



**The role of socially contextual mobile technologies in enabling the digital inclusion  
of female informal economy traders in Africa**

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**“We believe that in the long run the special contribution to the world by Africa will be in this field of human relationships. The great powers of the world may have done wonders in giving the world an industrial and military look, but the great gift still has to come from Africa, giving the world a more human face.” Steve Biko**

**Title: The role of socially contextual mobile technologies in enabling the digital inclusion of female informal economy traders in Africa**

**ABSTRACT**

**Purpose:** There has been research conducted regarding the digital inclusion of informal economy traders, however, there has been less scholarly work detailing the lived experiences of informal economy traders, alongside the lived experiences of technology startups building solutions for the informal economy. This research sought to contribute to this nascent interdisciplinary area of study by deepening understanding of the intersection between 1) the informal economy and female entrepreneurship, 2) the sociological considerations of digital inclusion for female informal entrepreneurs, and 3) the context of mobile technology startups building solutions for the informal economy.

**Design/methodology/approach:** This study used the case study method, emerging with two case studies- the first being the technology startup entrepreneurs and the second being a case for female informal economy entrepreneurs. Data was collected via in depth semi structured interviews for both case studies.

**Findings:** The findings of this study show that by connecting the lived experiences of female informal entrepreneurs and surfacing the lived experiences of the technology startup entrepreneurs building solutions for digital inclusion in the informal economy in Africa, a co-learning and co-creative relationship can be nourished between them.

**Research implications:** This research contributes an interdisciplinary conceptual framework by describing how the fields of the informal economy, female entrepreneurship, digital inclusion and mobile technology innovation in emerging economies can be connected. This interconnectedness can enable technology startup entrepreneurs and female informal economy entrepreneurs to journey towards and nourish a co-creative relationship that influences and translates to the systemic lens of digital inclusion in the informal economy.

**Practical implications:** The conceptual framework proposed in this research would be of value to practitioners and startups developing solutions for the informal economy, by becoming, not a set of rigid rules, but a reference point, and guideline that may allow them to engage the system of informal entrepreneurs and their own system in deeper, more meaningful ways towards the goals of co-learning and co-creation of innovative solutions.

**Keywords:** Agency, Co-appreciation, Co-creation, Co-creative relationship, Contextual relevance, Digital inclusion; Informal economy; Female entrepreneurship, Female informal economy entrepreneur, Learning agency, Relationships, Sociology of place and personhood, Technology startups

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## **LIST OF ABBREVIATIONS**

GDP- Gross Domestic Product

NDP- National Development Plan

BOP- Bottom of the Pyramid

SGDs- Sustainable Development Goals

ICT4D- Information Communication Technology for Development

GEM- Global Entrepreneurship Monitor

WIEGO- Women in Informal Employment: Globalizing and Organizing

## CHAPTER 1: INTRODUCTION

### 1.1. BACKGROUND AND RATIONALE

Academic research about emerging market mobile technologies as enablers for the informal economy is not widely developed, with most empirical work related to emerging economy innovation coming from countries like India and China (Chen, 2016). Informal businesses in African markets face specific challenges which inhibit their ability to innovate. These challenges include: lack of access to relevant technologies and services, low education levels and access to training, high barriers to obtaining finances, and government policies which can hinder micro business growth (Abdu & Jibir 2017).

*“Because we have weak institutions and poor service delivery in Africa that leave millions of people on the fringes, [tech entrepreneurs] actually have the ability to reinvent society around infrastructure that is built with technology”* (Dzimwasha, 2017, p.4).

A growing number of researchers of the African technology ecosystem, criticise the ecosystem for adopting a Global North perspective on mobile technology, with regards to the processes used for incubation and ways in which solutions are developed (de Beer, Millar, Mwangi, Nzomo & Rutenberg, 2017; Ndemo & Weiss, 2017; Kelly & Firestone, 2017). Technologies developed in industrialised economies are not always relevant or appropriate for the social context and economic landscape of emerging economies (Acemoglu, 2002; Atkinson & Stiglitz, 1969). Furthermore, the process of adopting external technologies requires a values assessment of the innovating firms as well as the values and social interests of targeted communities and citizens (Lall and Urata, 2003).

Consciously or unconsciously, innovators develop solutions which are projections of their own reality, particularly when there are large differences in socio-economic status between researcher or innovator and person whose life they are trying to improve (Toyama, 2018). The notion of local innovations is alluring and holds great promise, however the deep complexities related to creating an enabling environment for mobile technology developers cannot be overlooked (Gabriel et al., 2015). The challenges include a shortage of robust and enabling policy frameworks, data legislation to sustain long-term investment into innovative solutions, a massive shortage of technical skills to develop locally relevant solutions as well as infrastructure challenges (GSMA, 2019). In addressing the multiple challenges, a focus on a local technology ecosystem has been found to contribute to innovation, suggesting that local

mobile technology may be easier to embed in local communities and businesses (Fu, Pietrobello, 2011).

## **1.2. THE RESEARCH PROBLEM**

This section will detail the research problem identified for this study based on the background that has been set. It is estimated that the internet could drive 10% of Africa's GDP by 2025 (Howell, Beers, Neelke, 2018), however in emerging economies such as Kenya and South Africa, women are on average 60% less educated than men and are 35% less likely to be adopting new technologies like mobile (GSMA Connected Women, 2018). A question arises on the extent to which women in the informal economy will be able to harness the economic impact of the internet to enhance their businesses. Women are excluded from digital technologies and are unable to harness benefits that may come from the use of digital technologies for improving their livelihoods and growing their businesses (Venkatesh et al., 2017).

Alongside the challenge of mobile digital inclusion for female informal traders, is the growing technology startup ecosystem which is building solutions addressing Africa's challenges. However, South Africa ranks as one of the countries where technology reportedly least impacts the lives of the poor (Baller, Dutta, & Lanvin, 2016). In the same report, Kenya ranked as one of the countries where access to mobile technology has had a positive impact on the lives of the poor (Baller, Dutta, & Lanvin, 2016). This means that the technology solutions being developed in Kenya have a stronger focus on improving the lives of low income people and the mobile telecommunications networks have played a huge role in this enablement through solutions such as M-PESA, the largest mobile payment solution in the world, which was founded in Kenya.

### **1.2.1. Objectives of the study**

- To understand how digital inclusion through the use of mobile technology can support informal traders in Johannesburg and Nairobi.
- To determine how contextually relevant mobile technologies could empower female informal traders to develop their businesses.
- To explore how the mobile technology startup ecosystem might enable Africa-based technology to be harnessed by women in the informal economy.

- To determine the nature of the relationship between technology startups and female informal traders.

### **1.2.2. Research question**

How might socially contextual mobile technologies enable the digital inclusion of female informal traders in Johannesburg and Nairobi?

#### *Sub questions*

- What are the requirements of a mobile digitally inclusive ecosystem to support female informal traders in Nairobi and Johannesburg?
- What role do mobile technology startups play in developing locally relevant mobile technology solutions for the informal economy?

### **1.2.3. Significance of the study and contribution to knowledge**

The contribution of this research for academia is to expand the literature on the role of context in determining mobile digital inclusion in emerging economies. There has been significant research on the informal economy, particularly in India (Harriss-White, Sultan & Washbrook, 2017). However, the areas of female informal traders in Africa, and specifically the interaction between the informal economy and the mobile technology ecosystems operating in emerging economies is less developed. For practitioners, this inquiry seeks to determine an ecosystem framework for the digital inclusion of female informal traders, one that assists technology startups to develop value-adding solutions for informal traders. This framework is one which could be used by donors and funders aiming to develop solutions for improving the livelihoods of women in South Africa and Kenya.

### **1.2.4. Limitations of the research**

This research was limited to female informal entrepreneurs who own their businesses and do not work for another person, who additionally run their businesses in designated open markets in the Johannesburg and Nairobi, these are both large cities that are economic hubs with strong technology ecosystems.

The study only focused on technology startups that develop solutions that serve the informal economy in Johannesburg South Africa and Nairobi, Kenya, as well as entrepreneurships support organisations that work with startups that serve the informal economy through creating

knowledge and thought leadership content about the African startup ecosystem, particularly related to the informal economy

#### **1.2.5. Research rationale**

There has been research conducted regarding the digital inclusion of informal economy traders (Daka & Toivanen, 2014; Pansera & Sarkar 2016; Meagher, 2018; George et. al, 2019), however, there has been less scholarly work detailing the lived experiences of informal economy traders, along with the lived experiences of technology startups building solutions for the informal economy. This study seeks to contribute to this nascent interdisciplinary area of study by gaining a deeper understanding of the intersection between 1) the informal economy and female entrepreneurship, 2) the sociological considerations of digital inclusion for female informal economy entrepreneurs, 3) the context for mobile technology startups building solutions for the informal economy, and 4) the impact of mobile technologies on the digital inclusion of female informal economy entrepreneurs.

This study will focus on Johannesburg, South Africa and Nairobi, Kenya due to the relative size of these African economies, the size of Nairobi and Johannesburg as large cities, as well as the strong technology ecosystems that exist in both cities.

#### **1.2.6. Research approach**

This study will be conducted through a case study method through in-depth interviews. The first case study is the technology startup ecosystem, and the second case study will be female informal economy traders in Nairobi and Johannesburg. The remainder of this research report will refer to these two case studies and will include details about how each case was approached and the findings thereof. These two case studies will then be connected to determine the nature of the relationship between the two cases. The purpose of the study will be to deepen the understanding of lived experiences of the technology startup entrepreneurs building solutions for the informal economy, as well as the lived experiences of female informal economy traders.

Drawing from the literature, this research will utilise a conceptual framework that connects the inter-disciplines that this study aims to connect- mobile technology innovation in emerging economies, the informal economy, female entrepreneurship, as well as digital inclusion. This conceptual framework will be used as a guide for the rest of the inquiry. The research paradigm

to be used in this research is hermeneutic phenomenology which has a deep focus on story and lived experience. In the spirit of the chosen paradigm, I will be making use of quotes at the beginning of each chapter from seminal works as a reminder of the heart and preoccupation of hermeneutic phenomenology- *“discovering what makes us human”* (van Manen, 1997).

### **1.2.7. Conceptual framework**

This inquiry utilises a conceptual framework as a guideline for its focus and scope. A conceptual framework is defined as *“a network, or “a plane,” of interlinked concepts that together provide a comprehensive understanding of a phenomenon or phenomena”* (Malodia et.al, 2019). The concepts within the framework serve the role of distilling and articulating the individual concepts, although they are not independent. The concepts relate to one another in describing the interplay within a unit of analysis (Malodia et. al, 2019).

At their core, conceptual frameworks are ontological, epistemological, and methodological. The ontological lens relates to *“the nature of reality,”* (Guba & Lincoln, 1994). The epistemological lens assesses the way things really are, while the methodological lens connects to the procedural element of developing the conceptual framework and its efficacy in describing what reality is like (Jabareen, 2009). It is worth clarifying that the role of a conceptual framework is not to derive causality but is instead an interpretation of reality (Jabareen, 2009). The role of a conceptual framework is to surface key elements, themes and constructs with the aim of discussing the relationships that exist between the concepts (Miles and Huberman, 1994).

This research begins with a conceptual framework that seeks to understand the connection between the technology startup ecosystem with the system of the informal economy and the intersection of these with female entrepreneurship, towards the aim of digital inclusion. Therefore, a conceptual framework was derived from a gap identified in literature, which is detailed in the following chapter.

### **1.2.8. Summary of background and rationale**

This chapter gave a background to the study and highlighted how the projected growth of the African digital economy, and the size of the impact of women to economies, particularly informal entrepreneurship could be harnessed by addressing the stated gap in relation to women’s digital inclusion. Technology startups in Africa are at the forefront of building

solutions that are contributing to the growth of the digital economy on the continent (GSMA, 2018), and these solutions have the potential to facilitate the needed digital inclusion of female informal economy traders. The following chapters will describe how the research question of ‘the role of socially contextual mobile technologies can enable the digital inclusion of female informal traders in Nairobi and Johannesburg, was approached, and answered.

### **1.2.9. Outline of thesis**

This thesis will emerge in chapters. Chapter two details the four concepts related to this study namely: mobile technology innovation in emerging economies, the informal economy, female entrepreneurship and digital inclusion and proposes a conceptual framework. Chapter three then details the research methods and will substantiate the reasons for the selection of hermeneutic phenomenology as the research philosophy and the accompanying methodological considerations, data collection and analysis. Chapter four unpacks the findings and highlights the themes for each case study and will be accompanied by quotes from transcripts to support the outputs of the analysis. Chapter five will discuss the implications of findings, and an extension of the conceptual framework is presented in chapter six.

## CHAPTER 2: REVIEW OF LITERATURE

*“The work of others turns into a conversational partnership that reveals the limits and possibilities of one's own interpretive achievements ” (van Manen, 1997, p.76).*

### 2.1. Introduction to literature review

This chapter focuses on the review of literature within four key concepts: mobile technology innovation in emerging economies, the informal economy, female entrepreneurship, and digital inclusion. For this research, resources will be drawn from the disciplines of entrepreneurship, microeconomics, technology innovation and sociology. It develops a theoretical understanding of the key themes in the four discourses in relation to this research.

The basis of this study is related to understanding the means and extent to which the mobile technology ecosystem in emerging economies considers, engages, and responds to the context of informality. The review also assesses the role of the mobile technology ecosystem on the digital inclusion of female informal economy vendors. As such, the flow of this literature review will begin with understanding innovation through mobile technology startups in emerging economies, thereafter the context of informality within which mobile technologies are developed is addressed. The review of literature also hones in on the context of female entrepreneurship, and the role of gender in the informal economy. A connection is then established between the mobile technology ecosystem and informal female owned business by addressing digital inclusion and its role in addressing the needs of these women to sustain informal businesses.

According to Helsper (2017), there are large bodies of work related particularly to digital inclusion as well as female entrepreneurship, and a growing body of work assessing the informal economy. However not enough scholarly work assesses the experiences of women across contexts, and few works are Africa-based (Alamelu, 2013; Sánchez, Sánchez & Rosa, 2017; Smith, 2017; Faisal & Jabeen, 2017). Additionally, recent literature on digital inclusion emphasises the role of context and the greater system within which digital inclusion programmes targeted at individuals exist (Puigjaner, 2017). There is no expansive view on how these systems could be connected for solutions or approaches that are of benefit to women in the informal economy.

This literature review seeks to contribute to this nascent interdisciplinary area of study by addressing the challenges and opportunities present in the informal economy for female

entrepreneurs. The sociological considerations of digital inclusion for women working informally, as well as the technological context for the mobile technology ecosystem in the informal sector of emerging economies, and its impact on the lives of women working in the informal economy.

## **2.2. Defining mobile technology innovation in emerging economies**

Innovation that relates to the provision of new solutions using mobile phones is the domain of mobile technology innovation (Aker & Mbiti, 2010). Research in the field of technology systems has largely been premised on the view that technology innovation should be developed to drive economic growth and as a mechanism to enhance productivity. Prevailing perspectives in the field have had insufficient discussion on the forms of growth which are more inclusive and holistic - those which enable well-being for all people, particularly in underdeveloped economies (Xiao, Califf, Sarker, & Sarker, 2013).

This section firstly provides the economic, social and policy context for mobile technology innovation in emerging economies. Thereafter it describes the prevailing theories and approaches to innovation development and the relevance of those in emerging economies. Additionally, concepts related to innovation for development will briefly be discussed, highlighting the positives as well as some of the pitfalls of such approaches. Lastly, Theory U is introduced in this section as inspiration for this study, related to the work of inclusive mobile technology innovation in underdeveloped markets.

In this section, the African mobile technology ecosystem is scrutinised and the relevance of the solutions it develops for African informal entrepreneurs investigated, in aid of answering one of the research objectives of this study.

### **2.2.1. The African mobile technology ecosystem- context**

Mobile technologies and services contributed 8.6% of Gross domestic Product (GDP) in Sub-Saharan Africa in 2018 (GSMA, 2019). The mobile ecosystem also supported almost 3.5 million direct and indirect jobs. It is estimated that by 2023, mobile's contribution will reach 9.1% of GDP (GSMA, 2019). 239 million people in Sub-Saharan Africa were connected to the mobile internet in 2018, an increase of 35 million since 2017. The critical issue, however, is that more than three quarters of the population remain offline (GSMA, 2020). The African mobile economy is largely informal with almost 1.2 million of the people directly employed by the mobile ecosystem being in the informal distribution and retail of mobile services

(GSMA, 2020). Furthermore, Sub Saharan Africa lags the most in terms of content and services availability on mobile (29% in 2018) versus the global average (53% in 2018) (GSMA, 2020). This means that the extent and nature of mobile services and solutions available to Africans is limited, which heightens the need to understand how technology startups can build mobile solutions for the digital inclusion of female informal traders.

Fuelled by growing mobile internet adoption, there are currently approximately 640 technology hubs in Africa focused on developing African technology startups (International Finance Corporation, 2020). The rapid growth of these hubs is a critical factor for African economies as they enable local businesses that focus on African challenges and opportunities and in so doing, expand Africa's technology transformation (de Beer, Millar, 2017).

The phenomenon of entrepreneurship related to small businesses is well researched in academic literature (Dennis, 2011; West, 2012) however, research focussing on the African informal economy is less pervasive (Jones et al., 2018). Interestingly, in Africa, women make up 40% of entrepreneurial businesses, which are predominantly informal, low income businesses (Herrington & Kelley, 2002). This suggests that the field of informal business, particularly for women in Africa, warrants more scholarly work.

The informal economy accounts for 50% of GDP across emerging markets, with the Sub Saharan Africa informal economy being approximately 45% (WIEGO, 2019). In countries such as Kenya, informality accounts for 35% of the GDP, and in South Africa it contributes 30% to the GDP (WIEGO, 2019). This means that there is an opportunity to determine how the projected growth of the African digital economy, and the size of the impact of women to economic growth, particularly informal entrepreneurship could be harnessed by addressing the stated gap in relation to women's digital inclusion.

The World Bank advocates that "gender equality is good business". Policymakers and the development sector have encouraged women's entrepreneurship from the conviction that increasing women's market-based opportunities is vital to lifting women, their families, and communities out of poverty (Boeri, 2018).

### **2.2.2. National policy and the role it plays role in enabling innovation in the informal economy**

National policy has a critical role to play in addressing some of the limitations related to the informal economy and is needed to enable the informal economy as well as the technology

startup ecosystem (Berger & Kuckertz, 2016). The exact role of technology startups in broadening access to resources for citizens in emerging economies is not clearly articulated (GSMA, 2019.) With the exceptions of Tunisia and Senegal, no African country has a clear Startup Act (GSMA, 2019). This underdeveloped policy framework cannot facilitate a conducive operating environment for technology startups and highlights the need for more scholarly work in the area of startups building for digital inclusion of marginalised communities. Well-articulated and executed policies can facilitate the development of robust economic systems for the benefit of citizens (Dugarova, 2015).

This section will explore the national policies of Kenya and South Africa to determine the priorities of each country and how these relate to the informal economy and the technology ecosystem. The extent to which these policies and national strategies are enablers or disablers to informal sector workers and technology startups will be assessed and used as a backdrop to understand some of the experiences that informal workers and entrepreneurs have in each country.

#### **2.2.2.1. Policy Context Kenya- Vision 2030**

In 2007, Kenya launched its long-term strategy through the Kenya Vision 2030, a vision that aims to drive social cohesion by adopting equity as the framework for all social, economic and governance programmes (Ministry of Planning and Devolution, Kenya Vision 2030,2007). The vision has a specific focus on impacting the role and participation of women across all spheres, aiming to increase their political participation, addressing access to entrepreneurial opportunities, education, health, housing and justice services while reducing women's vulnerability to the patriarchal practices that limit their options (Ministry of Planning and Devolution, Kenya Vision 2030, 2007).

The planned transformation of the wholesale and retail sector aims to lower the barriers to entry through institutional reforms. The planned transformation aims to ensure informal sector workers are accounted for and provided with permanent and operational areas of trade, training and development, as well as access to working capital and credit (Ministry of Planning and Devolution, Kenya Vision 2030, 2007). In Nairobi, there has been an ongoing narrative related to positioning it as a global, developed city, which has included attempts to reduce the informal sector in the city as it is not in line with the progressive appeal the city's leadership wants it to have. The city is contended for and interventions have been contradictory in both building what

can be deemed a global city, while delivering its human development aims to support informal business (Linehan, 2008).

Human development is a critical objective for Kenya, and social inclusion and poverty eradication are inextricably linked. However, an approach that recognises the need for a cohesive policy framework to ensure more alignment in terms of policy design and implementation across government departments and agencies is needed. Additionally, building coherence means that all interventions must retain, at the core, the objectives of human development (Cook and Dugarova 2014).

In line with this, the role of entrepreneurship and technology in human development in emerging economies cannot be overlooked. Technology incubators and startups are not adequately represented in policy discussions and frameworks even though their role in economic development is vital.

#### **2.2.2.2. Policy context South Africa- National Development Plan**

South Africa's National Development Plan (NDP) is the country's 20-year strategic document and development lens. The plan strongly references Amartya Sen's capabilities approach to development: aiming to enhance the capabilities of citizens to build lives they have reason to value, and institutions in support of citizens and their aspirations. The NDP details that above income, the capabilities needed by citizens for the lives they desire, education and skills, and the opportunity to work are South Africa's most pressing areas to address at scale (National Planning Commission, 2010). Heeks (2010) mentions that ICTs increase both capabilities and 'functionings' in developing countries. However, it is not clear how capabilities can be measured or translated into policy that analyses the well-being of the individual (Zheng and Stahl 2011; Biggeri and Ferrannini 2014; Oosterlaken 2014). Accounting for the poorest people in the country, women are an urgent constituent for all development plans and interventions. The NDP articulates that the barriers that stop women from working should be addressed, and human capabilities of women must be developed in terms of education, safety and health (National Planning Commission, 2010).

From a mobile network infrastructure standpoint, South Africa remains one of the countries with the highest data costs for citizens, due to limited availability of spectrum on which cellular networks build their infrastructure, which becomes a hindrance to innovation and what can be developed at scale across sectors for the benefit of citizens (National Planning Commission, 2010). The NDP is accompanied by the National Broadband strategy which has the role of

accelerating the connectedness of all South Africans and the broad-based expansion of internet access and associated services to all South Africans, with a particular focus on rural and underdeveloped communities (Ministry of Communication, 2013).

### **2.2.2.3. Mobile technology startups and national policy**

Mainstream models of innovation usually neglect small-scale mobile technology. As a consequence, there is no clear understanding about how policy and institutions can foster innovation at the bottom of the pyramid (BOP) or an effective mechanism to integrate the grassroots level in the mainstream science and technology policy (Seyfang & Smith, 2007).

Startup Acts are one of the key mechanisms that some countries like Italy, Tunisia and Senegal have adopted in order to encourage the creation of technology ventures, to facilitate stronger support for technology, and finally to encourage investors by easing the process of investing as well as enhancing benefits to investors such as tax benefits (Giraud, Giudici, & Grilli, 2019).

The Kenyan government passed a Startup Bill in 2020, which will be enacted after following the country's policy development framework. Kenya's Startup Bill has a strong focus on creating incubation hubs as a mechanism to accelerate the growth of the technology ecosystem in the country (Kenyan Parliament, 2019). There is no confirmed timeline for the bill to be enacted. The technology startup ecosystem in South Africa has been lobbying for a Startup Act to be passed by the government which would entail the creation of a more conducive environment for startups to be developed - reducing barriers to entry and creating appropriate support structures for startups of different sizes, age and scalability (Jackson, 2020). In spite of the lobbying efforts of the South African technology startup ecosystem, the government has not made any commitments to the drafting of a Startup Bill which would become a Startup Act in future. Additionally, the policy development process in South Africa is lengthy, proven by the recently enacted Protection of Personal Information Act, which took ten years from its inception as a Bill to be enacted (Government Communication and Information Services, 2020).

In summary, the policy frameworks for Kenya and South Africa have a strong focus on meeting the needs of female informal economy traders, but neither country currently has a robust policy framework for technology startups, although Kenya is further ahead with developing a Startup Bill than South Africa. With this backdrop, this inquiry will analyse the role of policy and government in the businesses of informal traders and the extent to which the policies are

translating to the experiences of female informal traders. Additionally, the policies of the two countries detail a focus on enabling technology innovations. This study will highlight the regulatory needs of technology startups building for the informal economy.

