B] African foreigner [C] Ndingumhlali Osisingxina [D] Andingowase Afrika

Ucandelo B : Imvelaphi

8. Lixesha elingakanani usenza olutshitshino luncinci ?[A] yiminyaka engaphantsi kwe 5

[B] 5-10 lweminyaka [C] ngapha kweminyaka eyi 10

9. Ulusebenzisa kangakanani uqhangamitshelwano lwalemihla enjenge (Gumtree , Take A Lot BIDOrbuy ,Facebook no Instagram

[A] Yonkimihla [B] Ngamanyamaxesha [C] Andizisebenzisi

10. Usebenzisa eyiphi into ? [A] Unomyayi [B] Imfonomfono yalemihla [C] PC tablet [E] Ente engekhoyo apha.

11. Uyisebenzisela ntoni oluxhakamshelwano lunje ngo Gumtree ,TAKE A lot ,BIDOBUY ,Facebook,and Instagram [A] Ezemisebenzi [B] Ezingezam [C] Ezokonwaba

Ngaphakathi nangaphandle

Bonisa ngonobumba uX okokuba yeyiphi ohambelana nayo kakhulu ukuphendula umbuzo

(1) Andivumelani konke konke (2) ndiyavumelana (3) Ndiphakathi (4) ndiyavumelana (5) Ndivumelana ngamandla

S/N	IMIBUZO	1	2	3	4	5
	ICANDELO C					
12	Andinawo umdla ekusebenziseni ubuxhakaxhaka obufana no Gumtree, Take A Lot, Facebook BODORBUY, Instagram kwitshishino lwam.					
13	Andinaxhobanga ncam ngokusebenzisa ubuxhakaxhaka balemihla obufana no Gumtree, Take A Lot, Facebook no Instagram.					
14	Andinamali yoneleyo kutshitshino lwam ukuze ndifake kubuxhakaxhaka.					
	Section D					
15	uRhulumente kumele ukuba axhase amatshitshini ngedata ukuze akwazukusebenzisa ubuxhakaxhaka balemihla obufana no Gumtree, Take A Lot, Facebook Instagram.					

16	Amandla ombane isoloko iyingxaki yilonto ndingakwazukusebenzisa obubuxhakaxhaka.					
17	Akukho zikona zobuxhakaxhaka apho ndihlala khona ngoko ke andikwazusebenzisa obubuxhakaxhaka					

S/N	IMIBUZO	1	2	3	4	5
	ICANDELO E--SET					
18	Sendisukozisebenzisa ubuxhakaxhaka obufana no Gumtree, BIDORBUY, Facebook, Instagram ukuthengisa itshitshini lam ngaphambili ngako oko ndiyakholelwa ukuba ndiyakwazukulisebenzisa obubuxhakaxhaka.					
19	Bakhona abantu abanamatshitshini njengam ababusebenzisayo obubuxhakaxhaka nam ndiyakholelwa ndingabusebenzisa.					
20	Usapho lwam nabahlobo basoloko bendikhuthaza ukuba ndikhulise itshitshini lam nam ndiyakholwa luzandinceda olulwazi.					
21	Ndinawo amandla nomonde ngako oko ndiyakholelwa ukuba buzandinceda obubuxhakaxhaka.					
	Section F--G					
22	Obubuxhakaxhaka abunondinceda kutshitshino lwam.					
23	Ukusebenzisa obubuxhakaxhaka kuzandinceda ukwandisa imveliso yam.					
24	Ndizakulisebenzisa oluxhakamtshelwano ngenxa yokhuseleko lwalo kumatshitshini ezezimali.					
	Section G—EE					
25	Obu buxhakaxhaka benziwe kakuhle kwaye bulula ukuba bazeke.					
26	Ndinolwazi ngobubuxhakaxhaka ngako oko ayizoba yingxaki kum ukusebenzisa obubuxhakaxhaka					
27	Ndicinga ukuba ukusebenzisa ubuxhakaxhaka balemihla kwitshitshini lam kungaba lula.					
	Icandelo H—SI					
28	Ndicinga ukuba abantu ababalulekileyo kum bangathanda ukuba ndibusebenzise obubuxhakaxhaka					
29	Abalingani bam bakulindele ukuba ndingabusebenzisa obubuxhakaxhaka					

	Icandelo I—FC					
30	Ndinazo izixhobo ezifanenekileyo ezifana nombane, data ukuze ndikwazi ukuqhuba ngobubuxhakaxhaka					
31	Ndicinga ukuba inxaso ka Rhulumente ingakhuthaza amatshitshini amancinci ukusebenzisa obubuxhakaxhaka					
32	Ndicinga ukuba obubuxhakaxhaka bunganceda itshitshini lam buphucule nobomi bam.					
33	Ukusebenzisa obubuxhakaxhaka bungandinceda ekuphuculeni ubomi bam.					
	Section K—INN					
34	Ndiphakathi kwentanga zam ukufunda nokwazi ngobubuxhakaxhaka xa bufika					
35	Ndingakwazusebenzisa obubuxhakaxhaka xa bufika ndingancediswanga zintanga zam.					
	Section L—DIS					
36	Ndikhetha ukusebenzisa indlela ezindala zotshitshino kunobuxhakaxhaka balemihla.					
37	Ndiyaboyika ubuxhakaxhaka balemihla ngako oko andizokwazubusebenzisa.					
38	Ndikholelwa ukuba bunzima obubuxhakaxhaka balemihla ngako oko andizokwazubusebenzisa.					
	Icandelo M—INS					
39	Ngokuxhobekeka kubunzima bobuxhakaxhaka kunganobungozi kwitshitshini lam.					
40	Ukusebenzisa obubuxhakaxhaka balemihla kungakhokhelela ezingxakini / ekuphazamiseni itshitshini lam litshone					

APPENDIX E

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Ethics approval was granted to Mr Ernest Etim, student number 215294181, for research activities related to the PhD in Informatics at the Faculty of Informatics and Design, Cape Peninsula University of Technology.

Title of thesis:	E-Readiness of the South African informal sector for electronic portal technology support

Comments

Research activities are restricted to those detailed in the research proposal. Formal consent from the participants should be obtained and copy thereof submitted to the Postgraduate Office.

Signed: Faculty Research Ethics Committee	Date
	20/11/19

RESEARCH ETHICS COMMITTEE
INFORMATICS AND DESIGN
ETHICS APPROVAL GRANTED
20 NOV 2019
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APPENDIX F

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E-READINESS OF THE SOUTH AFRICAN INFORMAL SECTOR FOR ELECTRONIC PORTAL TECHNOLOGY SUPPORT

By

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