### **2.2.3 Socio-cultural context of mobile technology innovation**

The impact of the socio-cultural context is of interest in mobile technology innovation as mobile technologies are far reaching, with an opportunity to impact the most marginalised in most societies (GSMA, 2019). Applications built for mobile are challenging norms of business solutions and services. These platforms, which are largely built by local technology startups, seek to provide services to broader sets of people and reduce the inefficiencies that exist in many traditional business models (GSMA, 2019). Delivering impactful innovations to low-income citizens, requires the availability of easily accessible and cost-effective technologies. While smartphone adoption is increasing in emerging economies, there is a large opportunity for innovations to reach scale using low cost and offline solutions, and these will be a critical method of developing solutions to address the SDGs (GSMA, 2019).

There has been growing agreement that there are approaches that could constitute relevant innovation in developing economies. These approaches include appropriate technology, bottom of the pyramid innovations, frugal innovation, grassroots innovation and inclusive innovation (Pansera, 2016). The shared notion across these different approaches is that a shortage of resources should not stunt the ability for innovative solutions to be developed, to address the needs and dreams of low-income people (Kelly & Firestone, 2016).

These theories and perspectives come with their own limitations and critics, which are briefly discussed in the following subsections. These seemingly more appropriate innovation frameworks are discussed, and an assessment made on whether these could aid in building sustainable livelihoods for underdeveloped sectors and low-income people. Inclusive innovation is detailed in depth in the Digital Inclusion section of this literature review and argued as the more helpful perspective for the development of contextually relevant, co-created technology solutions within the informal economies of African cities.

#### **2.2.3.1. Bottom of the Pyramid Innovation**

In 2004, Prahalad wrote his seminal work which heightened awareness for what would thereafter be referred to as “Bottom of the Pyramid (BOP) innovation”. Prior to Prahalad’s work, low-income people were not viewed as a viable consumer base for multinational

corporation products and his work aimed to show that the needs of low-income people can be addressed by developing high quality, low cost products for their consumption (Pansera, 2013). The BOP approach has seen some criticism, creating a view of multinational corporations as being exploitative to low-income people and presents a romantic picture of poverty that is inaccurate (Karnani, 2011). Recently, work in BOP innovation has sought a more collaborative and co-creation process as a response to the criticisms against the approach (London, 2009). BOP is still largely driven by multi-national corporations and their needs versus truly being based on sustainable innovation solutions (Ansari et. al, 2012).

The language of bottom up, bottom of the pyramid etc is problematic and presents social hierarchy which reduces the likelihood of sustainable solutions, which, as defined by the SDGs, require equal participation of local people in the development of solutions for their benefit (Gupta, 2010). The social construction of bottom versus top represents a dominance or a higher importance to those at the top. The Honey Bee Network, the largest network of grassroots innovations in the world, has never approved of using the expression ‘bottom’ or ‘base of the pyramid’, as they maintain that the expression distracts the attention of scholars, activists and policy makers from the resources in which materially poor people are rich. Although they may be at the bottom of the economic pyramid, they are not at the bottom of the knowledge, innovation, ethical and institutional pyramids (Gupta et al., 2019).

### **2.2.3.2 Frugal innovation in mobile technology innovation**

Frugal innovation assesses resource constraints and sees these as opportunities for developing new products and services. This approach prioritises development that has limited reliance on resources and in that way creates innovations that have vastly lower costs than competing products (Pansera, 2016). The biggest gap in the theory of frugal innovation has been noted in the low sustainability of frugal solutions in truly driving the reduction of poverty, and rooting out systemic poverty (Nahi, 2016). Ehrenfeld (2005) argues that developing sustainability is different to lowering the extent of unsustainability. He goes on to state that the majority of frugal innovation and similar approaches aim to slow down unsustainability versus deriving sustainable development (Rosca, 2018).

### **2.2.3.3. Grassroots innovation in mobile technology innovation**

Grassroots innovation takes a different standpoint and is predicated on innovations emerging from communities themselves. It is grounded in the desire to address social and economic issues faced by communities, aiming to enable the empowerment of those previously

disempowered in the socio-economic system (Pansera and Sarkar, 2016). Low-income people are already exhibiting agency by solving their problems, without external intervention, as they are able to make sense of their context and transform it through technology and social interventions (Di Domenico, Haugh, & Tracey, 2010). When using the lens of mobile technology that is being developed by the African technology startup ecosystem, this research assesses how existing grassroots innovations are being considered as mobile technology startups aim to embed solutions in low-income communities.

Caution is provided in some of the literature about the extent to which there can truly be mutual benefit between formal and informal innovators. These partnerships exist as a disruption to the systems of informality since it drives specific objectives and dynamics, which are not necessarily mirrored or understandable by formal economy innovators (Meagher, 2018). In the context of mobile technology innovation in developing and emerging economies, not enough empirical work has been done to assess the impact of frugal innovations. Furthermore, work needs to be done to explore the context and conditions under which frugal innovations can drive sustainable development (Rosca et al., 2018). A consideration is the powerplay that can exist in innovation from the formal economy into informal settings. Further analysis is needed when assessing these partnerships by questioning whose interest the innovation is in, and who loses something in the process (Meagher, 2018).

An amalgamated framing of these approaches is referred to as hybrid innovation perspectives, which carry the theme of driving value through social innovation that delivers cost effectiveness, agility, empowerment and sustainability of the wellbeing of low-income people (Pansera and Owen, 2015, p. 309). These hybrid innovation perspectives are characterised by knowledge creation in relation to what people need as well as making use of existing knowledge to build new knowledge and strategies for the benefit of low-income people (Pansera and Sarkar, 2016).

Christensen (2018) expanded the thinking on innovation in emerging economies, highlighting that building solutions for low-income people in particular, means that innovators must have clarity on the relevance and true value of their solutions.

*“Until you understand the Job your customers are hiring your product or service to do, in all its rich complexity and nuance, you can never be certain that your innovations will be successful. Successful market-creating innovations emerge from unfulfilled Jobs to Be Done; they solve problems that formerly had only inadequate solutions—or no*

*solution at all. People would rather go without any product—stay as non-consumers—than “hire” a product or service that solves their Job in an unsatisfactory way.”*  
(Christensen et. al, 2018, p.182)

It is worth considering whether the existence of multiple, but similar, perspectives and frameworks on innovation for low-income people indicates a lack of clarity and fragmentation in the field or is an indication of the multiplicity of informal contexts which cannot have a “one size fits all” approach. This inquiry seeks to understand the benefit or challenges of innovation approaches to the solutions developed for informal workers.

#### **2.2.3.4 Collectivism & Co-creation approach to mobile technology innovation**

Otto Scharmer’s Theory U (2007) describes an approach to system transformation that is based on individual transformation first. Theory U discusses four listening levels, with the highest level being **generative listening** or a communion level of listening whereas you are engaging with another, you yourself are transformed by that experience. He describes this as the place where the open heart and the open will of individuals within the group is able to best create. The second element of Theory U is then with the individuals that have open hearts and an open will, responding to what wants to emerge from the environment in a process he calls “**emergence**”, and crafting the future from a space of sensing and co-sensing what the system has the potential to move towards especially in bringing system transformation and innovation. This becomes relevant for this research and the expanded approach to digital inclusion which includes going beyond meeting needs, to learning from the context and creating solutions *with* and not *for* low-income people.

When gathering people into an intentional collective, they are able to grow in their ability to see deeper and can sense the possibility of what they could create together. This awareness is as though “*a new, collective organ of sight*” is emerging and becoming available for the group (Scharmer, 2007). In this study, Theory U will be used as inspiration for co-creation that extends further than the described existing frameworks for innovation for marginalised groups as it is deeply grounded in learning and responding to the context- “emergence” and diverse groups collectively creating solutions. Theory U advances and deepens the idea of what co-creation should look like; in reducing power dynamics between groups and harnessing the collective agency of all participants, and deeply valuing the context of those involved - in the case of this study, the context of informality.

Innovation succeeds only because human beings accept it and choose it (Puigjaner, 2017). In the field of innovation for development, acceptance and adoption are an even more critical element due to the success of interventions being the improvement of people's lives. While innovators devise solutions to help disadvantaged communities, members of those communities live and devise ways to survive every day (Csikszentmihalyi et. al, 2018).

Co-creation or co-production are concepts which have been widely discussed in organisational and strategy fields and have started to grow within the public governance spaces and technological innovations (Voorberg, Bekkers & Tummer, 2015). An important element for innovators for development is recognising the existing innovative practices in communities. *“Even in the most deprived environments, innovation could be found, and organizations that wish to deploy innovations should overcome existing biases about the poor”* (London, 2008).

#### **2.2.4. The value of appreciative inquiry to co-creation**

When looking at co-creation in innovation for development, the concept of appreciative inquiry becomes an impactful approach for the process of co-creation (Coghlan, Preskill, & Tzavaras Catsambas, 2003). Appreciative inquiry is a Gestalt theory concept which connects theory and practice. Drawing its origin from social constructionist thinking, it challenges the widely accepted perspective that knowledge accrues from objective and unbiased observations of a stable, external world (Cooperrider et. al, 2008). Instead, appreciative inquiry determines that the true source of knowing is in how people relate and construct reality as they do so. Therefore, when considering co-creation for development, the opportunity arises for the knowledge of informal economy traders to be valued and appreciated.

Appreciative inquiry theorists argue that knowledge is a tool of the culture, myths, traditions, values, and language of the people in systems, and to drive development of people, recognising and celebrating what they already do well is a stronger strategy than problem identification (Grant & Humphries, 2006). This becomes important in relation to inclusive mobile technology innovation, by enabling innovators to develop solutions that recognise the elements that work within systems. The theory summarises that there are multiple ways of knowing, multiple realities, and no one way has primacy over another. This becomes a potentially useful perspective when connecting the vastly different worlds of formal mobile technology innovators and informal economy entrepreneurs, as an appreciation of the multiple narratives and perspectives between them may mean richer and more diverse mobile technology solutions are developed.

#### **2.2.4.1. Developing solutions to meet the needs of women**

The diversity of mobile technology solutions has included innovations that specifically meet the needs of women. SEWA Bank in India was founded in 1974 is a great example of women focused innovation, its goal was to pool resources of and develop financial products for female informal traders who were not being served by financial products at the time due to the women's inconsistent and largely undocumented income. SEWA's 400 000 clients are also shareholders, and the bank serves products linked to the life stages of women, offering them products linked to protecting their income, helping them save for their children's education, pension, divorce and widowhood (Jhabvala & Harvey, 2016).

The SEWA Bank approach aligns with Toyama's (2018) perspective on the role of technology for development being the realisation not just of needs, but of people's aspirations. Toyama proposes that the issues facing low-income people can be addressed by engaging their aspirations rather than their needs. He goes on to argue that aspirations are more permanent or persistent than needs and can inspire stronger value creation and meaning for solutions aimed at improving the status of people's sustained well-being. For mobile technology innovations, this means that building solutions for inclusion requires solutions that enable and bring meaningful value to the lives of informal economy traders.

#### **2.2.5. Challenges faced by technology innovators building solutions in emerging economies**

This subsection highlights few of the key challenges faced by African startups as they build solutions for low-income people. This is not an exhaustive list of challenges but provides a texture of the kinds of challenges related to this research. Firstly, is **building the enabling environment** for their solutions, which many global North startups do not need to do (Matranga et. al, 2017). Secondly, the need to build for the context and needing **a support ecosystem that makes room for that kind of contextuality**, (Ignatov, 2018) and lastly the need for a startup ecosystem that not only provides mentorship and education, but one that provides for the most pressing needs for most startups: **patient capital, talent and support in reducing barriers to entry** (David- West et. al, 2018).

##### **2.2.5.1. Current reality for developing innovative solutions**

When developing innovative solutions, companies or startups need to build relevant products or services while simultaneously building a sustainable business model (Matranga et. al, 2017).

In building that sustainable model, innovators invest in factors that will enable their innovative solution; including distribution, infrastructure, sales and any other factors the innovator finds wanting within their business context (Christensen, 2018). While investing in these factors, innovators also need to have a level of agility and adaptability in their strategy if they are building within relatively uncharted waters, and it therefore becomes critical for them to learn from the context and people for whom they are building the solution(s) (Ignatov, 2018). The technology for the informal economy is still an emergent and context specific sphere of innovation, and this underpins the requirement for African startups to be learning from and learning with the people that make their livelihoods in the informal economy.

#### **2.2.5.2. Global involvement in the African technology startup ecosystem**

One of the ongoing topics of discussion in the African startup ecosystem is the role of global perspectives and involvement of global players in the ecosystem; including investors, foreign owned startups, accelerators and even media and content creators about the ecosystem (Matthews, 2017). There is recognition of the impact of contextual nuances in influencing how technology innovation occurs, and the need to use frameworks that are flexible and informed by their contexts of use (David- West et. al, 2018). Kelly & Firestone (2016) argue that while global allies provide support, building the technology ecosystem in Africa should be the remit of Africans, without the hegemony of the wholesale delivery of global North solutions that may not be relevant in the African context. The need for contextual solutions and startup support is not unique to Africa. Matranga et. al (2017) conducted a study of the startup ecosystems of East Africa and India and found some similarities, albeit at a different scale as well as with local nuances. The core message however remains the same - startups in emerging economies need to build solutions in ways that work for their local contexts and need support that understands their local context. They argue that “The traditional Silicon Valley model of building a product so viral that you don’t need a sales force cannot be applied to India...We need more examples, stories, and advice on how digital fintech businesses can scale using online/offline hybrid models of delivery.”

In Africa, this means that there is a growing need to develop contextual perspective on technology innovation, particularly for low-income people, and a knowledge base that is cognisant of the nuances of the environments within which technology startups on the continent operate (Norman, 2019). Technology hubs and accelerators are playing a significant role in the development of solutions in Africa.

### **2.2.5.3. Overview of technology hubs and accelerators in Africa**

Africa is home to over 650 technology hubs and accelerators whose aim is to support startups in their endeavour to become scalable businesses (GSMA, 2019). South Africa has 78 hubs and accelerators, while Kenya has 50 (International Finance Corporation, 2020). Although the support provided by startup support organisations has proven invaluable, startups do not fully receive the support they need to succeed: i.e., patient capital, access to talent and reduction of friction in their go-to-market plans (David- West et. Al, 2018).

There is a need for more work in the field of mobile technology innovation to expand the understanding and perspective of innovation as tools and techniques; and recognising that the social context adds and subtracts to the meaning of technologies, embedding the prevailing social norms, power dynamics and ideological standpoints within a given context (Akrich, Callon, & Latour, 2002; Rye, 2009). Context overlays meaning on technology - this cannot be overlooked when seeking to deliver innovative solutions in diverse settings.

Additionally, innovators embed meaning and values in the design of innovations which may be incongruent with the social context within which the innovation is delivered (Jiminez & Zheng, 2018). This becomes an important point of consideration for this inquiry in determining the extent to which context changes the value that can be derived from mobile technology solutions developed for informal economy entrepreneurs. In the next section the contextual perspective of informal entrepreneurs will be outlined/detailed/unpacked.

## **2.3. The informal economy**

The role of informality and the multiple, and often contradictory, views on the sector are detailed, along with the challenges faced by those who operate informal businesses, and the ways in which women specifically experience the informal sector. The researcher also reviews the discourse on entrepreneurship and begins by questioning the extent to which informality represents entrepreneurship based on the widely accepted definitions of entrepreneurship.

The implications, challenges and opportunities presented by the context of informality for both female entrepreneurs working in the sector, as well as the technology startups that build mobile technology solutions for the informal economy are unpacked. These lived experiences of the informal economy is a key area of analysis for this study, assessing informality's impact on the

lives of female informal traders and the technology startup ecosystems in Nairobi and Johannesburg.

### **2.3.1. The regional context of the informal economy**

Regionally, research about the informal economy began in 1971, with anthropologist Keith Hart's work on informal traders in Accra, Ghana (Chambers, 1994). Hart's study became the first to use the term 'informal sector' and provided an important framework for the 1972 study by development economists Hans Singer and Richard Jolly who were tasked to lead the first employment mission to Kenya. Singer and Jolly emerged with a hopeful perspective on the potential of the informal sector for alleviating poverty, having identified that unexpectedly, a number of profitable businesses existed in the sector alongside some significantly less profitable enterprises (Chen, 2014).

The work that followed involved defining informal trade, assessing its impact on economies, policy implications of informal trade and the role of the informal economy in poverty alleviation versus keeping people in poverty- the poverty trap (Chen et al., 2019). In the late 1980s scholars began studying gender dynamics in the informal economy, and the role of women. In 1997, WIEGO (Women in Informal Employment: Globalizing & Organizing) was founded, which is a global network focused on securing livelihoods for the working poor, especially women, in the informal economy (WIEGO, 2019).

Today, the informal economy accounts for 50% of the GDP across emerging markets, with the Sub Saharan African informal economy being approximately 45% of the GDP (WIEGO, 2019). In Kenya, informality accounts for 35% of the GDP, and in South Africa, it is 30% of the GDP (WIEGO, 2019). In 2012, South Africa had 2.1 million people working in the informal economy. Of those, approximately 857 000 were women (International Labour Organisation, 2017). In Kenya, the informal economy accounts for 83% of employment (Coggin, 2018).

### **2.3.2. Informal traders in the informal economy**

Informal trading is part of the informal economy, although there are various definitions for what the informal economy is (Charmes, Gault & Wunsch-Vincent, 2018). Some scholars define informality only by the distinction between officially registered companies as being formal versus those enterprises that exist "under the radar" and are not officially registered, as being informal. This study uses the definition of the informal economy which identifies informal traders who operate in legally demarcated open markets.

The parasitic view argues that informal enterprises do not pay taxes, have little potential for growth and development, constitute unfair competition to small formal business (Charmes, 2000) and contribute little to capital or knowledge creation (La Porta, 2008). The romantic view of the informal economy is a response to state-imposed constraints in the formal labour market, and that informal workers choose to operate outside of formal regulation (Webb, Bruton, Tihanyi, & R. Duane 2013). Boeri (2018), opposes this perspective by highlighting that the neo-liberal, romantic view of informality as a driver of entrepreneurship, is not feasible because it is work that people do because other options are unavailable or unviable. This may be valid; however, some studies have also found that informal workers do often cite higher wages than the formally employed, and state they would not leave informal work for a formal minimum wage job (Yasmeen & Nirathron, 2014; Martinez et al., 2017).

### **2.3.3. The informal vs the formal economy**

A different school of thought, the dual view, is that the distinction between formal and informal is not as clear in many countries, particularly emerging economies, as businesses in the formal sector interact and work with those in the informal sector, indicating that there are latent and overt advantages for both formal and informal businesses to be gained from their interactions with each other (Böhme and Thiele 2011; Xaba 2012). A further divergent view argues that even the binary label of formal vs informal presents a hierarchy where formality is correct, and is 'the standard', and informality is seen to be incorrect and something to be fixed or changed (Becker, 2004).

The study of informality has continued to exist separately from research in formal entrepreneurship, viewing informal entrepreneurs as a sub-group of operators whereas in reality, a number of entrepreneurs exist on a continuum of informality and formality. They operate between the two extremes (Chen 2012; de Castro, Khavul, & Bruton 2014; de Mel, McKenzie, & Woodruff 2013; Jones, Ram, & Edwards 2006; Welter & Smallbone 2009; Williams 2006). The importance of this context for this study, is the extent to which this continuum of formality and informality can be an advantage for mobile technologies developed by more formal businesses, for the benefit of more informal businesses in Johannesburg and Nairobi.

Informal trader businesses, particularly in demarcated, open retail markets, are more structured and regulated than they may appear (Moussie & Alfes, 2018). Studies of informal traders in Accra, Ghana, (Sowatey, Nyantakyi-Frimpong, Mkandawire, Arku, Hussey & Amasaba, 2018)

and another study in Durban, South Africa (Roever, 2016), highlight the varying forms of documentation, city permits and registration informal traders need in order to trade. This indicates that informal trade is not as ungoverned as may have been previously believed. Reducing the incongruence between what has been defined formal and informal then presents an emergence and opportunity for mobile technology innovation to exist in that middle space, where specific contextual business issues and opportunities can be addressed for entrepreneurs operating on the full spectrum of entrepreneurship (Williams & Shahid, 2016).

#### **2.3.4. Informal entrepreneurship**

The definition of what constitutes entrepreneurship, and who qualifies to be called an entrepreneur is a growing discourse in the literature. The widely accepted Schumpeter definition (1934) identifies an entrepreneur as one whose vision enables them to bring an innovation to life. The definition further identifies the differentiator as also lying in their opportunity recognition and ability to raise resources to make an innovation into a thriving business.

The gap identified by recent scholarly work, however, is that the understanding of how micro and informal entrepreneurs in emerging markets embrace mobile technology to enhance innovation performance is not yet fully developed (Zhang, Chen & Kane, 2018). Recently, a divergent view has come into play, which considers the dynamics of many Global South economies with informal entrepreneurship gaining more importance as a key element of the diversified view on entrepreneurship and the outputs thereof (Welter, Smallbone, & Pobel, 2015).

Emerging economies are interesting when viewed with a diverse perspective on entrepreneurship, as the informal economy accounts for 50% of GDP across emerging markets, with the Sub Saharan African informal economy being approximately 45% (WIEGO, 2019). Welter et al., (2018) caution against a narrow definition of entrepreneurship but state that one should instead understand and actively seek out diversity to enable research to clearly serve human development efforts (Welter & Gartner, 2018). Additionally, Gartner provides a guide which advises researchers to clarify their use of the phrases “entrepreneur” and “entrepreneurship”, and whom their research serves.

In the context of this research, the definition for entrepreneurship which will be used is

*“a process by which individuals – either on their own or inside organizations – pursue opportunities without regard to the resources they currently control”* (Stevenson et al., 1989, p.17)

The use of a more robust and inclusive definition of entrepreneurship is beneficial, in that the essence of what entrepreneurship is and may be missed when using a narrower definition, by failing to see the benefits and value that emerge from it by only assessing it through wealth accumulation and job creation (Ligthelm, 2008). What benefit, purpose, community and connectedness could a broader view bring to the field of entrepreneurship research, including investigations of those who do not neatly fit the narrow definition? The diversity of the world is an invitation to see and engage a myriad of perspectives in this regard (Welter & Gartner, 2017). Within the context of relevant mobile technologies, how could the kind of entrepreneurship utilised by female informal traders be used as a catalyst for the mobile technology solutions that are developed for them, rather than problematising their kind of entrepreneurship?

The caveat is a caution against taking too much of a ‘romantic’ view of entrepreneurship in difficult economic environments (Williams & Round, 2008). In Africa, the neoliberal perspective that entrepreneurship is the solution to more nuanced development problems is not feasible (Bradley, McMullen, Artz, & Simiyu, 2012). There is a need for mobile technology developers to be more circumspect as they look to build solutions for the informal economy, understanding both the possibilities linked to this kind of entrepreneurship, while not disregarding its many challenges, particularly for female entrepreneurs.

In this study, the researcher probes the value of formal mobile technology startups interacting with informal trader’s businesses, assessing the kind of ecosystem which could enable the existence of strong and value-adding relationships across these sectors for the sustained well-being of female informal traders.

#### **2.4. Female entrepreneurship and the role of gender in emerging economies**

This section focuses on the role of gender in entrepreneurship and the impact that this has on female entrepreneurs. In developing an understanding of gender in entrepreneurship, the researcher assesses the impact of culture and context on female entrepreneurship, connecting that to the mechanisms which play a role in the lives of female entrepreneurs as they engage

within their context: their level of empowerment and social capital in their journeys towards enhancing their lives, seeking to understand the impact of this on how relevance and contextuality are defined in terms of the mobile technologies developed.

#### **2.4.1 History of female entrepreneurship**

Historically, in the study of entrepreneurship as seen through Schumpeter's definition (1934), the entrepreneur is symbolically represented as male (Bruni, 2004; Collinson & Hearn, 1994, 1996). A growing field of scholarship has challenged this approach arguing that the archetype of entrepreneurship is biased towards masculinity and comparing women against that archetype is not conducive to finding real solutions for gender inequalities in entrepreneurship (Boeri, 2018; Ahl, 2006). Scholars with this perspective propose that gender be viewed as a lens rather than a variable, in order to fully consider and understand female entrepreneurship, which means developing research with a gender aware perspective and the factors at play, even in theoretical framing and philosophical choices (Brush, de Bruyn, Welter, 2009). It was in the late 1970's that a specific field of scholarship with a particular focus on female entrepreneurship began to develop. The first academic article related to female entrepreneurship was by EB Schwarts in 1976 who wrote an article in the *Journal of Contemporary Business* (Yadav & Unni, 2016). This was followed by the first policy document detailing the differences in entrepreneurship for women in the United States in 1979. There was limited growth in this period in female entrepreneurship, with the first book being written by Goffee and Scase in 1985 (Yadav & Unni, 2016). Entrepreneurship research from the late 1980s to early 2000s had not found reason to believe that there were different factors impacting women and men in their entrepreneurial journeys (Bruni et al., 2004). In 2009, a specific journal on female entrepreneurship was launched: *The International Journal of Gender and Entrepreneurship* (Yadav & Unni, 2016). The body of work on female entrepreneurship in the Global South and informal economies is less developed as highlighted in the introduction of literature review.

According to the 2018/2019 *Global Entrepreneurship Monitor (GEM) Women's Entrepreneurship Report*, there are an estimated 252 million women running businesses in 79 economies (GEM, 2019). GEM defines established businesses as those in operation for more than 42 months. Globally, 6.2% of women entrepreneurs own established businesses, about two-thirds the rate of men (9.5%). The highest rates are seen in sub-Saharan Africa (11.3%) and Asia (9.1%) with the lowest rates of established business ownership reported in the Middle East and North Africa (4.5%), Europe (5.3%), North America (5.7%), and Latin America

(6.5%). This is one of the reasons why more studies that focus on informal entrepreneurs are required to expand understanding on the contextual nuances related to female entrepreneurship, particularly in sub-Saharan Africa which has the highest rates of female entrepreneurship.

#### **2.4.2. Gender and expression of entrepreneurship**

The concept of gender is socially constructed and Ahl (2006), recommends deepening research on the gendered nature of entrepreneurship to consider the ways in which, as a social construct, gender is not something that *is*, but something that is *done* in different contexts. How it is presented, is created and re-created, acceptable and not acceptable, and *accomplished* depending on the environment. Bruni et al., (2006) echo Ahl's perspective as they seek to embrace at the same time gender and entrepreneurship not as substances, but as practices learnt and enacted in appropriate occasions. Identity then, could be seen as the product of a contextual engineering of material and socially accepted practices (Bruni & Gherardi, 2001). The symbolic gender order is not absolute as it is continually being created and recreated, being done and achieved, varying across time and space (Bruni et al., 2006).

Research in the field of female entrepreneurship has primarily focused on the impediments of building successful female operated enterprises, comparing the performance of female operated businesses, to male operated businesses (Sullivan & Meek, 2012). From an economic development perspective, expanding societal views to embrace a more inclusive vision of entrepreneurship is a critical action that can be supported by all ecosystem participants (GEM, 2019)

Brush et al., (2009), go on to propose that above the current framework for assessing entrepreneurship based on market access, capital and management ability, an approach seeking to advance female entrepreneurship should include motherhood as a factor, as well as the meso and macro socio-cultural environment, which may either enable or disable female entrepreneurship (Brush, et al., 2009). Globally, 27% of women entrepreneurs reported starting a business out of necessity compared to 21.8% of men, constituting a 20% increased likelihood for women entrepreneurs compared to men (GEM, 2019). Sub-Saharan Africa also shows the largest gender gap in necessity motivations, with women entrepreneurs 64% more likely to report necessity motives than men entrepreneurs (GEM, 2019).

The research area exploring the extent to which entrepreneurship is contextually specific, has been accelerating but is still emergent (Baker & Welter, 2020). The full spectrum of the impact of culture and its many dimensions on emerging economy entrepreneurs has the potential to

unlock deeper insights on the future of entrepreneurship theory and work (Ozgen, 2007). Redding (1980) stated that as there may exist a global perspective on entrepreneurial traits, other traits may be more culture or context specific.

*“A contextualized perspective on entrepreneurship encourages us to see, consider and analyze varieties of entrepreneurship that too often remain invisible to us”*(Baker & Welter, 2020 p18).

This means that the expression of entrepreneurship differs from context to context, influencing the kinds of people who get to and want to be entrepreneurs and those who are not afforded the same opportunity. This study aligns to this perspective as it seeks to determine how female informal traders in Johannesburg and Nairobi, navigate their world and the role technology could play in enhancing their lives.

The socio-cultural context has a large impact on female owned businesses, particularly in emerging economies (Anggadwita et al., 2017). Various studies have found that women are constrained by their roles as caregivers and their lack of voice and land ownership in many patriarchal societies (World Bank, Gender Voices, 2013). It then follows that the types of opportunities that women choose and have access to may exclude them from certain entrepreneurial ventures (Uzuegbunam, 2018).

DeTienne and Chandler (2007) discuss the role of gender in opportunity identification, their study being the first to explore gender differences in this entrepreneurial process. They found that women and men utilise their human capital differently to identify opportunities and use fundamentally different processes of opportunity identification. However, they do not find any difference in the innovativeness of the opportunities identified (de Bruin & Brush, 2007). This becomes important in the context of the types of mobile technology innovations female entrepreneurs would accept, and the process they use to determine relevance and viability of mobile technologies is a critical consideration for this research.

### **2.4.3. Empowerment and agency in female entrepreneurship**

One of the factors linked to opportunity identification and the success of female owned businesses is empowerment. Zimmerman describes empowerment as *“a series of experiences in which individuals learn to see a closer correspondence between their goals and a sense of how to achieve them, gain greater access to and control over resources and where people, organizations, and communities gain mastery over their lives”* (Zimmerman,1995, p. 583).

This research references Zimmerman's definition of empowerment because of its relation to the role contextually relevant technology could play in enhancing the lives of informal traders, as it captures the multiplicity of experiences which can enable empowerment as well the opportunity which becomes available for women to develop.

In the context of women's empowerment: it is a combination of a process and an outcome where women can make decisions about their lives, harness opportunities and control the direction of their lives and can retain control of their bodies (Malhotra & Schuler, 2005). Additionally, it extends to the role of women in society, the validity and strength of their voices and opinions for decision making in communities and society - the output of which would be their extended autonomy and an improvement in their well-being (Malhotra & Schuler, 2005). Heinsohn (2005) refers to degrees of empowerment which they define as "*the availability, use and effectiveness of choice*" and relates to an extension of choices, however not all choices are created equally. An individual firstly needs to know that a choice exists, and secondly that it is available to them (Kleine & Light, 2012).

A study analysing the choices made by women in patriarchal societies found that, influenced by their context, they tended to self-censor their choices to be closer to what has been socially accepted in their contexts (Kabeer 2000). Sen (1985) refers to this as adaptive preferences and mentions that these pose a challenge to human development as the choices do not necessarily flow from a standpoint of freedom, which the Capabilities Approach evangelises. Klein & Light (2012) highlight that the extent to which an individual is empowered is therefore impacted by their agency or will, as well as the "opportunity structure" or societal choice set that is presented to them in their context. They continue to state that persons can and often do use their agency to navigate social structures, which have in turn been co-created by individuals, to access a broader range of choices. This inquiry discusses the ways in which agency is being used by female informal traders, and additionally proposes how that agency could be extended to facilitate co-creation with technology startups building solutions for the informal economy.

#### **2.4.4. Forms of empowerment and collective agency-networks and social capital**

Networks and relationships are strong determinants of confidence and empowerment (Woolcock & Narayan, 2000). The relationships that a person has are a potential source of resources and support. Social capital, a widely researched phenomenon, is a key element in the realm of networks and their role particularly in entrepreneurship. There are many definitions

of social capital, but the core ideal is about networks and connectedness which can drive and enable collective action and impact (Woolcock & Narayan, 2000). Additionally, social capital enables the collective recognition, capacity and ability to harness identified opportunities (Ajjan & Beninger, 2014).

Putnan (2000), identifies two types of social capital: bonding and bridging. Bonding social capital relates to close ties one would have within their families and immediate communities whereas bridging social capital is related to networks and connectedness with people that are external to one's immediate community (Woolcock & Narayan, 2000). Both play an important role for members of these networks as the bonding social capital allows closely connected people to collectively pool resources for the achievement of an aim while bridging social capital enables access to new and external resources and assets (Williams, 2006).

In the context of this study, the networks of female informal traders and those of technology startup entrepreneurs is assessed. The study relates to the extent of bridging connectedness between the mobile technology entrepreneur ecosystem in Johannesburg and Nairobi, and the informal trader networks in those cities. One of the questions to be engaged in this inquiry is the extent to which technology startups become a source of bridging social capital for the informal traders, and if so, to what benefit for them.

As social capital enables people to access the resources of a network, female micro entrepreneurs, like the informal traders of Nairobi and Johannesburg, who have high bridging social capital could access more information and opportunities as they extend their networks to include people from diverse settings (Crittenden, 2019).

A study of how female informal traders in Accra develop strategic choices in order to succeed in the open market (Sowatey et al., 2018) suggested that despite views that street vending is a chaotic or unstructured kind of entrepreneurship, it is in fact a well-structured ecosystem built on the foundations of social capital. They found that like formal business spaces, informal markets are spaces displaying power dynamics, agency, connectedness, strategic alliances, governance and a sense of pride in belonging and achievement. The marketplace exhibits the characteristics of bonding social capital: some people are in the market due to their family ties which link them to the market; and bridging social capital: others gained access by being around the market and connecting to the right person who helped them establish themselves. The research captures the centrality of social capital to the success and longevity of the

businesses existing in the market as it is a core pillar to the existence and “going concern” of the informal economy (Grant 2013; Lyons & Snoxell 2005).

#### **2.4.5. Challenges faced by female entrepreneurs in the informal economy**

The ability of female informal traders to build sustainable businesses and to harness opportunities is largely impacted by the kinds of challenges they face. The very definition of what sustainability means for them, is related to the issues which negatively impact their wellbeing. There are several socio-economic factors which influence female entrepreneurs in emerging economies, whilst their needs are also different to those of men, even in the same socio-economic contexts (de Vita et al., 2014). Women are less educated than men in most societies globally. This gap is especially pronounced in less developed countries or countries where societal norms value the education of boy children more than girl children (Kabeer, 2005). In entrepreneurship, education is a stronger predictor of success for female owned businesses than male owned businesses (Chirwa, 2008). The limitations that women often have include business management skills, technical skills as well as limited market data which curbs the type of industries women participate in (Belwal et al., 2012).

The extent of women’s knowledge and ongoing learning are important in sustaining women’s businesses (Faisal & Jabeen, 2017). It has been found that the ways in which women learn are more linked to activity and are tactile, while being enhanced by group or woman to woman knowledge transfer and doing, which differs widely from the definition of education which is often about individual, theory-based learning (Ramani, 2013). Learning and development for marginalised women should include spaces of dialogue and peer to peer learning to facilitate the adoption of new resources such as business sustaining mobile technologies (Ramani, 2013). This study discusses the learning capacity and learning agency of the female informal traders and assesses the ways in which their learning capacity could be harnessed for the development of co-created innovations for the informal economy.

#### **2.4.6. Small businesses as driver of economic development**

Small businesses have been identified as a crucial driver of economic development, and the policy frameworks in a country either spur entrepreneurship or curb growth (Dennis, 2012). For enterprises to have the opportunity to thrive, there needs to be an enabling environment for businesses to start and grow (Wambalaba & Khan, 2010). The importance of the socio-cultural context as has been discussed cannot be overstated, and a framework which considers and

validates contextual differences will go a long way in the full inclusion of all forms of female entrepreneurship, across all global contexts(de Bruyn et al., 2007).

This study investigated the kinds of constraints women in Nairobi and Johannesburg face in their entrepreneurship, and the mechanisms they have devised to address those constraints, as well as whether and how mobile technologies have played a role in addressing those constraints. The next section discusses digital inclusion as a mechanism for addressing constraints experienced in the informal economy.

## **2.5. Digital inclusion**

The purpose of this section is to detail the field of digital inclusion in the diverse contexts of informal entrepreneurs in emerging economies. The section begins with setting the scene on what digital inclusion is, then frames digital inclusion in the context of social inclusion, highlighting the critical systemic and sociological factors that find expression in the world of innovators seeking to engender digital inclusion, and the mechanisms by which digital inclusion can be problematic and even sometimes perpetuates social exclusion. Amartya Sen's (1985) Capabilities Approach is then explored as a paradigm and lens through which the role of digital inclusion and mobile technologies can be connected to the aims of social inclusion.

Thereafter the intersection of digital inclusion with the fields of the informal economy, female entrepreneurship and mobile technology innovation is highlighted, assessing the role of technologies in improving people's wellbeing. This intersection becomes an introduction to the conceptual framework proposed for this study, which includes an interdisciplinary approach of assessing how the informal economy, female entrepreneurship and mobile technology innovation relate and connect for the purposes of facilitating digital inclusion of female informal traders in Nairobi and Johannesburg.

### **2.5.1. A history of digital inclusion**

The concept of digital inclusion came to the fore around 2000, with the increase in internet access (van Dijk & Hacker, 2003). The growth of the internet and the start of online only companies such as Yahoo and Amazon brought about new thinking and possibilities of technology. The year 2000 was also when the 'dotcom crash' took place, with many technology companies losing money. The research on digital inclusion grew with the backdrop of this economic crisis (Zilber, 2007).

The beginning works in the field were about the digital divide and the fact that access to digital technologies was linked to existing social exclusions (Garcia, 2017) as most people could not afford computers. Around 2005, the rhetoric had shifted from the more visible elements based on the digital divide to a hopefulness around the role of technology as the great equaliser as the increase of access to mobile technology meant more people than ever before could have access to the internet (Gorski, 2009).

The thesis was that if the issue of access could be solved, then mobile technologies could democratise knowledge and enable poorer communities' access to new skills and opportunities (Gorski, 2009). Around 2012, studies began to uncover that solving access alone would not bring digital inclusion, a growing school of thought argued that digital and mobile technologies in fact perpetuate exclusion and bring about new forms of exclusion for marginalised people (Figueiredo, Prado, & Kramer, 2012). Work in the field of ICT4D (Information Communication Technologies for Development), a sub field of ICT, focusses on the role of innovation and technology for improving people's lives and has adopted the thinking of Amartya Sen (1985) which determines that the role of development is about developing people's freedoms and choices, which this section expands upon. Digital inclusion research has progressed and is now about critically assessing the kinds of freedoms available to the most excluded members of society (Smith, 2017; Johnson, 2018; Holgersson, Söderström & Rose, 2019).

### **2.5.2. Exclusion in inclusive innovation and the ladder of innovation**

In addressing exclusion, inclusive innovation is defined as *“the development and implementation of new ideas which aspire to create opportunities that enhance social and economic wellbeing for disenfranchised members of society”* (George, McGahan, & Prabhu, 2012, p. 663). Christensen, Baumann, Ruggles, & Sadtler (2006), refer to inclusive innovation as catalytic innovations that enable the development of systemic solutions and change processes by providing the ability to replicate and scale impactful solutions. This study assesses the role of inclusion in the mobile technology products and services that are being developed for the informal economy in Nairobi and Johannesburg, analysing the impact of innovations in terms of their focus and impact on socio-economic wellbeing of informal economy workers.

In 2013, Heeks et.al developed the ladder of inclusive innovation. The ladder provides a description of six levels of inclusion: intention, consumption, impact, process, structure, and post-structure. The first three (intention, consumption and impact) are associated with inclusion

that does not nurture the agency and empowerment of the people for whom innovation is being developed. The last three levels (process, structure and post-structure) create more room for the agency of low-income people by elevating their involvement in the strategies and developing the narratives about the systems innovation. Nilsson (2014) surmises that the first three categories do not truly change systems, while the second group remove the floorboards and reimagine the system at a foundational level.

Scholars have cautioned that focusing on increasing women's income is insufficient to address their needs, based on the many issues they face economically, socially and culturally (Boeri, 2018). It has also been found that women engage in self inclusion in their use of technology for business purposes, without much support from their families (Sánchez & Fernández, 2017). There is, however, wide recognition in the literature that digital inclusion cannot be a focus outside of a broader focus on social inclusion (Csikszentmihalyi et al., 2018).

### **2.5.3. The intersection of digital inclusion and social inclusion**

Social inclusion is the term used to underscore the extent to which the most marginalised people in a society are provided with access and capabilities that can enhance their wellbeing (Eynon & Helsper, 2010). The concept of social inclusion is multi-faceted and includes numerous considerations (Dugarova, 2015). These include asking who is being included (an individual or a community), what is being included for them (services or products), what they are being included into (economic opportunity, social welfare, space), why they are being included and the conditions under which they are being included (Hospes & Clancy, 2011).

There is literature from anthropology, sociology and development economics and their sub-fields which address the development and wellbeing of the marginalised and the poor, and the kind of approaches to innovation which can enable them to gain long term, sustainable wellbeing (Robeyns, 2005). When framing social inclusion and wellbeing, Sen's Capabilities Approach advocates that when thinking about development, social justice and poverty alleviation, a focus is placed on people's freedoms and capability to build lives they can be proud of (Sen, 1985). He argues against assessing people's well-being through utilities and resources exclusively, as this could ignore important non-resource dimensions and lead to misleading comparisons (Robeyns, 2003). Capabilities are people's potential abilities which they can harness should they need or want to. Sen describes functionings as beings and doings - meaning what an individual can be, and what they can do (Pfister, 2012).

The purpose of inclusive development is the creation of a society where citizens have equal access and opportunities to socio-economic participation, and according to Sen (1985), the policies of developing nations need to have this core purpose at their centre. Sen clarifies that the composition and expression of wellbeing differs across different nations, and that development should rather be viewed as a mechanism for expanding people's wellbeing, freedom and quality of life as opposed to poverty alleviation being about increasing incomes (Pansera, 2013).

*“Meaningful participation is therefore not only about giving disadvantaged individuals or groups a voice at the table; it is about strengthening their capacity to influence decision-making processes and exercise their claims on external actors and institutions that affect their lives. In this sense, participation is a prerequisite for inclusive development”* (Dugarova, 2015, p.6).

In the context of this research, the extent to which mobile technology is being developed for the informal economy with the focus on wellbeing and freedom, particularly, to the role of digital inclusion in harnessing the agency of the female informal economy vendors will be analysed.

#### **2.5.4. Problematising inclusion in light of exclusion**

Researchers in the field of digital inequalities need to consider contextuality in their approaches to ensure that theories such as social inequalities are addressed. Social inequalities theory contends that an individual's ability and agency to overcome their social disadvantage is subjective and depends on the social context at the time (Helsper, 2017). Furthermore, research on social inequalities has found that whether a person is excluded depends on what inclusion consists of in the society a person is in, and the precise moment of inclusion or exclusion (Atkinson et. al, 2002; Bossert; Chakravarty & D'Ambrosio, 2006). If the adoption and harnessing of mobile technologies in underdeveloped communities is not considered a time sensitive and critical focus area, digital exclusion will continue to increase on par with the innovations in technology which only higher income individuals will enjoy (Torenli, 2006).

Some researchers have called for greater attention to design processes and distributive outcomes if collaboration with low-income people is to be genuinely inclusive rather than exploitative (Meagher, 2018; Chen, 2016). Reflecting on collaborative innovation with grassroots communities, Fressoli et al., (2014, p. 278) point out, *‘inclusion is not an unproblematic, smooth endeavour; rather, in practice it can also involve uneven, unequal,*

*incomplete and sometimes antagonistic processes and outcomes*'. Discourses of inclusion and collaboration are frequently a cover for selectively reconfiguring informal economic and institutional systems around formal economic interests in order to reduce costs and increase corporate profits (Meagher, 2018).

This research not only focussed on the way in which digital inclusion is performed in the informal economies of Johannesburg and Nairobi, but also points to some of the ways that the work of digital startup innovators needs to pay closer attention to the sociology of place: the socio-economic and socio-historical context; as well as the sociology of personhood: the individual and their personal narrative, in order to enable digital inclusion to play a stronger role in more holistic social inclusion.

### **2.5.5. Sociology of personhood and place**

Sen argues that what is needed is a concerted effort by inclusive development programmes to focus beyond the alleviation of poverty, and to rather focus on growing people's capabilities, to build their agency and freedoms (Sen, 1985). The sociological imagination addresses how seemingly individual stories are linked to greater social narratives within a social context (Mills, 2000). Mills continues to assert that the sociological imagination allows for the assessment and understanding of the intersection between personal narrative and lived experience to social history (Mills, 2000). Katongole (2011) expands Mills' argument and speaks about the concept of the *traumatised social imagination*. He describes this as the invisible driver of "*the way things have always been*" that presents barriers to some people within a social context, particularly in underdeveloped and historically neglected groups, a social imagination that 'lives on a limp' as Katongole describes it.

The lens of sociology of personhood and place means that the context of the individual and their external world matters to their lived experiences. In the context of this research, the socio-historical contexts of Johannesburg and Nairobi are assessed in order to deepen understanding of the lived experiences of informal economy traders and technology startup entrepreneurs in order to assess the role of contextuality on digital inclusion of marginalised women within the informal economy.

Unpacking socio-economic contextuality deeper shows that when marginalised groups have been harassed by the tyranny of what they should be doing, where they belong and where they do not belong, trauma originates (Sapolsky, 1994). He goes on to argue that poverty is

demanding and stressful, even changing people's biological makeup, and brain functioning. Poverty requires people's physical energy, it requires their mental energy in finding ways to survive, it takes from their emotional health as well because they are afraid of being unable to meet their own and their family's needs. Poverty is demanding and there is trauma that comes with it (Hudson, 2016). Petesch & Smulovitz (2017) however seem to downplay the extent of the trauma of poverty as described by Sapolsky and they propose that people like the female informal economy entrepreneurs that are part of this research, have proven their commitment to doing something about their poverty and are valid innovation partners for technology innovators. Seeking to elevate the focus beyond the normative task of fixing poverty, Sen argues that what is needed is a concerted effort by inclusive development programmes to focus beyond the alleviation of poverty, and to rather focus on growing people's capabilities, to build their agency and freedoms (Sen, 1985).

This study assesses the mechanisms in which the agency of female informal traders can be enhanced and harnessed through the mobile technology solutions that technology startups in Africa are developing for the informal economy.

#### **2.5.6. Digital inclusion and mobile technology innovation in Africa**

Although hailed as the "great equaliser", the internet and mobile technologies have not and cannot shift human development where other forms of development such as income disparity and discrimination are left unchanged (Gorski, 2009). The role of digital inclusion then becomes a means to assist in addressing social exclusion, by recognising a person's circumstance beyond their mobile phone (Helsper, 2013). In Sub Saharan Africa, connection to mobile technology is transforming the lives of millions of Africans through becoming a vehicle for delivering services such as education, health, e-government services, and financial products (GSMA, 2019). The role that digital inclusion, through mobile technologies, could play in addressing the sustainable development of women in poor communities is worth probing. In the context of women in the informal economy, digital inclusion can be a key enabler of overall social inclusion (Sánchez & Fernández, 2017). However, enabling access to mobile technologies is only the beginning as the concept of self-exclusion or digital disengagement is complex. It is linked to the prevailing social, cultural and attitudinal elements which hinder the extent to which citizens harness the possibilities of what mobile technologies present (Helsper, 2013). Many segments of the global population face exclusion in the form of technology in varying forms. This exclusion reinforces existing and deeper social exclusion

and disadvantages such as unemployment, poor education, ill-health and low income (Helsper, 2013).

The recognition of the role of mobile technologies, and the specification of social contextuality of this study, aims to address the socio-cultural context within which digital inclusion can occur, and the impact thereof.

### **2.5.7. Sustainable development and digital inclusion**

Sustainable development, according to the United Nations (UN, 2015), includes improving the status and status quo of women, particularly in underdeveloped societies by improving their quality of life and enabling them to expand their income generating opportunities (Venkatesh et al., 2017). Sustainable development goal (SDG) number nine denotes access to the internet and digital technologies as a goal to be reached for all three billion people who are currently offline globally (UN, 2015) -mobile technology will play a vital role in enabling progress towards achieving the SDGs and accelerating progress.

According to GSMA, mobile will play an even more critical role in emerging economies where achievement of the SDGs is a greater task due to the resource and infrastructure gaps in many emerging economies (GSMA, 2019). Facilitating mobile access and digital inclusion for people working in the informal economy therefore becomes an important enabler of sustainable development.

### **2.5.8. Digital inclusion and the informal economy**

Workers in the informal economy face various challenges linked to their businesses, and value-adding mobile technologies need to respond to these challenges (Lim, 2015). It is worthwhile to assess the role of social capabilities in the context of the development and adoption of mobile technologies for informal businesses. It becomes important to assess the conceptualisation, adoption and diffusion of mobile technology innovation with a capabilities lens, because the capabilities approach calls for a review the impact of mobile technology innovation beyond its economic benefits, but determining the extent to which it enhances the freedoms, choices and empowerment of people in building lives they have reason to value (Jimenez & Zheng, 2018).

### **2.5.9. Digital inclusion and female entrepreneurship**

There are challenges of access and inclusion for all informal economy workers, but these are particularly pronounced for women (Moussie & Alfes, 2018). Women in emerging economies

largely work in the informal sector, however, these women are not a homogenous group (Babbit, 2015; Veras, 2015). This study unpacks the ways in which context impacts the needs of female informal traders, even within the same cities, and articulates the value of considering context in building mobile technologies for the digital inclusion of female informal traders in Johannesburg and Nairobi.

Interestingly, a study of informal trader women in Accra revealed their needs beyond economic gain (Sowatey et al., 2018). This was reflected in how the women sought to create an inclusive environment for each other where more formal structures often marginalised them. As a result of the “family approach” with which the market operates, this study found that the market held a deeper emotional connection for the women than merely a means to make an income. The women’s existence in the space, co-creating it with one another provided them with emotional benefit - ‘joy’. They believe that their work builds the economy of the country which reflects a level of agency and pride in their work (Sowatey et al., 2018). Enabling marginalised people, the opportunity to become, to expand their well-being, as the capabilities approach argues, is about seeing digital inclusion not only as being answered by providing access to technologies, but more so about the extent to which the nature of their use of the technology shifts users’ lives (Helsper, 2012).

This research highlights the concepts of access and inclusion for women in the informal sector, demonstrating their context and the latent issues and experiences which impact their livelihoods and ability to harness the power of digital technology. This input is assessed in light of understanding the criteria for enhancing the lives of female informal traders and the considerations mobile technologists need to consider.

#### **2.5.10. Deepening the Inclusive leg of Inclusive Innovation - Co-creation and co-production**

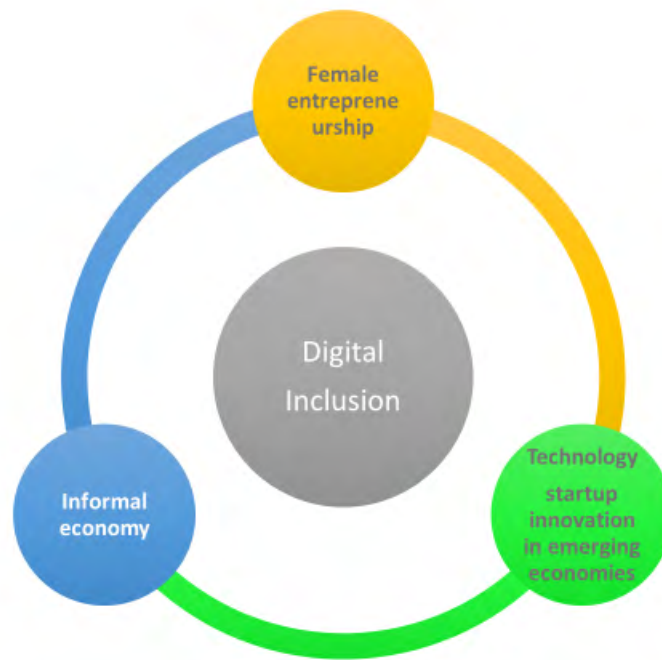
In investigating the role of mobile technologies in advancing social inclusion, the aim is to ensure that existing knowledge and innovation is equitably distributed, but more importantly that growth of mobile technologies allows underdeveloped communities the capability and capacity to produce new knowledge and new innovation as a result (Mormina, 2019). Heiskala (2007) states that the unmissable feature of social innovation is that it should elevate ‘*collective learning and collective power*’, in order to expand a system’s ability to reflect on itself and become a breeding ground for new co-creation capabilities.

Nilsson (2014) talks about how inclusive systems that enable co-creation and co-learning build generative inputs allow the system the ability and the space for reflexive agency. Furthermore, it also enables system reimagination where the system is able to look at itself and transform in light of reflecting deeper, pausing and engaging itself in a different way. Co-creation or co-production are concepts which have been widely discussed in organisational and strategy fields and have started to grow within the public governance spaces and technological innovations (Voorberg, Bekkers & Tummer, 2015). An important element for innovators addressing social development, is recognising the existing innovative practices in communities and addressing their own limited perspectives and stereotypes about low-income people (London, 2008).

This study unpacks the ways in which co-creation is and might be performed within the context of digital inclusion of female informal economy vendors in Nairobi and Johannesburg and explores the ways in which co-creation could be enhanced within the informal context.

## **2.6. Conceptualising the connections between the informal economy, female entrepreneurship, mobile technology innovation towards digital inclusion**

The literature discussed has been across the fields of mobile technology innovation in emerging economies, the informal economy, female entrepreneurship and digital inclusion. The cross disciplinary literature review is part of the objectives of this research, which include determining the nature of the relationship between technology innovation on the one hand and female informal economy traders on the other, with the aims of digital inclusion. The literature review did not find empirical studies that have assessed these four fields together. Digital inclusion therefore becomes the golden thread and perspective from which the other three fields are analysed in line with the curiosity of this study of the role of contextual mobile technologies for the digital inclusion of female informal economy traders.



*Figure 1: Interdisciplinary Conceptual Framework developed by the researcher to be used to assess the nature of the interrelationships between the fields in driving digital inclusion in the informal economies of Nairobi and Johannesburg*

Interdisciplinary research has the aim of bringing coherence and clarifying links between disciplines (Nicolescu, 2014). The interdisciplinary nature of this study has placed the literature of these fields together. This conceptual framework is used to guide the empirical study of the nature of the relationship between the technology startup ecosystem and the female informal traders in Johannesburg and Nairobi.

Connecting multiple lenses to a unit of analysis facilitates a wider and more comprehensive perspective of an inquiry (Candidate, Kenny, & Dickson-swift, 2014). When conducting interdisciplinary studies, researchers need to account for the disadvantages of interdisciplinary work. One of the key disadvantages is difficulty in clarifying the links between fields. There is also the potential that the study can be too wide and not facilitate sufficient and clear purpose (Kafle, 2013). In utilising an interdisciplinary perspective for this inquiry, the aim is to unearth insights that can help frame the relationships within the informal economy in a robust manner.

This study is about social context and the extent to which that determines the relevance of technologies for female informal traders. The interest is in understanding the workings of that context, the ways in which it is co-created and lived and how mobile technologies in Johannesburg and Nairobi might be developed with that context and reality in mind.

## **2.7. Summary of literature review**

This literature review sought to identify the challenges and opportunities present in the informal economy for female entrepreneurs, The sociological considerations of digital inclusion for women working informally, as well as the technological context for the mobile technology ecosystem in the informal sector of emerging economies, and its impact on the lives of women working in the informal economy.

In this regard, the review of literature highlighted that informality presents difficult requirements for informal traders including documentation, city permits and registration processes. The review also indicated that there is a growing convergence between what has been termed the formal and the informal economies, with many informal businesses existing with some formal processes. This presents an opportunity for mobile technology solutions that harness the value of that convergence and the extent to which formal mobile technology startups interacting with informal trader's businesses could enable the existence of strong and value-adding and mutually beneficial relationships across these informal and formal businesses.

## **2.8. Gap in the literature**

An area that has not been covered in the literature is the nature of the relationship between technology startups developing solutions for the informal economy and female informal economy traders. The extent to which mobile technologies in emerging economies could empower women in the informal sector to develop freedoms and expand their choices towards building lives they have reason to value, is a nascent area of study. There are a limited number of papers which have approached female entrepreneurship in this way, particularly investigating informality in emerging economies and the impact of these contexts.

Through this study, the experiences of female informal traders, their needs and the extent to which these are being met by mobile technology services and products in the market is uncovered. The ways in which mobile technology services and products can meet female informal traders' needs, whether this may be possible and the factors that would need to be considered is unpacked. Additionally, the research is assessing how female informal traders perceive and operationalise entrepreneurship in their context, as well as how they navigate the opportunities and pitfalls therein.

## CHAPTER 3: RESEARCH METHOD

*“Hermeneutic phenomenology employs a heuristic of discovery: we discover possibilities of being and becoming”* (van Manen, 1997 p. xiv).

### 3. Introduction to Research Method

This chapter details the research approach and methods used in this inquiry and provides supporting reasons for the choices made. Interpretivism was utilised as the research paradigm for this study to unpack lived experiences of participants in the informal economy.

Finally, the chapter discusses the use of hermeneutic phenomenological interpretive analysis, which is the grounds for the research framework and paradigm of this inquiry. This chapter is written in the first person as a reflection of choices made as a researcher, and the ways in which this research was executed against those choices.

#### 3.1. Research design

This study used a qualitative approach as it dealt with contextual data which does not seek to be generalized to other settings (Patton, 2015). A qualitative approach allows for the exploration of textured and in-depth details of a phenomenon to enable the development of a nuanced understanding of the field of research (Phillips & de Wet, 2017). I elected to use a qualitative approach as this inquiry is about gaining a depth of understanding and meaning of the lived experiences of technology startup entrepreneurs and female informal traders which qualitative research facilitates.

#### 3.2. Research philosophy: Hermeneutic phenomenology

*“Phenomenological research is a search for what it means to be human”* (van Manen, 1997, p.155).

I used hermeneutic phenomenology as the philosophy for this inquiry, which is about understanding the relationships individuals have with a situation and is about the shared experiences of language, understanding and culture between people and their setting (Laverly, 2003). This research philosophy is suitable for this study as the unit of analysis is the relationship between technology startup entrepreneurs and female informal economy entrepreneurs. This research seeks to deepen the understanding of the lived experiences of these

two groups within the context of informality and hermeneutic phenomenology facilitates an exploration of that nature. Phenomenology is a research framework focused on studying people's lived experiences and states that the world and reality are intertwined in the lived experiences that people have, with an aim to understand how meaning is created in the everyday (van Manen, 1997). This is an important element of this research as it seeks to uncover the ways in which technology startup entrepreneurs and female informal economy vendors experience their worlds and the systems in which they exist. In its development, phenomenology now consists of two streams: the original conception by German philosopher Husserl, and hermeneutic phenomenology, from Heidegger and Gadamer (Polkinghorne, 1989). Their approaches are similar in that they both seek to understand human experience and meaning creation. Where they differ is largely in relation to the position of the researcher within the inquiry. This is important as the position of the researcher influences the depth of their own experience and reflexivity in understanding the worlds of research participants. van Manen (1997), goes on to argue that hermeneutic phenomenological research undertaken with Heidegger's lens, means that the researcher will and must themselves be transformed by the research and the experience therein.

Husserl's phenomenology asserts that the researcher should bracket or put aside their biases before they enter the field to prevent their own history and contexts from impacting or deterring the research (Colazzi, 1978; Polkinghorne, 1989). Heidegger argues that it is impossible for human beings to put aside their biases, and rather calls for the researcher to clearly articulate and communicate their biases, observe themselves and account for their observations of themselves and the impact their own standpoint can have on their work (Wilson & Hutchinson, 1991). This study utilised Heidegger's phenomenology as the research philosophy, and the mechanisms used to account for my standpoint and biases is detailed in this chapter.

### **3.3. Research paradigm: Interpretivism**

The research paradigm for this research is interpretivism. Guba and Lincoln (1994) define a paradigm as a basic set of beliefs or worldview that guides research action or an investigation. Similarly, (Denzin and Lincoln, 2008) define paradigms as human constructions, which deal with first principles, indicating where the researcher is coming from so as to construct meaning embedded in data.

An interpretive paradigm is concerned with the observation and interpretation of phenomena. The observation element is about the collection of data about events, while the interpretation element aims to derive meaning from the data for the purpose of analysis and sense making (Antwi & Kasim, 2015). In this study, the data collection focused on lived experience of technology startup entrepreneurs and female informal economy vendors. The interpretation thereof allowed for an understanding of the ways in which the experiences of one group (technology startups) intersect with lived experiences of the other group (female informal traders). Interpretivism seeks to investigate and understand data and signals through the meaning people give to phenomena (Deetz, 1996). Interpretivism in this study was concerned with how the female informal traders and technology startups make sense of the world, seeking to determine how understanding, interpretation, experience or agency to create occurs through the tools and means that people have to act upon their world (Berg, 1995). Contextuality is therefore a critical element of interpretivist analysis (Reeves & Hedberg, 2003). Interpretive research in this study sought to uncover the meaning that individuals assign to events and the meaning of their responses to their social contexts (Antwi & Kasim, 2015).

The interpretivist paradigm regards society and the world as constructed, meaning assigned, created and experienced by people in their relationships and engagement with each other and the contexts they are in (Maxwell, 2004; Bogdan & Biklen, 1992; Guba & Lincoln, 1985; Merriam, 1988). This inquiry assessed the meanings assigned by technology startup entrepreneurs and female informal traders to their contexts and systems within which they exist in order to address the study's main research question. The research design is aligned to the interpretivist philosophy to scholarly inquiry, which highlights that when seeking to understand the meaning of a phenomenon or the experience of a phenomenon, it means that knowledge will be derived from an inductive rather than deductive approach (Merriam, 1998).

### **3.4. The interpretive case study method**

The case study method was used to analyse and understand the multiple cases relevant to this study in order to gain a deep understanding of the intricacies of the unit of analysis (Yin, 1984; Stake, 1995; Eberhart et. al, 2013). An exploratory case study was chosen as it enabled inquiry that is situated in the context that a phenomenon occurs (Yin 2003). A case study also allows for an exploration that presents and recognises patterns and interconnection of data points within the basis of inquiry (Gall et al., 1996). **This study consisted of two case studies:** the technology startups to understand their world; and the second case study: the real-life context

of female informal traders in Nairobi and Johannesburg. This study does not seek to compare Nairobi and Johannesburg as the objective of the study is to understand the and the intersection between mobile technology innovation and the informal economy and the lived experiences within these systems. This was a naturalistic inquiry as defined in the literature (Patton, 2015), it enabled me to determine the factors at play in each system.

#### **3.4.1. Limitations of the case study method**

The limitations of case study research are firstly in the constrained ability to generalise findings to other contexts (Candidate et al., 2014). This research method has also been criticised for a lack of rigour, with issues of credibility raised as the methodology has been questioned (Candidate et al., 2014). Case study research therefore requires the researcher to pay adequate attention to sufficient descriptions of methodological thinking, detailed rationales of the research design and their decision-making processes to enable readers to have a full understanding of the process and checks and balances the researcher has employed (Hallberg, 2013; Morse, 2011). This research report details the rationale of this specific study in the sections to follow.

#### **3.4.2. Empirical Research comprising Two Case Studies**

The research question of this inquiry is: how might socially contextual mobile technologies enable the digital inclusion of female informal traders in Johannesburg and Nairobi? In support of this question, this study consisted of two case studies. The first was the case of the technology startup ecosystems in Johannesburg, South Africa and Nairobi, Kenya. Respondents within this case study included technology startup founders, startup support organisations as well as thought leaders in the field of African technology startups. The second case study includes female informal traders operating in open markets in Nairobi, Kenya and Johannesburg, South Africa. The next section details the makeup of this case and its participants and shares a detailed description of these informants.

#### **3.5. Sampling**

Sampling in qualitative research relates to the selection of data sets and participants from which data will be collected in answering the research questions and objectives (Gentles, Charles & Ploeg, 2015).

The **unit of analysis was the relationship** between informal traders and the technology startups that build solutions for the informal economy; to understand the extent to which innovations led by the startups in these cities are or could be of direct benefit to female informal traders. The analysis of the relationship between informal traders and technology startups was based on an associational assessment (Mramba, Apiola, Kolog, & Sutinen, 2016). Mramba et al., (2016), offer a definition for association “*Association is a semantically weak relationship between otherwise unrelated objects.*” The relationship between informal traders and technology startups in the informal economies of Nairobi and Johannesburg is a weak relationship in that it is not causal. This research will determine the nature of the relationship and the factors impacting the relationship.

### **3.5.1. Type of sampling and sample frame**

Purposeful sampling relates to selecting “*information rich case studies*” in order to develop a deep understanding of the research area of interest and unit of analysis (Patton, 2015). I used purposeful sampling for both case studies as I specifically selected people operating in informality. In the first case study - being technology startups building solutions for the informal economy in South Africa or Kenya - organisations that support those informal economy startups as well as thought leaders who create content related to the technology ecosystem in Africa are sampled in order to answer the research question. Due to the in-depth nature of this research, the sample was limited, as in-depth interviews require deep synthesis while providing rich data from fewer interviews (Winskell, Singleton, & Sabben, 2018).

In the second case study the purposeful sampling consisted of selected informal female traders, who are owners of their businesses, operating in Nairobi or Johannesburg, and specifically operating in designated or ‘formal’ open markets in each city. The reasons for this sampling frame was so that I could answer the research question relating to the intersection of the informal economy with female entrepreneurship in African cities. I selected women operating in designated formal markets as I did not want to have data diluted by an overemphasis on issues related to illegality in cities for informal traders, as this has been widely researched as a significant issue for informal traders that operate more informally (Chen, 2016; WIEGO, 2018).

### 3.5.2. Sample size

My first case study, the technology startup ecosystem, consisted of 12 respondents, broken down into three groups. The first group were the **startup entrepreneurs**. I interviewed six startups: three based in South Africa, and three based in Kenya. These startups were selected because their technology businesses serve the informal economy. Five out of the six interviewees were male. Additionally, I interviewed four **startup support organisations** that have a Pan African view on technology startups and were selected due to their support of startups that build solutions for the informal economy and low-income people. Interviewees in this respondent group consisted of two females and two males. The final respondent group in this case were two **African technology ecosystem thought leaders**. They were selected as they create content for the Pan African technology ecosystem and have a focus on solutions built for low-income people. Both of the respondents in this group were male.

The second case study consisted of **female informal economy vendors**. I interviewed female informal traders operating in open markets, in Johannesburg and Nairobi, ages 25-60. In total, I interviewed 14 respondents, eight informal traders in Nairobi, and six informal traders in Johannesburg.

The criteria often discussed in qualitative research for confirming the point at which sample size is sufficient, is saturation (Charmaz, 2003; Glaser, 1992; Lincoln & Guba, 1985; Merriam, 2009). The issue with saturation is that researchers can often confer saturation as a means to quickly close their data collection (Charmaz, 2006). This study is based on hermeneutic phenomenology and as such, saturation is not a requirement as this research is more about the depth of the research needed in order to engage about the experience or phenomenon of interest. This depth is linked to how often the phenomenon occurs in the participants' world, as well as the amount of engagement needed in order to fully understand their lived experience of the phenomenon (Gentles, Charles & Ploeg, 2015). In hermeneutic phenomenological studies, sampling activities do not seek to find a subset of a greater population, and van Mahen (1997) suggests that sampling in phenomenology be taken to refer to an example rather than the strict application of the term in other methodologies.

### 3.6. Data collection methods

The data collection methods to support this inquiry were in depth, semi-structured interviews and a focus group. Due to the fluidity and largely undocumented culture of the informal

economy, more informal data collection methods facilitated uncovering deep insights from conversations (Battistella, De Toni et al., 2018).

### **3.6.1. In depth semi structured interviews**

Semi-structured interviews include important questions which clarify the research area of interest, but they are flexible enough to allow the interview to expand on certain topics or to shift in order to include discussions and content which may not have occurred to the researcher to include beforehand, but that are relevant to the research area (Gill, Stewart, Treasure & Chadwick, 2008). In depth semi-structured interviews were used in this inquiry to understand the lives of those within the informal economy. This facilitated their ability to share deeper input that I would not have anticipated to ask as a researcher but would be valuable for an understanding of their lived experience and meaning creation (Battistella, De Toni et al., 2018). These interviews were aimed at understanding their relationship with technology startups building for the informal economy, however not in a rigid manner as the informal economy is not an established institution in which it might be easier to ask more direct questions. The interview protocol for this study included four separate interview guides for each of the groups represented in the inquiry. The interview protocol is provided in appendix 7.3.

#### **3.6.1.1 Limitations of semi structured interviews**

Semi-structured interviews have two weaknesses: they are open to the bias of the social actor's self-reporting; and being an interview set-up, the dialogue is removed from the natural setting (Blaikie, 2004). This limitation was addressed by the researcher by returning to some of the respondents in two separate sessions (a session with one respondent, and another focus group including two participants). These sessions were conducted to share the research analysis outputs in order to determine the extent to which what, as the researcher, I captured, was in line with what respondents said. The interviews for the female informal traders were conducted within their trading area, and so the context related to their lived experiences was not removed. This however brought about a different limitation in that some of the interviews were interrupted by customers or other distractions within the markets. This also meant that interviews were often not able to be too long as the informal traders needed to return to running their businesses. I visited the open markets prior to data collection in order to see how they operate, and this aided insight for the interviews by providing understanding about the trading area of the vendors.

### **3.6.3. Focus group**

Focus groups are useful in surfacing collective views and determining the meaning behind the group's perspectives (Gill et. al, 2008). Following the analysis of the interview transcripts, I conducted a focus group with three of the technology ecosystem respondents who I had interviewed before. The purpose of the focus group was to share the outcomes of the analysis with them, in order to validate the findings and their resonance for the startup ecosystem building solutions for the informal economy. The findings were presented to them, and the recorded session was transcribed and coded in Atlas.ti. A key limitation of focus groups is that participants can sway each other's opinions (Janis & Mann, 1977). This was addressed in this study focus group participants had been interviewed individually before the focus group.

### **3.6.4. Field notes**

Field notes help to capture textured descriptions of the research socio-cultural context, scenario, interview etc, and are helpful in documenting valuable contextual data (Jorgensen, 2011). I took field notes in the form of voice recordings, written notes from interviews and photographs to aid my data synthesis and analysis. The field notes have specifically been used to aid understanding of the research contexts of the open markets of Nairobi and Johannesburg.

## **3.7. Research criteria**

*“Human science is prepared to be “soft” and “sensitive” as the meaning of life’s phenomena are brought to our reflective awareness” (van Manen, 1997, p152).*

Lincoln and Guba (1985) identify four research criteria for qualitative studies, namely, credibility, transferability, dependability and conformability. This research meets the criteria for credibility which relates to trustworthiness. Part of the analysis process included reflexivity and reflection. The outputs of this reflection are detailed in the findings chapter.

### **3.7.1. Credibility**

To address research credibility, I returned to three of the participants with the outputs of the analysis and there was no disagreement with the research analysis and findings by those participants. Those reporting sessions were recorded, transcribed and coded. Although hermeneutic studies do not have generalisability as part of the objectives, this research meets the transferability criterion as the research is happening in more than one country (Kenya and South Africa), and in more than one location within that country (two open markets in both

Nairobi and Johannesburg respectively). Due to this, the findings are transferable to other open markets in South African and Kenyan cities, as well as open markets in other large African cities.

van Manen (1997), a leading voice in hermeneutic phenomenology, proposes that the paradigm should extend beyond borrowing criteria from other methodologies, but should be utilising an expanded set of criteria, as hermeneutics is concerned with texts and the deeper meaning of the stories behind them. He goes on to spotlight four criteria for hermeneutic phenomenological studies: orientation, strength, richness and depth. Orientation relates to the presence of the researcher in the world of participants. This is important as it highlights the research criteria that become more important and in the spirit of hermeneutic phenomenological studies. Case study one of this inquiry was conducted via virtual meetings which made deepening understanding the world of the technology ecosystem harder to glean. However, as a researcher, my professional experience and work with African technology startups means I have a strong understanding of their context and could pull on this knowledge as I interviewed them, as well as in the analysis of the data. For the second case study, the informal economy, to which I have less exposure, interviews were conducted in person, in the open market. I also conducted site visits prior to interviewing participants to gain initial insight into their trading environment, which meant I was better able to orientate myself to the context.

### **3.7.2. Dependability**

Dependability, or strength as it is described in hermeneutic phenomenology, entails the extent to which the findings represent a strong understanding of the meanings behind participants' stories. Having analysed the role of historicity and socioeconomics for the female informal economy traders as well as having experience with the current limitations that technology startups in Africa have, I have been able to decipher the meanings behind respondent's stories. Richness relates to the texture and depth of the analysis in articulating narratives through the participants' perspectives. The application of the sociological imagination and lens to both case studies allowed me to deepen the extent of the analysis.

Assessing the socio historical context as well as the personal narratives of participants and surfacing those in the research report ensures that the richness which hermeneutic phenomenology strives for is met with this study. Lastly, depth relates to the extent to which research outputs reflect the deepest intrinsic posture and intentions of respondents. In this

research, the semi-structured nature of interviews allowed conversations to emerge that were not planned. Respondents were able to expand on issues they chose, and the quotations included in the research report are a full reflection of their thoughts and were not shortened or paraphrased in an effort to keep as close to the intentions of what participants wanted to be heard.

### **3.7.3. Conformability**

The study's findings are based on the participants' narratives and words rather than researcher biases. This was achieved by firstly using zero order coding, which entails capturing exact phrasing and sentences from the transcripts. These zero order codes became the basis of all other coding and analysis conducted.

### **3.8. Research ethics**

In terms of ethics, I have considered the need for anonymity of interviewees, especially due to the in-depth nature of the interviews.

Approval was received from the University of Cape Town's ethics committee to conduct the study. Consent for each interview was gained prior to the interview. Participants were also notified about how the information collected would be used, as well as the anonymity and confidentiality of their recordings and transcriptions. respondents were given an opportunity to opt out of the study at any time during the interview.

## **3.9. DATA COLLECTION PROCESS**

### **3.9.1. Empirical situation: Presenting the technology startups case study**

This inquiry comprises two case studies, the first being the technology startup ecosystems in Johannesburg and Nairobi. The research criteria for respondents within this case included technology startups, startup support organisations and thought leaders in the African startup ecosystem. In this section, I present the data collected in this study.

#### **3.9.1.1. Technology startups: South Africa**

The criteria for respondents for the South Africa based startups included founders living in Johannesburg and Cape Town, who run businesses serving the informal economy in

Johannesburg, Cape Town, and one of the startups also operates in Tanzania. These businesses needed to have developed technology solutions primarily for informal stores (*spaza shops* as they are called in South Africa) and some specifically for informal traders.

### 3.9.1.2. Technology startups: Kenya

The participants from Kenya met the research criteria of startups based in Nairobi that have built businesses that serve the informal businesses or retailers in Nairobi. The startups had developed solutions for informal retailers (or *dukas* as they are called in Kenya), as well as solutions for serving low-income people, who are not directly linked to informal retail.

### 3.9.1.3. Startup support organisations: Pan African

The startup support organisations needed to meet the criteria of being companies that act as skills development, acceleration and incubation hubs for startups. The startup support organisations included in the study largely had an Africa-wide focus, and all but one worked with startups from multiple countries across Africa. Their offerings vary based on the focus areas of the startup support organisation, but at the core, they all aim to improve the likelihood of success and scaling of startups building solutions in Africa. The support organisations included in the study represented and worked with startups that build for the informal economy, and therefore respondents were acutely aware of the context of informality and the ways startups have navigated the context.

### 3.9.1.4. Thought leaders in the technology startup ecosystem: Pan African

This research also included two organisations which met the research criteria of developing learning and thought leadership content about the African technology startup ecosystem. Their content and insights relate to the whole of the African continent.

*Table 1: Interview schedule*

Case Study 1: Technology startups (Johannesburg & Nairobi)								
<b>Interview number</b>	1	2	3	4	5	6		
<b>Interview date</b>	12/03/20	16/03/20	23/03/20	22/05/20	02/06/20	10/06/20		

<b>Interview length</b>	1h11min	34min	55min	30min	41min	41min		
<b>Case Study 1: Startup support organisations (Pan African)</b>								
<b>Interview number</b>	1	2	3	4				
<b>Interview date</b>	02/04/20	30/04/20	30/07/20	02/03/21				
<b>Interview length</b>	47min	40min	48min	27min				
<b>Case Study 1: Thought leaders in the African technology startup system</b>								
<b>Interview number</b>	1	2						
<b>Interview date</b>	23/03/20	27/08/20						
<b>Interview length</b>	1h05min	32min						
<b>Case study 2: Female Informal Traders (Nairobi)</b>								
<b>Interview number</b>	1	2	3	4	5	6	7	8
<b>Interview date</b>	20/10/20	20/10/20	20/10/20	20/10/20	20/10/20	22/10/20	22/10/20	22/10/20
<b>Interview length</b>	12min	46min	11min	14min	13min	20min	20min	10min
<b>Case Study 2: Female Informal Traders (Johannesburg)</b>								
<b>Interview number</b>	1	2	3	4	5	6		
<b>Interview date</b>	26/11/20	26/11/20	26/11/20	26/11/20	27/11/20	27/11/20		
<b>Interview length</b>	10min	26min	23min	8min	14min	5min		

### **3.9.2. Empirical situation: Presenting the informal traders case study**

This subsection delves into the makeup of the second case study: the female informal traders in Nairobi, Kenya and Johannesburg, South Africa. The research criteria for respondents included women, who must be operating their own businesses, within demarcated or structured open markets in Nairobi and Johannesburg. Respondents in Nairobi were located in two markets: Toi Market and Maasai Market, and respondents in Johannesburg were operating in Bree Taxi Rank in the central business district, as well as Pan African Taxi Rank in Alexandra township.

#### **3.9.2.1. Presenting Case Study Two: Research Context of informal traders in Nairobi and Johannesburg**

The next section introduces the research context of the informal traders and their trading locations in order to frame the context within which interviews were conducted. The social context of the interviewees is also important for the Findings section of this research in describing some of the key themes that emerge from the data.

##### **3.9.2.1.1. Nairobi Data Collection site #1: Toi Market - Ng'ong Road, Nairobi**

Interviews were conducted on 20 October 2020 which was a public holiday (Mashujaa Day) during the covid-19 pandemic. This was in the phase of Kenya's response plan to covid-19, where most industries had returned to operating fully, however schools and universities were still closed. The country stood at 45 000 covid-19 cases on the day of interviews.

###### **3.9.2.1.1.1. Context of the market**

Toi is an open market in Nairobi, on Ng'ong Road, one of the busiest roads in the city. The market is mostly for second-hand clothes and shoes, with some household items such as pots and bedding, as well as a few fruit and vegetable stalls. Some stalls sell a mix of second-hand items, whereas a significant number seemed to specialise in certain types of second-hand clothing such as jerseys, children's clothes and denim jeans.



*Images: Toi Market, Ng'ong Road, Nairobi, Kenya (Photos by researcher)*

The market is on a stretch of road, with a few artillery roads feeding into the main one. On the day of data collection (Mashujaa Day), a public holiday in Kenya, the market was not busy. There were a few customers here and there, but the informal traders were relatively relaxed.

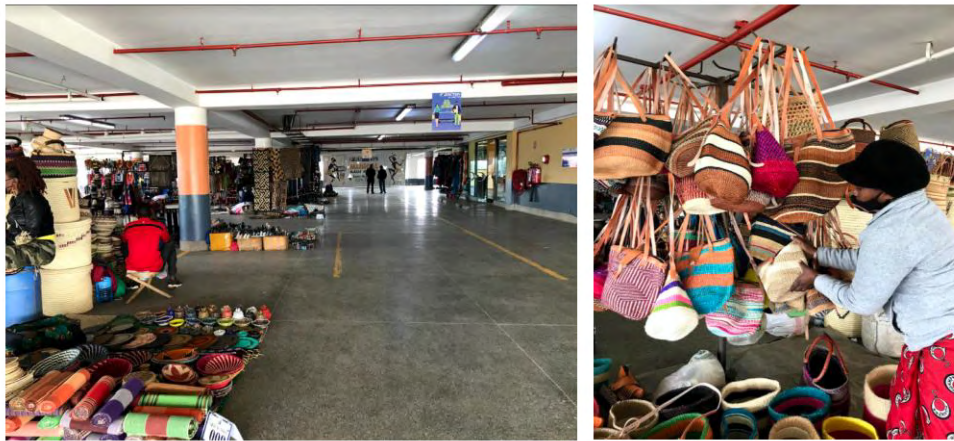
#### **3.9.2.1.1.2. Structure of the market**

The market is structured and orderly, with everyone who sells in the market, selling in a demarcated stall. There are no informal traders walking around to sell, everyone sells from their own stall which they use every day. The market is exceptionally clean, no litter at all, or random stalls that look out of place.

Market sellers are mixed between men and women. Both men and women were selling all types of items - there was no item seemingly being sold by men or by women. In terms of age, the women in the market seem to be mixed: younger, as well as older looking women. Just by observation, the men selling in the market seemed younger, and no older men were seen selling in the market.

On the day of data collection, customers in the market ranged from women shopping alone, women shopping in duos or trios, women with children, a few expatriates to tourists who seemed comfortable as they shopped. In terms of safety, the market seems relatively safe and no one was overly vigilant in relation to their personal safety or their items.

### 3.9.2.1.2. Nairobi Data Collection site #2: Maasai Market, Junction Mall



*Images: Maasai Market Junction Mall, Ng'ong Road, Nairobi, Kenya (Photos by researcher)*

Interviews were conducted on Thursday 22 October 2020 during the covid-19 pandemic, in the phase of Kenya's response plan to covid-19 where most industries had returned to operating fully, however schools and universities were still closed. The country stood at 46 144 covid-19 cases on the day of interviews.

#### 3.9.2.1.2.1. Context of the market

Maasai Market is a traveling arts and crafts market, where traders sell crafts such as jewellery, traditional fabric and clothing, bags made of sisal, etc. The market is a travelling market as it is in different locations for six days of the week. The locations of the market are mostly in parking lots of shopping malls, with a parking lot in front of the Supreme Court on a Sunday being the only market that is not within a shopping centre.

On the day of the interviews, the market was in the parking lot of Junction Mall, a popular shopping mall on Ng'ong Road in Nairobi. The Thursday market in Junction Mall is located at the top parking floor of the mall. A visitor to the market would need to walk through the mall to find it. There is no signage directing one to the market, and visitors need to ask mall employees directions to the market. The market takes up the whole top floor parking garage, so there is sufficient space in the market, and it is covered so they do not need to worry about rain and other bad weather.

#### 3.9.2.1.2.2. Structure of the market

Due to covid-19 restrictions, the traders who would normally be right next to each other, now need to leave a parking space between them. This has meant that the traders have been divided

into two groups: Group A and B, with Group A selling in the market in week one, and Group B selling in the second week. In each group, there are approximately 50 traders selling each week. The market has a predominantly female trader population, with few men. The women mostly sell baskets, jewellery, fabric and clothing, while the men were selling more statues, figurines and baskets.

Customers at the Maasai Market are typically tourists and expatriates, with Kenyans typically not shopping there. On the day of data collection, there were very few customers in the three hours I spent there - less than 20 customers, and the customers seemed to be non-Kenyan. Due to the primary target audience of the Maasai Market being tourists and expatriates, the traders at the market are proficient English speakers, so I was able to conduct all interviews in English.

### **3.9.3. Introducing the environment of the informal trader case study: Johannesburg Open Markets**

Data collection in Johannesburg was conducted in two open markets, Pan African Taxi Rank in Alexandra township, a largely residential area, and Bree Street Mall taxi rank in the central business district. These two markets are 15km apart, and both are located along important transport nodes, specifically minibus taxi transport routes.

#### **3.9.3.1. Johannesburg Data Collection site #1: Pan African Taxi Rank, Alexandra**

Interviews were conducted during the covid-19 pandemic, in lockdown level 1 of South Africa's response plan to covid-19. All industries had returned to operating fully, schools had reopened, but universities were still closed to a large extent. The country stood at 716 000 covid-19 cases on the day of interviews.

##### **3.9.3.1.1. Context of the market**

The open market in Pan African Taxi Rank (Pan) is at a transport node where primarily minibus taxis are hailed. It is situated in the Alexandra (Alex) residential area, one of the areas that was historically designated for black people by the apartheid government. Alexandra is a populous community and is primarily inhabited by low-income people. The open market is within a walking distance to a large number of Alex residents.



*Images: Pan African Taxi Rank, Alexandra, Johannesburg, South Africa (Photos by researcher)*

### **3.9.3.1.2. Structure of the market**

The open market is along the boundary wall of a large retail shopping mall, Pan African Mall. The market is made up of traders occupying government provided shipping containers from which to trade on the one side (the side along the wall of the shopping centre), and other vendors trading in the street with no structure or covering. The traders inhabiting the shipping containers were granted access to them as they are long standing traders in the area dating before the existence of the shipping containers and the shopping mall. The traders on the other side of the street are newer vendors and do not have the same certification as the vendors within the shipping containers.

The majority of traders in the market are female, with a skew to older women in their 50s. There are some younger men as well, but the women dominate. Traders are mostly selling fruits and vegetables, cosmetics, small clothing items such as underwear and hats, as well as snacking foods such as amagwinya (fried dough), atchar (a condiment), nuts and maize snacks.

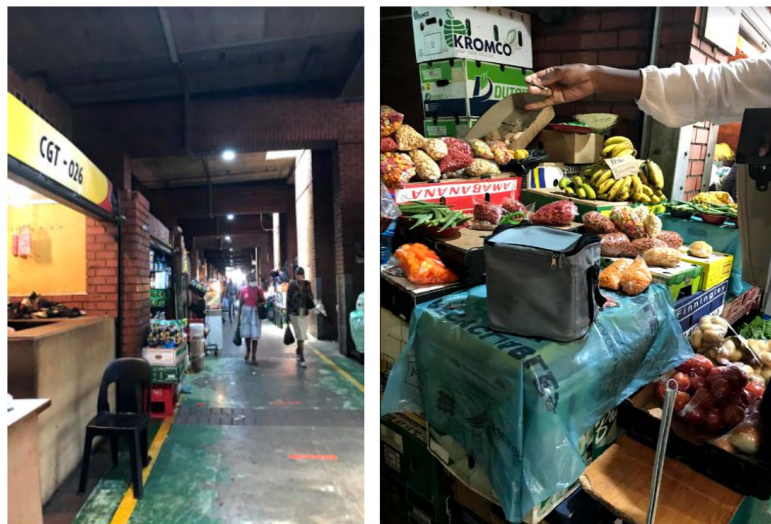
Customers at the market are largely commuters due to the location of the market in a transport node - anyone wanting to travel into and out of Alex needs to go through Pan. The centrality of the market within the residential area means many customers are residents walking to the market to purchase what they need. Additionally, the market's location being outside a shopping mall, means traders get the benefit and spill over of people visiting the mall.

### 3.9.3.2. Johannesburg Data Collection site #2: Bree Street Taxi Rank Market, CBD

Interviews were conducted on Friday 27 November 2020 during the covid-19 pandemic, in lockdown level 1 of South Africa's response plan to covid-19. All industries had returned to operating fully, schools had reopened, and universities were still closed to a large extent. The country stood at 717 000 covid-19 cases on the day of interviews.

#### 3.9.3.2.1. Context of the market

Bree Taxi Rank market is an informal trader market on the second floor of a public transport hub in the centre of Johannesburg. Downstairs, there are mini-bus taxis taking commuters to the Western and Southern parts of Johannesburg. The taxi rank is fully enclosed, as is the informal trader market upstairs. The market is made up of a mix of women and men, with a skew towards being more female and younger. The items sold in the market are predominantly fruit and vegetables, crisps and sweets, cold drinks and water. There are also a few larger shops in the market selling clothes.



*Images: Bree Taxi Rank Market, Johannesburg CBD, South Africa (Photos by researcher)*

#### 3.9.3.2.2. Structure of the market

It is designed in a U-shaped corridor. Each trader has their own stall or store which they lock up with a garage door daily. Stalls are numbered and allocated to traders by the municipality. For traders to sell in the market, they need to be registered with the municipality. The majority of traders in the market used to sell at the outdoor market that was previously located where the taxi rank now exists. Those traders were moved into the building when it was built in 2004. Other informal traders still sell outside the market, selling the same items, presenting the

biggest competition to the traders within the market as they see more foot traffic than those within the market. The disadvantages of trading in the street include being exposed to bad weather, logistics of moving stock and the threat of municipal authorities confiscating their wares if they are unregistered.

Customers at the market are commuters due to the location of the market in a transport node. Unlike many other types of markets, the only customers at Bree Taxi Rank Market are commuters, and specifically, commuters who travel by minibus taxi. This presents a limit to the traders in the market as they can only sell to people who are traveling by minibus taxi to specific parts of the city only, and specifically people who elect to go upstairs to access the open market.

### **3.10. DATA ANALYSIS: Interpretative analysis**

The data analysis procedures utilised in this study is interpretative analysis. Qualitative, interpretative data analysis entails processes and procedures that translate data collected into meaningful explanations and/or interpretations of the phenomenon that is being studied (Chowdhury, 2015).

My data analysis process included developing and applying codes. Coding can be explained as the categorisation of data (Reichertz, 2009). A 'code' can be a word or a short phrase that represents a theme or an idea (Reichertz, 2009). Thereafter I identified themes, patterns and relationships in the data set. Finally, I summarise the data in theme relationship diagrams. This then enabled me to link research findings to the research problem and objectives (Merriam, 1998).

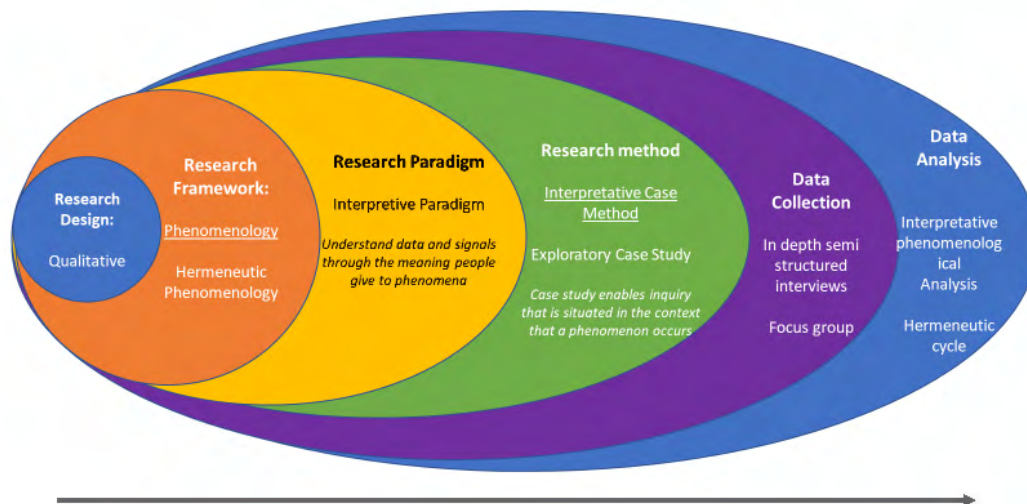


Figure 2: Research Methodology summarised (by researcher)

In line with the research framework of this study, the analysis employs interpretive phenomenological analysis. This research philosophy prioritises seeking understanding of a phenomena and the human experience (Heidegger, 1962; 1975). This method of interpretation encourages researchers to be reflective on their role within the field and their potential influence on the process of deriving meaning in the research (Myers, 2004 in Chowdhury, 2015). However, hermeneutic interpretive analysis does not require me, as the researcher, to bracket my assumptions and existing theories like other phenomenological methodologies, it recognises that human beings cannot be divorced from their contexts and experiences (Crist & Tanner, 2003).

### 3.10.1. Six principles of hermeneutic data analysis

The interpretation of data through the hermeneutic cycle is underpinned by six principles. These principles highlight the interaction of the unit of analysis with the greater whole of which it is a part. These principles help to locate and contextualise interpretive scholarly analysis (Klein & Myers, 1999). I detail below how I applied the principles in this research.

Principle	Application to interpretive research
1. Contextualization	The researcher must reflect on how socio- historical factors influence the current social phenomena.
2. Interaction between the researcher and subjects	The researcher should take a critical reflection on how the social construction of reality informs the collection and interpretation of the data
3. Abstraction and generalization	The researcher should elevate the first-level constructs (the data) to the second-level constructs
4. Dialogical reasoning	The researcher should have a sensitivity to both the social actor's accounts (the data) and the social context, in order to identify contradictions and bias.
5. Multiple interpretations	The researcher should have a sensitivity to the nuances and differences in interpretations amongst the accounts of the social actor's in a constant analytical stream.
6. Suspicion	The researcher should have a sensitization to biases and distortions in the narratives collected from the social actors.

Table 2: Principles of interpretive research (Klein & Myers, 1999)

I used the hermeneutic cycle as the strategy for the empirical analysis. Interpreting data using the hermeneutic cycle prioritises analysing the whole and the parts and is an infinite process of the researcher engaging the data in order to understand the interplay between the parts and the whole, and the meaning related to each component and to the whole (Gadamer, 1976).

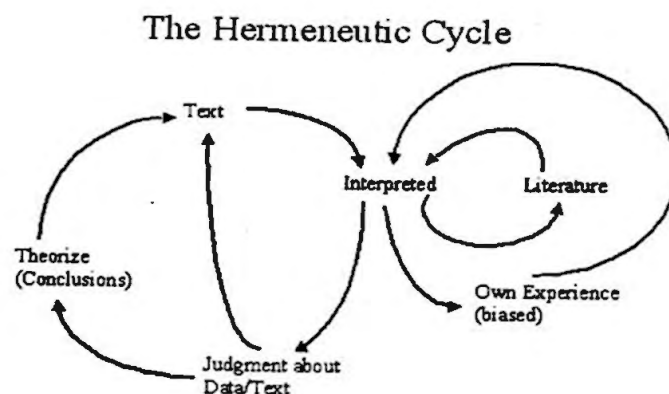


Figure 3: The Hermeneutic Cycle (Gadamer, 1976)

The concept of the hermeneutical cycle signifies that, in interpreting research texts, a new understanding was achieved by attending to and exploring further meanings for what is shared by respondents. This process was able to add value and texture to the understanding already held (Grondin 2016). The process of building understanding is circular, shifting from the text, to interpretation, to reflection and back in order to allow for deeper understanding to emerge (Grondin, 2016). Data analysis also allows researchers to identify elements that are less pronounced in the field (Chowdhury 2015). These are elements such as the socio-economic makeup of the context, accepted social norms, gender roles, culture or tribal factors and religion (Chowdhury 2015). To conclude the hermeneutic cycle, the researcher can bring validity to interpretations through empirical research and connection to the literature in the field(s) of inquiry. The other mechanism of exiting the cycle was to demonstrate the correction of the interpretation (Groenewald, 2004). This research has made use of the former strategy of connecting literature to the empirical data from the field to validate interpretations and findings.

#### **3.10.1.1. Contextualisation- reflecting on socio-historical factors in the field**

This study included an analysis of the social context of the research field, by applying Mill's sociological imagination (2000). Data was analysed from a sociological perspective in order to assess the deeper context related to the lived experiences of respondents. This contextualisation principle of interpretive analysis became a vital enabler of the outcomes of this study which are detailed in the empirical findings.

#### **3.10.1.2. Interaction between the researcher and the subjects**

As a researcher I was aware of my positionality within the field. As part of the hermeneutic cycle (Sloane & Bowe, 2014), I reflected often on my standpoint after data collection and during data analysis. I recorded voice memos of my reflections and transcribed them. Some of the key reflections have been highlighted in the empirical findings, while the detailed reflections, including timestamps have been added to Appendix 1.

##### **3.10.1.2.1. Reflexiveness- Reflections and Respondent findings check points**

*“A phenomenological researcher cannot just have a question — He or she must live it”*  
- van Manen, 1997.

As a researcher I continually *reflected on the analysis process* and my standpoint. I did this using voice recordings which I then transcribed. The reflections related to interesting data

points found, explanations of the coding process, as well as checkpoints for me as a researcher based on my own biases or preconceived ideas, and their impact on the analysis of the data. Ten such recordings were performed and transcribed. The most significant of these were two reflections: one on 12 June 2021, where I reflected on my mechanistic view of the interviewing process following a discussion with a social development expert, where I realised how I moved too quickly past the socio-historical aspects of the research. The second important reflection came off the back of the former, on 18 June 2021, and related to the process I had then undertaken to do additional coding on the data, looking specifically through a sociological lens.

The second reflexive tool I used was to *engage a small subset of respondents* from the technology ecosystem case study about my findings. I held a session with one of the startup support organisation respondents on 4 May 2021 and presented the highlights from the analysis. I recorded and transcribed this discussion and captured the feedback. I then organised a focus group with two other respondents on 6 June 2021: the participants were a leader in a startup support organisation and a thought leader in the African technology ecosystem. I took them through the key findings from the analysis and captured their feedback. I recorded and transcribed the focus group, and this discussion fuelled the focus of one of the contribution areas of this inquiry, which are described in the findings chapter and detailed in the theoretical discussion.

In addition, I shared my findings with other academics as well as industry leaders who are specialists in the fields of my interdisciplinary inquiry. I discussed the findings with an economist, a social development expert and a seasoned entrepreneur. I also conducted two sessions with three respondents to discuss the key findings with them to validate my processing of the data and the insights I derived.

### **3.10.1.3. Abstraction and generalisation**

I used thematic analysis (Laverly, 2003) in this research and developed codes using open coding from zero order (capturing key points from transcripts) to first order codes (key phrases for the concepts in the data), second order (code groups and relationships between code groups), and finally themes which are the highest order abstractions from the data. The process of coding is detailed in the next analysis subsection.

#### **3.10.1.4. Dialogical reasoning**

Dialogical reasoning was applied in this study by understanding the context as well as having a framing of literature (Wang & Conboy, 2012; Cardoso & Ramos, 2012; Chughtai & Myers, 2017). In my analysis, I employed an interplay between ‘the data’ and the literature and revised my perspective where needed. One of the key revisions in this study was the shift from describing women operating in the informal economy as informal traders or informal economy traders, to referring to them as female informal economy entrepreneurs. This was based on the data that emerged and the ways in which they clearly exhibited the scholarly accepted traits of entrepreneurship. This shift is discussed in detail in the findings chapter.

#### **3.10.1.5. Multiple interpretations**

Through the process of coding transcripts by returning to already coded transcripts to assess whether newer codes were applicable, I was able to see where nuances between respondents occurred, as well as where there was congruence on their responses (Groenewald, 2004). It was illuminating to discover people existing in the same location having a vastly different experience. The coding and re-analysis of previous transcripts allowed me to be clear on the nuances.

#### **3.10.1.6. Suspicion**

I kept suspicion by holding an understanding of the literature (Lavery, 2003) as well as comparing responses between participants. Where, for example, female specific challenges did not emerge from female informal trader responses, I questioned that as the literature emphasises patriarchal limitations for them. Discussing the findings with industry experts allowed me to see the bigger picture beyond respondents' accounts.

### **3.11. Data Analysis: Interpretive analysis of the empirical observations in case study one - The technology startup ecosystem**

This section details the data analysis process for case study one: the technology startup ecosystem. The data analysis entailed interpretive analysis of the data in relation to the unit of analysis - the dual roles of context and relationship with technology entrepreneurs in the digital inclusion of female informal economy entrepreneurs. This interpretative analysis was underpinned by the principles of the hermeneutic cycle.

I used thematic analysis for this research using interpretative analysis. Thematic analysis clusters codes into levels of codes from direct quotes from the transcripts to higher order abstractions, and synthesis of the data into higher order relationships and themes. Additionally, open coding was used in this study which is an iterative process of grouping and comparing data into codes, to identify similarities and dissimilarities in the data (Boudreau & Robey, 2005). Thereafter, I analysed the data through the lens of the hermeneutic cycle.

### **3.11.1. Hermeneutics Cycle: Zero order codes**

I used zero order coding for this case study. Zero order codes are codes that are derived directly from the respondent's answers to questions and their framing of their responses (Malodia et. Al, 2019). Zero order coding for this case study was conducted manually – i.e., not using the qualitative data analysis tool yet. The manual zero order coding included clustering and organising the data as the main objective, the starting point of which became organising the responses based on answers to questions as well as interesting inputs from the respondents. The process included going through each of the interview transcripts, and then making some notes of key interesting points in relation to the questions asked of respondents. If the question was about the impact of covid-19, for example, the zero-order code then captured what each of the technology startup entrepreneurs said about covid-19.

The analysis process included clustering the responses and the most pertinent issues in relation to the questions asked as well as summaries of content which emerged organically.

### **3.11.2. Hermeneutics cycle: First order codes**

The analysis started with the first transcripts, and I created the codes based on what I was reading. An initial summary was created using notes from each of the transcripts. Thereafter, I looked at the transcripts again, and this part of the process included analysing the transcript, determining the code and then referencing the summary notes that I had. The process included looking at the existing codes from the previous transcripts and seeing whether those codes emerge in the new transcripts. I would then add new codes, where some of those codes had not come up in the previous transcript.

### **3.11.3. Hermeneutics Cycle: Code Groups (Second order codes)**

To create code groups, I looked for codes that were related. These were codes that made up a similar network, not necessarily the same. Rather, the type of topic they referenced, were in

the same range. I clustered those codes into different clusters based on the type of content and type of conversation they were related to.

### 3.11.4. Hermeneutics Cycle: Describing the code groups (second order codes)

The below table provides a description of the code groups developed for the technology entrepreneurs case study, and the accompanying codes. The code groups (second order codes) were namely; **Building a technology business in Africa, Ecosystems of value, The role and scope of inclusion, On the ground emergence, The context of startup support, Humanity behind technology.**

Case study 1: Technology startups Code Groups			
Code Group 1 Building a technology business in Africa	Building a technology business: Codes	Code Group 2 Ecosystems of value	Ecosystems of value: Codes
<i>Related to the types of business models they build and the challenges they face and mechanisms they use to address those challenges</i>	<ul style="list-style-type: none"> <li>● Building in Africa and nuances</li> <li>● Business models versus product</li> <li>● Challenges for startups</li> <li>● Scaling and scalability</li> <li>● Technology and policy</li> </ul>	<i>Related to the outputs of the startup - i.e. the types of products and services and how they are meant to build value to the ecosystem</i>	<ul style="list-style-type: none"> <li>● Access enabling value</li> <li>● Contextuality</li> <li>● Enablement</li> <li>● Evolving ecosystem</li> <li>● Meaningful &amp; mutual value</li> <li>● Relevance</li> <li>● Simplicity</li> </ul>

Code Group 3	The role and scope of inclusion: Codes	Code Group 4	On the ground emergence: Codes
<p><b>The role and scope of inclusion</b></p> <p><i>This covers different conversations around what inclusion means, how it gets tracked, what it does not mean, including what inclusion is supposed to facilitate</i></p>	<ul style="list-style-type: none"> <li>● Access enabling value</li> <li>● Agency</li> <li>● Inclusion</li> <li>● Narrative and story</li> <li>● Relevance</li> <li>● Building for mainstream citizens</li> </ul>	<p><b>On the ground emergence</b></p> <p><i>Relates to startups needing to get to the trade - be 'on the ground' to build solutions that are relevant for the people and the context informality</i></p>	<ul style="list-style-type: none"> <li>● Contextuality</li> <li>● Perceptiveness &amp; learning orientation</li> <li>● Empathy</li> <li>● Failure</li> <li>● Lived experience</li> <li>● Offline strategies</li> <li>● Pivots and learnings</li> </ul>
Code Group 5	The context of startup support: Codes	Code Group 6	Humanity behind technology: Codes
<p><b>The context of startup support</b></p> <p><i>Relates to the role of startup support organisations and the challenges they face as they partner with startups developing informal economy solutions</i></p>	<ul style="list-style-type: none"> <li>● Coaching and skills development</li> <li>● Funding and investors</li> <li>● Role of support ecosystem</li> <li>● Talent and team</li> <li>● Technology and policy.</li> </ul>	<p><b>Humanity behind technology</b></p> <p><i>Relates to the emotional side of creating solutions for the informal economy</i></p>	<ul style="list-style-type: none"> <li>● Empathy</li> <li>● Perceptiveness &amp; learning orientation</li> <li>● Lived experience</li> <li>● Mental and emotional tax</li> <li>● Relationship &amp; trust</li> <li>● Sense of purpose and service</li> </ul>

<b>Code Group 7</b>	<b>Digital openness &amp; literacy</b>
<i>Relates to the digital learning that startups are factoring into their solutions to enable adoption of their innovations.</i>	<ul style="list-style-type: none"> <li>● Building for mainstream citizens</li> <li>● Digital literacy</li> <li>● Simplicity</li> <li>● Digital adoption drivers</li> </ul>

Table 3: Code Book for Case study 1: Technology startups Data analysed on Atlas.ti

### **3.12. Data Analysis: Interpretive analysis of the empirical observations in case study two - Female Informal trader coding process**

This section details the data analysis process for case study two: the female informal traders.

#### **3.12.1. Hermeneutic cycle: Zero order codes**

I started by going through each of the transcripts and re-listened to the interviews. I then started making comments on the actual transcript. A copy of the transcript was created and titled ‘comments’ to track changes on the document with initial observations from each of the transcripts. I then took the transcripts with comments, and I uploaded them to Atlas.ti.

#### **3.12.2. Hermeneutic cycle: First order codes**

I then started to create codes based on the observations that I had made on the Word document on the comments. I then assessed the initial comments (zero codes) to see whether they were relevant enough to be put into a code. I then created a relevant code, and often the code was closely linked to the wording from the observation on the Word document.

#### **3.12.3. Hermeneutic cycle: Second order codes (code groups)**

I then clustered the codes to create code groups, based on the relationships between the codes. The below code table details the codes from the informal trader thematic coding process which was conducted using Atlas.ti. These codes have then been arranged into code groups (second order codes) namely; **business management, regulation and government, mobile**

technology usage, freedom and agency, entrepreneur character, emotional state, relationships, family and hopes and dreams.

Code Group	Business Management: Codes	Code Group	Regulation & Government: Codes
<p><b>Business Management</b></p> <p><i>Strategies that the informal traders undertake as they run their businesses. This code group includes the various challenges that they face as they are running their business and how they engage those challenges</i></p>	<ul style="list-style-type: none"> <li>● Business challenges</li> <li>● Business innovation &amp; pivots</li> <li>● Business story</li> <li>● Financial literacy &amp; management</li> <li>● Quality management (Business principles)</li> <li>● Supply process &amp; cost management (Business principles)</li> </ul>	<p><b>Regulation &amp; Government</b></p> <p><i>This code covers the traders' relationship with government and law enforcement agencies</i></p>	<ul style="list-style-type: none"> <li>● Documentation and registration</li> <li>● Perceptions of government</li> <li>● Safety concerns &amp; costs</li> <li>● Tensions for traders</li> </ul>
Code Group 3	Mobile technology usage: Codes	Code Group 4	Freedom & agency: Codes
<p><b>Mobile technology usage</b></p> <p><i>This covers the traders' relationship with mobile technologies</i></p>	<ul style="list-style-type: none"> <li>● Digital adoption drivers</li> <li>● Mobile phone services - costs &amp; challenges</li> <li>● Mobile phone usage</li> </ul>	<p><b>Freedom &amp; agency</b></p> <p><i>This group is about the agency that traders demonstrate and is expressed strongly as they are running their businesses</i></p>	<ul style="list-style-type: none"> <li>● Agency</li> <li>● Accountability</li> <li>● Freedom and choices</li> <li>● Independence</li> <li>● Tensions for traders</li> </ul>

<b>Code Group 5</b>	<b>Entrepreneur Character: Codes</b>	<b>Code Group 6</b>	<b>Emotional state: Codes</b>
<p><b>Entrepreneur character</b></p> <p><i>This code group captures the entrepreneurial characteristics demonstrated by the traders</i></p>	<ul style="list-style-type: none"> <li>● Innovation</li> <li>● Discipline &amp; perseverance</li> <li>● Self-improvement</li> <li>● Learning from failure</li> <li>● Positive perspective</li> <li>● Trust and Integrity</li> <li>● Vision for the future</li> </ul>	<p><b>Emotional state</b></p> <p><i>This relates to some of the emotional discussions that came up as they were talking about some of the anxieties, stressors, contentment as well</i></p>	<ul style="list-style-type: none"> <li>● Business benefit - pride</li> <li>● Contentment</li> <li>● Emotional wellbeing</li> <li>● Safety concerns</li> <li>● Tensions for traders</li> </ul>
<b>Code Group 5</b>	<b>Codes</b>	<b>Code Group 6</b>	<b>Codes</b>
<p><b>Hopes and dreams</b></p> <p><i>This code group captures the hopes and dreams that traders have and the impact of that on how they think about their businesses in the present</i></p>	<ul style="list-style-type: none"> <li>● Business growth plans</li> <li>● Business innovation</li> <li>● Future plans</li> <li>● Hopes and dreams</li> </ul>	<p><b>Relationships &amp; family</b></p> <p><i>This group relates to the role of the family and the relationship aspect of running their business in the trade</i></p>	<ul style="list-style-type: none"> <li>● Relationships in trade</li> <li>● Role of trust in running business</li> <li>● Business benefits</li> <li>● Family needs &amp; ties</li> <li>● Hopes and dreams</li> </ul>

Table 4: Code Book for Case study 2: Female informal traders. Data analysed on Atlas.ti

### 3.13. Summary of the data analysis process

The below diagram displays the process of interpretative data analysis including the ‘literal’, ‘interpretive’ and ‘reflexive’ approaches that form part of interpretive hermeneutic phenomenological analysis (Chowdhury, 2015). The above pages detailed the interpretive element of interpretive hermeneutic phenomenological analysis.

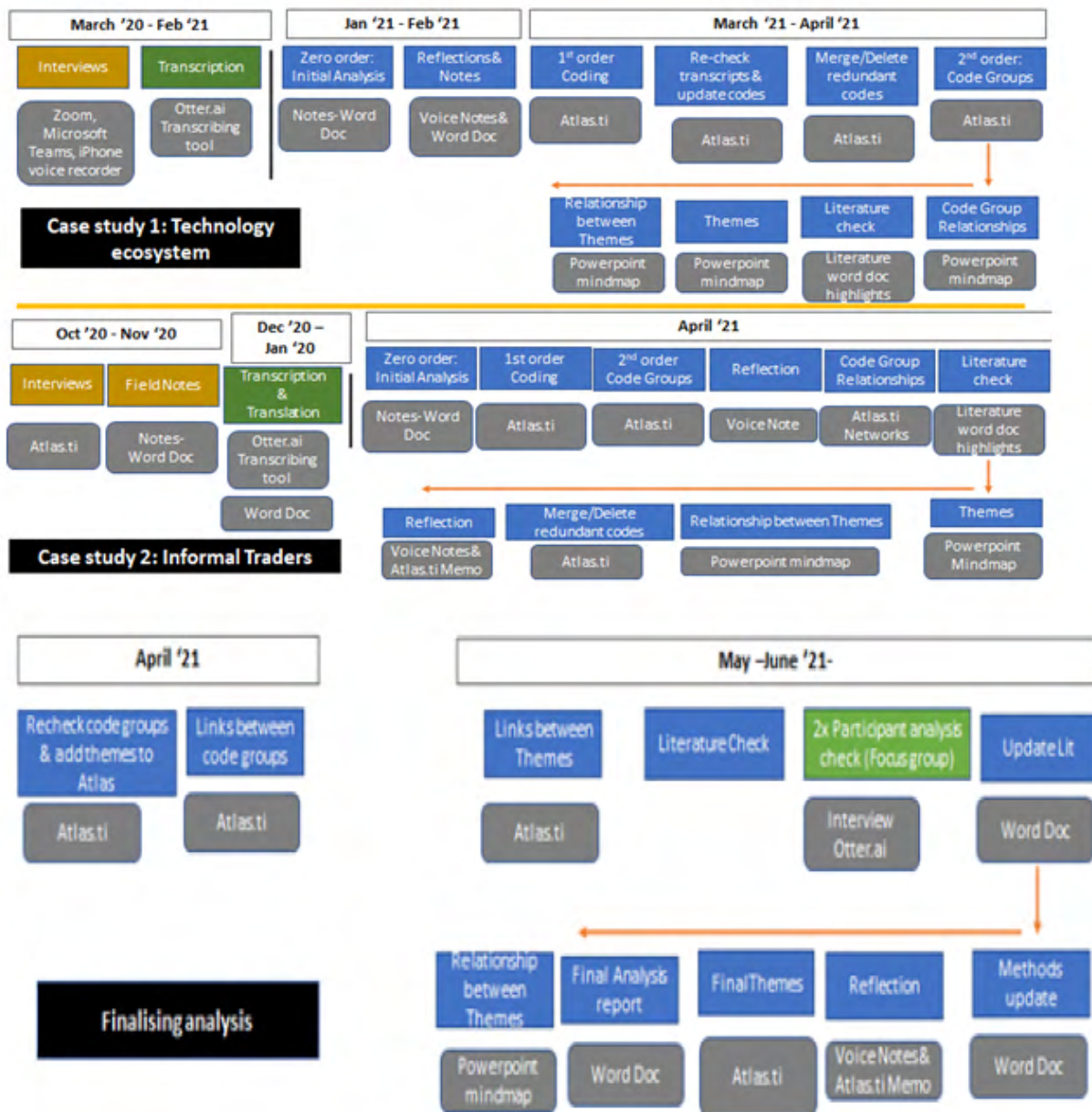


Figure 4: Summary of data collection and data analysis processes for the case studies across time

### 3.14. Limitations of the study

A significant limitation of this research is that it was conducted during the covid-19 pandemic. This means that responses from participants are inextricably linked to the zeitgeist and milieu of the pandemic in the world, responses which may have been different at another time. The interviews for informal economy traders took place in the open markets where they operate their businesses, and some respondents struggled to fully disclose information due to having other people within earshot. There are also a number of differences between Kenya and South

Africa and the potential impact of these on the research results were closely considered, however the purpose of this study was not to derive a comparison between the countries.

The study was aimed at female informal traders in structured open markets in order to reduce over dilution of data by factors related to legality and trading space. The sample did not include women operating in other forms of informal trade or women working from home. Additionally, some of the interviews were conducted in Swahili by a translator who would translate the responses for me. This was a limitation as I was not able to lead the conversation as the lead researcher. This potential reliability issue was addressed by having a third person transcribing and translating the interviews. The limitations related to the technology startup ecosystem case study is that the startup participants were predominantly fintech companies (five out of the six startups). This means that the lens was skewed to financial services. Fintech is however the largest vertical for technology startups in Africa (GSMA, 2019), and due to this, the startups were representative of the focus area of the technology industry on the continent.

### **3.15. Summary of Research Methods**

This chapter detailed the research approach and methods used in this inquiry and provided supporting reasons for the choices made. Interpretivism was utilised as the research paradigm for this study to unpack lived experiences of participants in the informal economy. Data analysis was conducted using hermeneutic phenomenological interpretive analysis, through the hermeneutic cycle and thematic analysis to uncover the pertinent data points. In the next chapter, the code groups are connected to determine relationships with them, and thereafter, the key themes of this study are detailed.

## CHAPTER 4: PRESENTATION OF EMPIRICAL FINDINGS

*“Themes are the knots in the webs of our experiences, around which certain lived experiences are spun and thus lived through as meaningful wholes” (van Manen, 1997, p.90).*

### 4.1. Introduction to Findings

This chapter is a presentation of the empirical findings. Key themes are discussed and a definition of the factors in the empirical situation is rendered, and quotations are provided to support the presentation of these findings.

This inquiry sought to understand the role that context plays in determining digital inclusion in the informal economy; looking specifically at the requirements for a digitally inclusive startup ecosystem to support female informal traders in Nairobi and Johannesburg. It assessed the challenges and opportunities that are presented by the informal economy and the mechanisms used by technology startups and informal economy traders in responding to the needs of informal traders. Therefore, some of the emergent questions of this research have been: are technology startups able to be fully cognisant of, and responsive to, the context of informality? What is the role of the technology ecosystem in deepening what digital inclusion means within the informal economy contexts? These questions are unpacked in this section and discussed in detail in the discussion chapter. In conclusion, the deeper inquiry of this research has been context, and the extent to which the technology ecosystem in Africa can be considerate and responsive to the needs of the informal economy that female informal economy entrepreneurs exist in.

The remainder of this findings chapter highlights some respondent quotes linked to the key questions and begin to allude to some recommendations for how technology startups might become more responsive to the context of informality and the lived experiences therein.

### 4.2. Empirical Findings: Presenting the findings

In both case studies, the data reduction and interpretive analysis revealed the importance of the following: **Humanity** (the person and their personhood) involved in the informal economy, as well as the relationships they have as they run their businesses, matter to the growth and wellbeing of both the technology startups as well as female informal traders. These findings are unpacked in turn and are supported by quotes from the data.

#### 4.2.1. Empirical Findings: Technology startup ecosystem - Code groups Relationships

The process of determining themes for the technology startup ecosystem case study, started with the unearthing of relationships between code groups. Taking the codes identified from the transcripts, I analysed relationships between the code groups in order to synthesise key findings from the data. Figure 5 shows a graphical representation of the code group relationships for this case and is explained below.

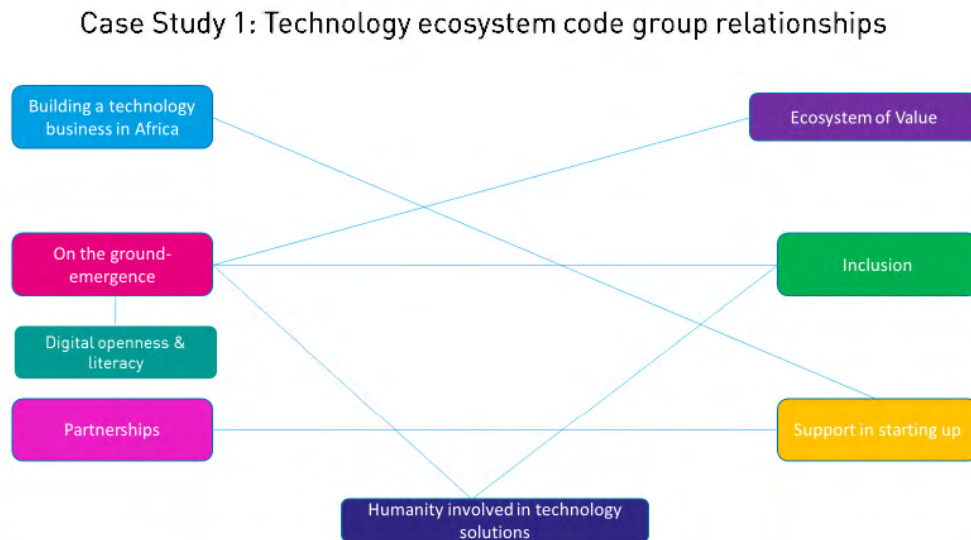


Figure 5: Technology startups-Code Group Relationships

1. The first code group relates to what it takes to *build a technology business in Africa*, and this has a relationship with the kind of *support that startups need* to build viable businesses.
2. The second relationship is the *ecosystem of value* and *on the ground emergence* as these relate to contextuality and environmental conditions of informality.
3. The *inclusion* has a relationship with *the humanity behind technology* due to the human lived experiences of individuals involved in the process of developing technology, and also has a relationship with *ecosystem of value* due to the need for inclusive solutions that are relevant and responsive to people's lived experiences.
4. The *inclusion* conversation has a link to the value and the importance of *relationships* and the human-to-human part of building solutions.
5. *Building a technology business in Africa* and *partnerships* and *support for startups* has a relationship because partnerships act as an enabler for startups as they are building their businesses.

- The code group *digital openness and literacy* has a relationship with *on the ground emergence* because of the considerations that startups need to make on building learning around their solutions which are responsive to the experience on the ground.

The code group relationships were then used to develop the themes for the technology startup ecosystem case - these themes are explained later in this chapter.

#### 4.2.2. Empirical Findings for Female informal economy vendor: Code groups Relationships

Following the code group relationships clarified for the technology startup ecosystem, the female informal economy vendors and code groups were connected using thematic analysis to determine the relationships that exist between them. The identified code groups relationships are graphically represented in figure 6, and the diagram is explained.

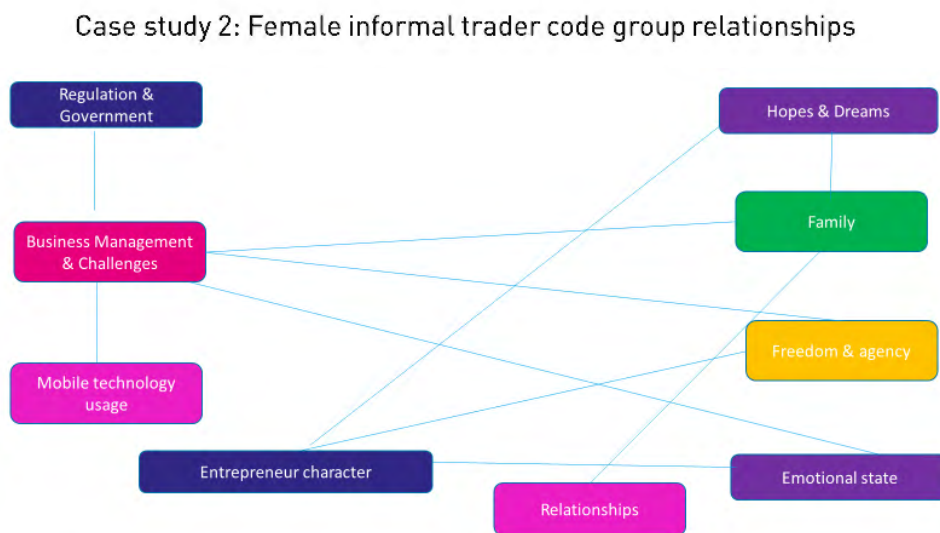


Figure 6: Code group relationships for case study 2- female informal traders

The code group relationships were then used to develop the themes for the female informal economy trader case, and these themes are explained later in this chapter.

- Business management & challenges* has a relationship with *regulation and government* as it relates to the process of running their business.
- Mobile technology* has a relationship with *business management and challenges* as the code groups include insights about how the informal traders do and do not use mobile technology as they run their businesses.

3. *Freedom and agency* has a relationship with *entrepreneur character* as these relate to the intrinsic characteristics of the female informal trader. *Emotional state* has a relationship with both *freedom and agency* and *entrepreneur character* as it relates to the emotions associated with exercising their agency as well as the emotions related with their entrepreneurial behaviours.

6. There is a relationship between *Family* and *emotional state* due to the influence of the family on the trader's motivations for being in an entrepreneurial venture.

7. *Relationships* has a link to *family* as these relate to the support system for the female informal trader within the context of the informal markets.

8. *Hopes and dreams* has a relationship to *family* as their hopes and dreams act as intrinsic motivation and support for the trader as they navigate the system of informality. *Entrepreneur character* has a link with *relationships* and *hopes and dreams* as their entrepreneurial behaviours allow them to build relationships in the trade and also allow them to steer themselves through the challenges of informality.

#### **4.2.3. Additional coding: sociological lens**

I conducted a focus group with three of the technology ecosystem respondents in order to share and validate the findings. One of the critical discussions that emerged included the need for technology startup entrepreneurs to truly value and expand consideration and understanding of the social context of the informal economy. I then went back to the transcripts, particularly reading them from a social or a sociological perspective. I analysed each of the transcripts and looked for content related to codes about personal story and personal narrative. The purpose of this was to assess how personal stories come together in the notion of personhood, the individual themselves, and how they navigate their internal world.

The other side of the updated analysis was about sociology of place and analysing the social context (Mills, 2000), examining the deeper underlying factors within the systemic contexts of both startup founders and female informal traders. In applying the sociological imagination, the aim was to see how the experiences that individuals referenced could be linked to a deeper socio-economic narrative and socio-historical context that has influenced what the person was experiencing. I looked at the human being and assessed whether their experience alludes to dynamics inherent in the system, or what has come to be accepted as the ways in which the

system operates. The output of this additional coding became a significant contributor to the final discussion and proposal of this study, which is detailed in the next chapter.

### **4.3. Detailing the Key Themes**

This section details the key themes that emerged from the data analysis process.

The section is structured as follows: firstly, the themes extracted from the interviews with the technology startup ecosystem in Nairobi and Johannesburg, and thereafter the themes from interviews with the informal economy female entrepreneurs is detailed. The section then connects the emerging themes from these two units of analysis and highlights the areas of connection and disconnection, and where connection could be forged between them.

There are some themes that have been captured into concepts from this inquiry, with the purpose of surfacing these themes through concepts as expanded language, linking to the focus of hermeneutic phenomenology on language and using it to deepen understanding of lived experiences (van Manen, 1997). This expansion of language aims to be an immersion into the dynamics at play in the development of technology for the informal economy system, delving deeper into how some of the concepts are, and could be, applied in the informal economy. These concepts are used as a mechanism to bring texture and depth to the discussions while articulating how startups engage with the informal economy in Africa. The key concepts which are detailed later in this chapter are: *sociology of place and personhood, a sharing economy of knowledge, and co-appreciation*. These concepts form the basis of the key outputs of this study which are unpacked in the discussion of findings.

#### **4.3.1. Startup Ecosystem Case Study - Key themes: Simplicity of learning, ecosystem thinking, meaningful value, humanity behind technology**

Respondents interviewed as part of this case study were from six startups that have built solutions for the informal economy in Africa, as well as four technology startup support organisations, and two thought leaders and content creators for the African startup ecosystem.

The key themes from the technology startup ecosystem are *ecosystem thinking, meaningful value, simplicity of learning*, and the *humanity behind technology*. The themes are detailed and the connected quotations from the data are given. Figure 7 gives a summary of the descriptions of the themes, while figure 8 highlights the code groups that are associated with each theme.

#### 4.3.1.1. Key Theme 1: Ecosystem approach

The first theme is the ecosystem **approach**. This is the perspective that there remain many contributing factors that interface with the technology entrepreneur’s system. The system in which the startups exist, particularly ones dealing in the informal economy, is an incredibly constrained system. This particular theme is related to some of the systemic challenges and opportunities that technology startups experience and how they navigate these.

Code ID	Respondent Group	Quotation	Codes
3:51	Startups	The informal space is very tough to get into with your own pocket, no matter how well someone is doing. So unfortunately, we have to rally for support	Challenges for startups
4:43	Startups	I think the truth of the matter is of any challenge you have in Africa or in Africa, because we don't have enough capital that's willing to back jockeys. So what I mean by that is that you didn't have enough people who are willing to invest. So the kind of capital that we have, people call themselves venture capitalists in the continent are actually private equity guys	Challenges for startups
4:45	Startups	It's obviously more complex and difficult to do business in Africa, than it is in other markets. Typically, because of the lack of capital and the lack of broader resources. But I don't think those should be excuses. I think entrepreneurs like the Dr, the late Dr Allan Gray said- entrepreneurs who blame their tools more often than not, will not be successful	Challenges for startups

The system is constantly being recreated; it is a dynamic, adaptive system - not a static one. Startups building for the informal economy in Africa have to maintain a level of resilience that allows them to continue to respond well to the dynamism. In some moments they did not respond well enough and failed.

Code ID	Respondent Group	Quotation	Codes
6:3	Startups	We started life, very cash based. Because our segment is very cash based and very cash oriented. And we talked about in environments we had a big robbery and so we have now pivoted to non-cash payments	Challenges for startups

Startups are experiencing many constraints, which include infrastructure challenges, the ways that they need to run their businesses to be viable, funding challenges, and the ways in which startups are responding to some of those challenges within the system. This theme shines a light on the mechanisms that technology startups serving the informal economy in Africa use to navigate the environment at a macro-, meso- and micro-level. This requires resilience and adaptability to evolve and build towards a more context-relevant ecosystem. Therefore, the ecosystem thinking theme is about the business they operate as technology businesses serving the informal economy in Africa.

Code ID	Respondent Group	Quotation	Codes
3:14	Startups	The other challenge - things like fraud. So no one tells you that if you ever think of getting into FinTech, you have to, you have to have fraud detection systems, which yeah, so we have lost some cash on the way due to that. So how we address that is just building more robust and more secure platforms.	Challenges for startups

#### 4.3.1.1.1. Sub theme: Knowledge sharing

Startups are currently needing to navigate the notion of systems that must constantly be created and recreated in isolation - this is due to limited knowledge sharing in the African startup ecosystem specifically focussed on the informal economy. The collective knowledge sharing is not as robust as startups may need. There is a communal element of the entrepreneurial venture that is lacking in the ecosystem of startups building for the informal economy: **peer to peer knowledge sharing specifically related to the informal economy is limited.** Respondents spoke about a desire to have a community of entrepreneurs who operate in the informal economy to help them along their journey. They also mention the need for startup support organisations to facilitate peer to peer learning on how to navigate the informal economy. Startups in the ecosystem are usually connected vertically through the 'type' of

technology solution they are building (i.e. Fintech, Edtech, eCommerce), but there is a paucity of spaces for startups building for the informal economy across verticals to communicate and learn from each other.

The focus group key findings indicate some of these concerns. One of the concerns raised about the peer-to-peer sharing is how startups may try to keep competitive advantage and therefore hoard information. It is worth considering, using an appreciative inquiry lens (Cooperrider et. al, 2013), what the benefit of a more generous knowledge sharing community between startups building for the informal economy may enable.

Code ID	Respondent Group	Quotation	Codes
3:19	Startups	So, the informal economy is, it's a very difficult space and also costly to get in. So, I think incubators could have specific training around it. Yeah actually the most important thing is, I think is what do you call it, supporting knowledge sharing amongst people in that industry. Because, for example, when we got into the informal space, we realized it's- there's a huge learning curve, which again is very costly. Which we could have avoided if we were put in an environment with similar people working in a similar space. It could have helped us cushion certain mistakes	Challenges for startups

#### 4.3.1.2. Key Theme 2: Meaningful value

The next key theme is **meaningful value**. This theme relates to the outputs of the startups: their products or solutions, and it references how they are creating value and building for relevance and becoming enablers in the lives of people working in the informal economy.

This theme relates to how startups create and continue to create value for entrepreneurs in the informal economy. It uncovers how they seem to be learning systems, receiving feedback from the market, responding and pivoting their solutions in order to be as relevant as possible. When startups seek to enable meaningful solutions in the informal economy, they need to continue to iterate their solutions, questioning their relevance and the extent to which their solutions truly provide meaningful value. The notion of meaningful value seems to be the perpetual task and invitation for startups building for the dynamic informal economy. The definition of

meaningful value is not time-bound or finite. The invitation to meaningfulness is constantly emerging and asking to be attended to by startups.

Code ID	Respondent Group	Quotation	Codes
3:11	Startups	So, our platform initially was smartphone based yeah, so we've had to build in, introduced USSD. Because I mean, when you read reports about smartphone penetration, it looks beautiful. It tells you 7 in 8 Kenyans have smartphones, but when you actually get on the ground, it's far from that. So, smartphone penetration was our biggest barrier to date. So, we then had to build USSD to now make it more inclusive.	Responsiveness
5:25	Startups	And our pivot point was just when we realized to answer your question in a short way, that there's no ways we're going to convert people from a cash-based transaction to this electronic mobile wallet, get ready, let's push, let's buy from suppliers with whatever means it is just like that. It's not gonna happen.	Pivots & learnings

The difference between the meaningful value and the ecosystem thinking themes is that ecosystem thinking relates to the environmental state of affairs, whereas the meaningful value relates to the need for startups to adapt their actual product and respond appropriately. It also considers how they need to be building solutions that are not singularly focussed. For example, when building a startup to serve the informal economy, startups cannot only have a virtual application (app), they also need to solve issues related to the infrastructure, because the infrastructure is often not sufficiently robust. Consequently, technology startups building solutions for the informal economy often need to create additional services around their product.

#### 4.3.1.3. Key Theme 3: Simplicity of learning

The third pertinent theme is the notion of **simplicity of learning**. This theme is not necessarily about reducing functionality or 'dumbing' solutions down, but rather about building for understanding. It is about the need to be deeply aware of the context and allow the solutions they build to be responsive to the learning journeys of the people they are serving. This theme examines how startups bring ease to the way in which they deliver solutions, and the care with

which they need to build for entrepreneurs in the informal economy. Startups need to map a learning journey, a pedagogy that is built by understanding not only what informal economy entrepreneurs need from a solution, but their learning needs as well.

Code ID	Respondent Group	Quotation	Code
2:14	Startup	So when you look at that, you have to have a two way process of confirming the orders. Someone who is new and doesn't want to use the app must have a one-time password sent, which then the rider confirms on their phone, and then they are able to, now to register with someone who has, an order has been placed on your behalf, which is successful.	Pivots & learnings
5:19	Startups	There's no smart data collection, there's no nothing so we said that's actually an opportunity. So we also see it at every SME, we went and looked and they used calculators. So we created a simple concept that we still use now saying that anything we make should be as simple to use as a common calculator. That's our goal. Right, the calculator's got a few things plus minus and would you call it, whatever the ones that are like. So we just said, whenever you go into anything we do there must be three options, like three base options, and each thing must have three characteristics that's what we run. So our pivot really came in saying that we're not going to change the market. So rather build something that can complement the market, collect data points and then give them value.	Empathy
3:22	Startups	So, having to design curriculums that go beyond your products, so training. Digital and financial literacy training. Yep. So you have to train your customers on skills before they pick up, before they take up the product, so that's another reality you need to prepare to face and then also, yeah, so one- a very high cost of acquisition and then the other thing you need to prepare for the reality of lower spending power by customers. So yeah, so the customer lifetime value is lower than the global average.	Building for mainstream citizens

In designing their products, there is the solution that the startup has built, and then there is the experience on the ground. Startups building for the informal economy in Africa need to bridge that divide. They do not have the luxury of assuming that their solution should land successfully in a specific context simply because it is a good idea or even because it worked well in another context where other enabling factors exist.

Code ID	Respondent Group	Quotation	Code
13:53	Support ecosystem	It disconnects with some of the other lived experiences of that informal trader. Because when they're cashing out, and they have to go and transact in other spaces. It was nice that you gave me a digital wallet within which to receive my cash, but guess what, once I've received my cash, I'm not staying in a digital environment. I'm going to withdraw it now.	Contextuality

#### 4.3.1.4. Key Theme 4: Humanity behind the technology

The last major theme is the **humanity behind technology**. This theme articulates the importance of the human element to landing solutions in the informal economy in Africa. The startup ecosystem spoke at length about needing to have people physically present in the markets. This relates strongly to the need for startups to build relationships in the market and how critical those are to their success.

The presence of human interaction seems to facilitate trust between the startup, their solution and the informal economy entrepreneurs they are building for. The startup ecosystem voiced the tension between the importance of building relationships and scalability: although building relationships matters and the local agent networks they have built facilitate those, there are also some limitations related to the high touch model of building their business, as this limits scalability and also means that sometimes clients are given inconsistent information due to onboarding being done verbally and informally.

Code ID	Respondent Group	Quotation	Code
3:43	Startups	Challenges such as the cost of acquiring a customer. Because you see, when you begin you, when you start this, you realize, you realize that your cost, you know, is not just the guy you hire to hire an agent, there is the training that goes into it. There are the calls, the frequent calls to check up on the agent. So, it's because this is new to them and also a lot of them are not very tech savvy. Yeah, so yeah, so you have a very high cost of acquiring and training a customer	Offline strategies

#### 4.3.1.4.1. Sub theme: Lived experience

The importance of *lived experience* of the people building technology solutions also emerged within the humanity of technology theme. This largely surfaced from a question that was asked: what advice they would give to someone who has an idea for a startup that aims to solve problems in the informal economy. The advice was overwhelmingly related to startups needing to have direct experience of the issues they are looking to solve, as well as their need to be open, radically humble and willing to be vulnerable as they learn from the context and the people they would like to serve with their solutions.

Code ID	Respondent Group	Quotation	Code
5:75	Startups	So let's say you're green fields, right, you've got an idea. You want to start there, you want to look at it. Take R1000, go buy some things, get a table, put it in the same market you want to serve and try sell something. Just like just go do that. Don't play with anything else, just go do that	Humility
2:49	Startups	I think the best ideas normally comes from the challenge that they see themselves	Lived Experience
3:1	Startups	So, I grew up in a neighbourhood where there were no kids to play with. So, I ended up hanging around too much with my shopkeeper. So, it was this lady shopkeeper who lived right across from us. Yeah. And so, she let me help around. And that was actually my job throughout my childhood, and I used to do it for sweets and yeah, she just paid me with sweets. Yeah. And yeah, so I got a front row seat to how your small shops, what you guys call spaza shops. Yeah. Yeah. So, I got a front row seat to how they work and sort of what are some of the challenges around running one.	Empathy

#### 4.3.1.4.2. Sub theme: Relationships and social capital

From that vantage point, expanding the understanding of what empathy looks like, and the notion that relationships matter more than anything as they are doing their work, is vital. *Social capital* is not easy to see in the informal economy, therefore startups need to spend time in the environment to understand how the social capital actually works. It might be vested in people who do not appear to be the most powerful in that particular community. Building trust becomes a vital unlock for startups. Trust is an enabler that allows the startups to really build

solutions that people want to engage and try. The agent networks, the local people that work for the startups on the ground, seem to play a role of *bridging social capital for the technology startups* that need to build credibility within the environments for their solutions to be accepted.

Code ID	Respondent Group	Quotation	Code
6:32	Startups	So I definitely think the agent model helps. I mean, hearing it from someone, you know, in your community is fairly potent. Yeah, kind of, you know, mechanism	Relationships

Building *empathy* is also not one-directional, as the startups mentioned learning from the environment in ways that impact them in deeper ways. In relation to their *emotional strain*, failure emerged as inevitable when building a startup, but this is exacerbated when building for the informal economy due to the volatility and the limited support and infrastructure. Startups voiced the strain and the emotional tax sustained from running a startup serving the informal economy and the impact of that on their own humanity.

Code ID	Respondent Group	Quotation	Codes
4:55	Startups	I took R60,000 of my own money and said okay, yazini [you know what] I'm gonna go and give it to oomaanzo abadayisayo emgaqweni [the women that sell on the road] to help support their businesses. Me with my kind heart, yhu ndahamba-khange ibuye la mali mntasekhaya, ayibuyanga nangoku [I went, my money never came back. I still have not gotten it]	Lived experience
4:56	Startups	The best I can do is ask myself, how can I learn from this mistake.	Lived experience

#### 4.3.1.4.3. Sub theme: Building for inclusion

Additionally, the startup ecosystem showed a desire to build for inclusion, but also recognised the difficulty of achieving that consistently, even going as far as problematising the concept of inclusion due to the power dynamics it still perpetuates: the startup ‘including’ the informal economy trader, while setting the agenda for what that inclusion entails, without due input from the people that are being included.

Code ID	Respondent Group	Quotation	Codes
4:37	Startups	So mobile technology is significantly important. But I think its power can only be dependent on A-whose hands it's in, B-who controls the narrative that flows through those particular channels and C, I think ultimately, the sorts of products and services that are delivered within those contexts to create value.	Inclusion
4:52	Startups	Hear what the people are not saying	Lived experience

The below figures (7 and 8) summarise the key themes related to the technology startup case study. In the next subsection, the interaction between the themes will be described. The interaction between the themes becomes an important summary which has been used to connect the technology startup ecosystem case study and the female informal trader case study in the discussion of findings chapter.

### Technology Ecosystem – Key Themes

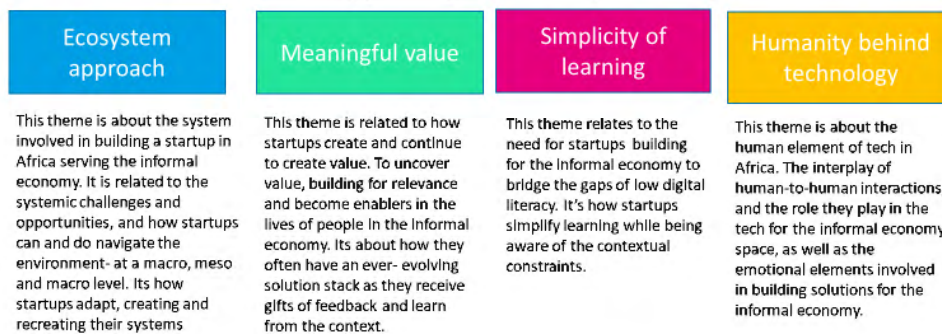


Figure 7: Technology startup ecosystem Themes

Figure 8 shows themes and the associated code groups for the technology ecosystem.

Case 1: Technology ecosystem themes & associated code groups

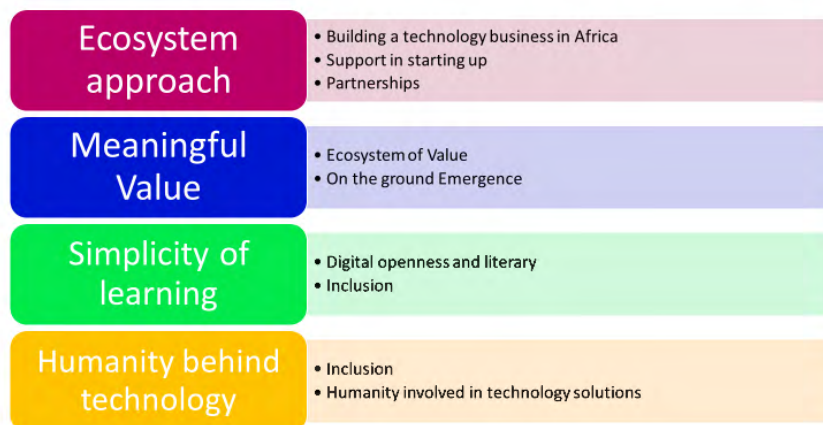


Figure 8: Technology ecosystem themes and associated code groups

#### 4.3.1.5. Connecting key themes to determine the nature of interaction between them

The key themes from the technology startup ecosystem were connected to glean the nature of interaction between them, as can be seen in Figure 9 below. The broadest part of the triangle is starting with the relationship- with humanity. Building for digital inclusion for the informal economy in Africa starts with relationships and the human being, the ‘sawubona’, a Zulu greeting that when translated means ‘I see you’; a reminder that the focus is on humanity. Therefore: 1) In beholding and seeing **humans** 2) what **value** 3) can we **build**? What needs to be true for the technology startup ecosystem building solutions for the informal economy to build for humanity, for digital inclusion?

In the next chapter, in alignment with the research question of this study, this relational framing will be detailed, connecting the empirical findings with the literature related to the fields of **the informal economy**, its interface with **female entrepreneurship**, as well as how both the informal economy and the female entrepreneurs within it engage with **technology startup innovators** in Africa for the purposes of enabling **digital inclusion**.

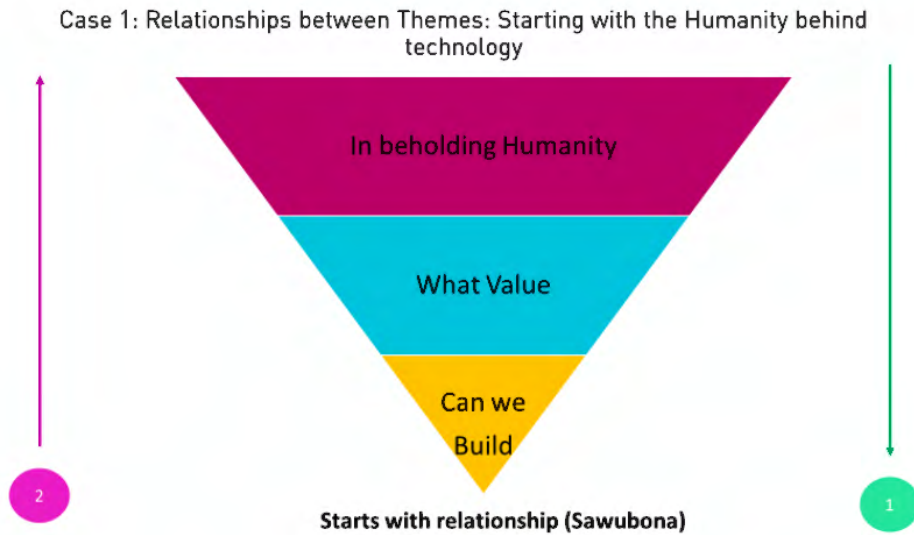


Figure 9: Relationship between the key themes in the technology ecosystem case study

#### 4.3.2. The female informal economy trader themes: The human behind the business, sustaining an informal business and the social system

This sub-section details the key themes emerging from the interviews with female entrepreneurs in the informal economy in Nairobi and Johannesburg. The major themes that surfaced within this case study are **the human behind the business, sustaining an informal business** and **the social system**.

The code groups (second order codes) were connected, and three themes were summarised from the data collection with female informal economy traders. Figure 10 summarises these themes and shows the code groups associated with each theme.

Case study 2: Informal Traders Themes & Associated Code Groups

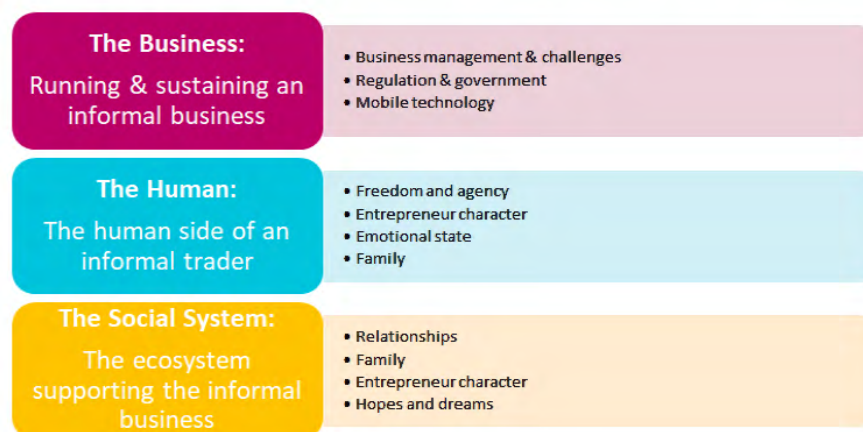


Figure 10: Informal trader themes and associated code groups

#### **4.3.2.1. Key theme 1: The Humanity of the people behind the business**

The first key theme that emerged from female informal traders in Nairobi and Johannesburg is **the humanity of people behind the business**, containing the sub-themes of their freedom, and agency. Additionally, their entrepreneurial character and emotional state: how they feel in certain moments, their fears, their anxieties, their excitement, hopes, and their dreams form part of this theme.

One of the most remarkable themes to emerge is how these female informal traders display the typically identifiable and globally recognised characteristics of entrepreneurs. The women were largely able to communicate those behaviours and characteristics clearly and consistently. They do not articulate their entrepreneurial characteristics and behaviours in the language of more formal entrepreneurs, rather through *their application* of the behaviours in their decision making and mechanisms for sustaining their businesses. Upon assessing their responses and relating their stated lived experiences and examples given, they are clearly exhibiting behaviours and characteristics consistent with successful entrepreneurship.

It is worth noting that there is a large body of work globally on what constitutes entrepreneurship (Baker & Welter, 2020). The global north perspective says an entrepreneur is someone who was not forced to be an entrepreneur but identified an opportunity and therefore exhibits these types of characteristics. According to that definition, these informal economy entrepreneurs would not qualify as entrepreneurs. When engaging these women in their businesses, it was interesting to observe how these characteristics of entrepreneurship emerge, even though their businesses are at a smaller scale. If one were to describe an entrepreneur, analysing the traits of an entrepreneur, these women have the same identifiers. They display characteristics such as perseverance and discipline, focus on quality, vision, as well as business principles of profitability and supply planning. The context in which these occur is smaller and is not formal, as they do not have a business plan. If one were to ask them what their business plan entails, there may be limited input. However, when starting to ask them specific questions, insightful input is gained from them.

Code ID	Respondent Group	Quotation	Codes
25:2	Informal traders-Johannesburg	I also then started making buckets for creating electricity. I taught myself how to make buckets for electricity. The ones where you pour water	Entrepreneur character
30:50	Informal traders-Nairobi	I keep a specific [M-Pesa] number to save for car repairs. Even if it's one or two thousand shillings, I keep it there.	Entrepreneur character
31:11	Informal traders-Nairobi	Okay, maybe I can use my own ideas. I can see the design that all the people have or they have the same design so I can change my design. I use at least something which is unique so that I can get money before they start making my design. So I can be the first one to benefit.	Entrepreneur character
31:14	Informal traders-Nairobi	I've started another business. Like I told you before, I started selling the green groceries, but now I'm thinking of opening a boutique in the rural area. I come to notice that in rural areas people have money. Yeah, sure they have money. It's not like here we depend just for the foreigners. You see now in the time of the Covid, there are no foreigners but when you go to the rural areas, you will find the businesses are running normal.	Entrepreneur character

#### 4.3.2.1.1. Sub theme: Agency

A sub-theme within this theme of the human behind the business is **agency**. Agency has emerged strongly within the female informal trader respondents. It was interesting to observe the permutations of independence and how independence and agency in and of themselves are high level terms with deeper expressions. The deeper expressions include independence in relation to fear, independence and freedom, independence and control, as well as independence and self-sufficiency. All these different ways that independence starts to play out are worth noting. The respondents did not want their freedom to be encroached upon in any way, whether it is through debt or through someone offering to help and then trying to take over their business. They are quite clear on what their span of control is, and proud of the space that they have created for themselves and the freedom that they have as a result.

<b>Code ID</b>	<b>Respondent Group</b>	<b>Quotation</b>	<b>Code</b>
29:2	Informal traders- Nairobi	I became the manager. I wanted to be my own manager.	Independence (agency)
29:10	Informal traders- Nairobi	First of all, you're your own boss. There's no pressure, it's me running my own business so I manage it the way I want to. There are challenges.	Independence (agency)
30:27	Informal traders- Nairobi	if I want to go somewhere I'll go without anybody asking me where I'm going because it's my business.	Independence (agency)
24:3	Informal traders- Johannesburg	I like that I work for myself. I no longer work for a white person, and I know that I get money every day. I don't have to wait until month end to be able to get money. I get money every day. That is what I like about it. Working for white people, you have to wait until month end to get money, and then bills come.	independence- self sufficiency

Their agency and their independence emerged as mechanisms of control. It made them incredibly cautious in certain aspects. Agency and independence came out in the form of them expressing themselves as well as being a mechanism of their freedom. Their agency was also an expression of fear. Due to its multiple expressions and firmness with which it is expressed, their agency is sacred, and it plays out in diverse and divergent ways. Their agency impacts how they think about their whole business, even when I would ask questions such as what help they would like, some of them responded by saying that they do not want help.

<b>Code ID</b>	<b>Respondent Group</b>	<b>Quotation</b>	<b>Code</b>
24:9	Informal traders- Johannesburg	I don't really want help to be honest because I want to see whether I am able to manage or not. I want to maintain myself instead of depending on another person. Maintain myself, in my way, as I am doing now. If I struggle to get enough stock, I can try and get stock bit by bit, even if it's only a small amount. I can buy bit by bit and let it sit. If it's not enough, I can wait a bit. I can work, and work to add to the stock, even if it's not tomorrow, I know I can add to the stock another day, and see if I won't be able to buy the stock that I want.	Independence (agency)

The aspiration to own and manage a business might stem from a desire to be self-sufficient; to gain personal satisfaction and esteem as well as a desire for more opportunities and flexibility than exists for women in the employed labour market (Carter, 2000; Winn, 2004, 2005; Carter & Cannon, 1991).

#### 4.3.2.1.2. Sub theme: Emotional wellbeing

The next sub-theme that is worth exploring is the **emotional well-being** of the female entrepreneurs. Upon listening and re-listening to the interviews and rereading the transcripts, the emotional state of the informal traders emerges strongly. Engagements with them uncovered that there is some contentment and some anxiety, there is hopefulness and there is hopelessness. There is boldness and there is fear. Their emotional state and well-being emerged as influencers on how they engaged their lives and their businesses. It was illuminating to uncover some of the tensions that female informal traders in the informal economy face, tensions that exist between the things that make them happy and make them sad; things that drive them forward and hold them back.

There was *tension and strain* described by some of the female informal traders and the kind of mentality that the female informal trader needs just to survive was described as an 'always on' activity. They are needing to think about keeping their businesses running and making money to survive whilst living with the fear of confiscation and the anxiety of not knowing when the police will come. There is also the tension of competing with other traders across the road who do not have to keep the same rules (navigating injustice and inequality on an ongoing basis). When it came to their perspective on loans, there seemed to be tensions associated with them. The conflict exists of how helpful they are on one hand, and having debt when business is slow and they cannot pay, on the other - the trade-offs that they need to be aware of in that a loan seems to help but it also stifles. It brings release and brings constraint.

Code ID	Respondent Group	Quotation	Code
25:7	Informal traders- Johannesburg	For me running my business, I like my business and the way I run it. I see that in a month I can get R4000, I make R4000, with that money, I transport myself to work, I need to eat [buy groceries]. Over and above that, I need to pay for water, I need to buy electricity, using that money. When the month ends, I don't have any money left. My money gets finished because of those things	Tensions for traders

25:36	Informal traders- Johannesburg	There are lots of people without smart cards, selling from the street and people buy from them, while mine are inside, people can't see them. That is the thing that gives me stress. Because, why do they want me to put my stock inside, but the stock of the people who are on the street, they don't have the same problem with them. They become fussy with me, who is inside the container. But the person who is in the street, when they put out their stock, they don't fight with them. They are fussy with me about my stock because they say 'you said you want a container. Work inside it, don't work in the street.	Tensions for traders
29:16	Informal traders- Nairobi	They help a lot. The only challenge is paying them back, and when things get tough and you can't pay it back in time, things become even harder. You can't get a loan again. You have debt. So you're stuck and can't borrow again.	Tensions for traders

#### 4.3.2.1.3. Sub theme: Family, Hopes and Dreams

An additional sub-theme that is divided in two parts is that of **family** and their **hopes and dreams**. Family is a big driver of what they are doing, but consideration was also given to how they do business within families. In relation to their future plans' perspective, many of their plans are connected to family well-being, as well as expanding their businesses and even starting completely new businesses. A number of the female entrepreneurs have bigger dreams than where they currently are, and many of their dreams strongly indicate a commitment to entrepreneurship in the future. A number of them also seem to have thought about and have clearly directed plans on how they might achieve these dreams.

#### 4.3.2.2. Key theme 2: Sustaining an informal business

The second major theme emerging is how the informal traders run and **sustain an informal business**. This theme highlights some of the struggles they face as they are running their businesses. There is the grappling with these struggles and there is how tough the environment is within which they run their businesses. They are needing to adapt to an evolving and fluid system, and they have found mechanisms to bridge the gaps, creating structure for themselves and their businesses.

#### 4.3.2.2.1. Sub theme: Financial management

The management of *finances and the management* of income is an interesting activity to observe, as some of them perform well in terms of being disciplined and structured, and others seemingly do not have rigorous frameworks for managing their income. There is quite a wide continuum of entrepreneurs in terms of their management of income and finances, and cash flow and reinvesting in their businesses.

Code ID	Respondent Group	Quotation	Code
30:55	Informal trader - Nairobi	Money management matters a lot. For example, if God gives you a house that gives you 60,000 - or let's say 300,000 - you have to be able to sit and manage that money. You have to eat, run your life, run your business with that money. You can't just burn through all that money. Maybe 250,000 for me and 50,000 for the household. 50,000 for this and this and this. Simple. That's how you become successful. Otherwise if you're running a business and don't manage the money, you'll end up poor, regardless of whatever amount you end up having.	Discipline (Entrepreneur character)

#### 4.3.2.2.2. Sub theme: City regulations

The *relationship with city bylaws and governments* seemed to be fraught and held mixed feelings. The female informal traders interviewed operate from formal, designated markets. They are not running their businesses illegally according to city bylaws, as it is a designated area within which they are trading, but they were still voicing issues like harassment from Metro police. Some of the entrepreneurs were showing an antagonistic view towards government and municipal bylaws, while others were showing hopefulness about what they believe the government can do to help them in their businesses.

Code ID	Respondent Group	Quotation	Code
27:25	Informal traders - Nairobi	If I can get more money from government, I can do a lot.	Perceptions of government
31:20	Informal trader - Nairobi	No, nothing at all. Nothing at all. We are just suffering	Perceptions of government

With documentation, the female entrepreneurs in South Africa had a lot of issues with Metro police harassing them as they operated their businesses. Female entrepreneurs seemed to struggle with the processes of being documented, as well as the regulation and bylaws that govern what they can and cannot do in spaces.

Code ID	Respondent Group	Quotation	Code
25:12	Informal trader - Johannesburg	I think in my business, that is the only stress. The fact that they will come and take my goods, the government people, and when I go to where I am supposed to find my stock, I don't find all of it, I find only half.	Government and bylaws

The documentation and regulation also presented tensions for the traders. While they wanted to run their businesses legally, the South African traders indicated that corruption impacted them negatively along with the complexity of operating as registered traders alongside unregistered traders who seemed to be following a different set of rules. In Bree Taxi Rank, Johannesburg, specifically; the registered informal entrepreneurs operating in the demarcated trading zone were struggling in terms of income as they were moved into the enclosed trading space which has limited the foot traffic they receive versus when they were trading on the street. There continue to be other traders selling in the street and those traders are the recipients of most of the foot traffic from passersby.

Code ID	Respondent Groups	Quotation	Code
21:8	Informal traders - Johannesburg	The challenges now are the ones that are outside. Coz its difficult now for a person- because a person gets here ready to take their taxi, and they've obviously already bought outside. For them to come to us, that's difficult. Coz there are a lot of people selling outside.	Business challenge- open air traders

#### 4.3.2.2.3. Sub theme: Safety and female specific challenges in informal markets

**Safety** continually emerged as a business challenge. Respondents mentioned needing to navigate many obstacles to remain safe, either from the harassment of the government, or their stock potentially getting stolen.

Code ID	Respondent Group	Quotation	Code
21:38	Informal trader - Johannesburg	Because they jump. They jump over here, at the top. The young men climb over here, get in, and take stock.	Safety concerns & costs

On issues that are faced by women within the trade, I, as a researcher, expected to hear a significant amount of feedback around how they are treated and some of the specific challenges they might face as women. A number of the women at first, when the question was asked, did not really understand it. That in itself was telling, of the nature of the question, and that it potentially is not something they actively consider as they either really do not experience those challenges, or they have become so normal that they are not remarkable. The inquiry did not find significant input in relation to female specific challenges in the informal economy, however there were a few of them that had some feedback. Their feedback was primarily in relation to their being single mothers and feeling like the responsibilities of the family fully fall on them, whereas in dual income homes, the load is spread.

Code ID	Respondent Group	Quotation	Code
33:16	Informal trader - Nairobi	I'm a single mom. The challenge is that sometimes when the business is not doing good, and then you have a lot of bills to pay, and you are alone, then what you're getting is not enough. It's its little. And then the bills, the bills are high. And then what you are getting is low, yeah, but what can you do? You cannot steal. Yeah, you just stay there-whatever you get you don't you try to utilize it	Challenges faced by women traders

Very few of them (three of the participants) interpreted the question from a perspective of the struggles that they face as a result of being women in the trade. That became a significant reflection point for me as a researcher who was expecting and attempting to get answers related to those kinds of challenges. I had a strong stance, and an expectation to hear some of the

female specific issues that they have, potentially in relation to harassment as reflected in some of the literature (GSMA, 2020; Ministry of Planning and Devolution, Kenya Vision 2030, 2007), however, these issues did not emerge strongly.

From a hermeneutic cycle approach, it is also worthwhile to question the respondents' answers (Chowdry, 2015). It is possible that the challenges have been normalised and have come to be accepted as how the system operates, rather than presenting a challenge they can attempt to address. Two of the participants were unwilling to respond to that specific question and looked around at the male traders that were within earshot, when they were asked. One of the female traders even apologised for not having been able to answer the question once we had concluded the interview. This may reflect the taboo nature of the question, especially when men are able to hear.

Code ID	Respondent Group	Quotation	Code
30:17	informal traders- Nairobi	Yes! A lot. Because sometimes women are weak. If you don't know yourself, you don't understand yourself and your weaknesses, you can fall into a trap. There's one thing I tell people - I'm a counsellor by the way, a God-given talent - I tell people one thing: you - be yourself. Don't be us. We sell to people who have money, and they can be very wicked. Some people have evil thoughts, some have no respect, some know how to despise. So you have to be yourself.	Female challenges
21:21	Informal traders- Johannesburg	Yes, they [male minibuss taxi drivers] have this thing that you are a woman [emphasis on woman]. Do you understand?	Female challenges
	Informal Traders-Nairobi	It was hard, eeh eeh! It was hard but he [husband] came around to accepting it [that she decided to stop being a housewife]. He saw that at least I'm contributing.	Female challenges

#### 4.3.2.3. Key theme 3: The social system of the female informal trader

The next key theme is the **social system of the female informal trader**. Their relationships in the trade as well as their families are a great support network. Their own characters and their own hopes and dreams help to propel them forward in the dearth of external, systemic support.

There are no large-scale programs that are supporting traders. A few women in one open market spoke about a government program, but that had mixed feedback with some of them being positive while others apathetic about the same programme. Generally, these women are depending on themselves, and on their people to run their businesses. Their social capital builds the ecosystem of support for them.

Code ID	Respondent Group	Quotation	Code
30:15	Informal trader-Nairobi	That's the only thing I don't like. Two, I am well known. Like in Marikiti for example. Recently I had car trouble, and I left the car on Thika Road. In this business, the one thing I know is how to make a deal. So at the moment even if I go there [to Marikiti] - the relationship I made from the word go is good and strong, so they can help me in the event that I need help or a loan. There was one time I went for a housewarming party and I left my stall. When I came back, everything was in shambles. It was at the very bottom. I actually lost over 50,00 shillings from that. Thereafter the business just burned and burned [money] until I even raised my hands. But my people came through for me, and even said 'even if you don't have the money for the fuel right now we'll give you some so that you can continue working'.	Relations hips in the trade

#### 4.3.2.3. Sub theme: Tensions in the system

The key output is that there are *tensions in this system* that need to be managed. The human being running the business experiences tensions in relation to *how* they run their businesses. That ecosystem creates tension for the human being, as the ecosystem exerts tension, whether positive or negative, on the business and how it is run. The human being is a critical enabler of themselves and is also a key component of their own ecosystem of support, along with the relationships that they have in the trade. Upon applying the sociological lens to the data, the strain and tensions created by the social system within each city emerged (i.e. safety, corruption, gender roles, historical context) impact the lived experiences of female informal traders. Figure 11 summarises the relationship between the themes and reflects that 1) there is the **human being**: their story and lived experience, 2) there is the **business** that they run and the ways they navigate the dynamism of informality as they run them and 3) there is the **social system**, which is their own relational connectedness and networks, as well as the greater social

system within which they exist. It is worth noting, in line with the sociological imagination (Mills, 2000), the extent to which the human and the ecosystem are inextricably connected.

#### Informal Economy Entrepreneur System- Theme relationship

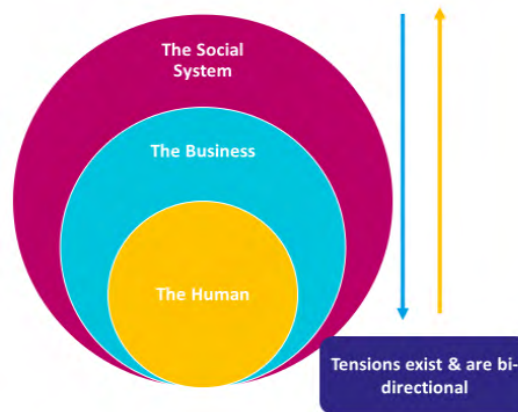


Figure 11: Relationship between themes for female informal traders

#### 4.4. The shift in language: from informal traders to Female Entrepreneurs in the informal economy

Based on the findings related to the female informal traders and how they exhibit the characteristics of entrepreneurship, this next subsection discusses an important shift in language in referencing female informal traders to hereafter referring to them as female entrepreneurs in the informal economy. A short section details the importance of this shift for the remainder of the discussion.

In terms of this research, the definition of entrepreneurship which has been used is

*“a process by which individuals – either on their own or inside organizations – pursue opportunities without regard to the resources they currently control”* (Stevenson et al., 1989)

One of the critical outputs of this inquiry has been discovering the extent to which female informal traders reflect the characteristics of entrepreneurship, as discussed in the previous chapter. Therefore, this research shifted from the initial standpoint of naming this group of respondents ‘female informal traders’ to female entrepreneurs in the informal economy. Even that language, of recognising those in the informal economy as entrepreneurs, already presents

an opportunity of bridging some of the inequality linked to this relationship normally. As a researcher, I arrived in the field and spoke to female entrepreneurs in the informal economy looking for clear answers related to mobile technology and was led to wonder how often technology startups do the same. Causing startups to potentially have a mechanistic approach to engaging people, and possibly missing the deeper texture of their stories, their entrepreneurialism and the value thereof, as I almost did.

The definition of what constitutes entrepreneurship, and who qualifies to be called an entrepreneur is a growing discourse and is discussed in the literature review of this research. Welter et al., (2018) caution against a narrow definition of entrepreneurship but advise that researchers should instead understand and actively seek out diversity to enable scholarly work to clearly serve human development efforts. Therefore, the remainder of this study refers to female informal economy entrepreneurs.

#### **4.5. Key concepts emerging from the Findings**

The key concepts that have been synthesised and represent the most significant findings of this study are: **sociology of place and personhood, a sharing economy of knowledge, and co-appreciation.**

**Sociology of place and personhood** describes a curiosity of the influence of the social context on an individual and vice versa. It captures the heart of Mills' (2000) sociological imagination and connects the personal narrative of the individual. In the case of this inquiry, the two entrepreneur groups and the factors at play within their social systems (sociology of place). The proposal to be made in the Discussion chapter is the importance of this for nurturing a relationship that enables digital inclusion in the informal economy.

**Sharing economy of knowledge** entails the invitation to co-learning and co-creation between the two entrepreneur groups. The concept draws inspiration from Scharmer (2007) and relates to how, through 'generative' listening and relationship creating room for emergence, the potential for co-created innovation is enhanced. The Discussion chapter unpacks how this sharing economy of knowledge can be harnessed between the two entrepreneur groups, as well as how peer to peer generosity of knowledge sharing can be facilitated between technology startups building for the informal economy.

**Co-appreciation** is a concept developed by the researcher of this study and is inspired by the theory of appreciative inquiry (Cooperrider et.al, 2013). Its premise relates to 'seeing' systems

better - assessing what they do well, and harnessing that towards development, change or innovation. This study has created the term 'co-appreciation' because the key argument is that there is value in appreciating two systems: that of the technology startup entrepreneur, and the system of the female informal economy entrepreneur. The appreciation therefore is of two systems, it is a dual appreciation, a reciprocal kind, and therefore co-appreciation captures the texture of the kind of appreciation in a better way. These concepts are elaborated upon and their proposed application is detailed in the next chapter.

#### **4.6. Summary of Findings**

The themes related to both case studies demonstrate the importance of 1) the humanity of those involved in the startup businesses as well as informal trader businesses 2) the mechanisms both groups use to run their businesses and 3) the social context and systems within which both entrepreneur groups exist which exert tension to their businesses and which they need to navigate and adapt to. The next chapter discusses, in line with the objectives of this study, how these two entrepreneur groups can develop stronger relationships with one another to facilitate meaningful digital inclusion for female informal economy traders.

## CHAPTER 5: DISCUSSION OF FINDINGS

*“Human science is concerned with action in that hermeneutic phenomenological reflection deepens thought and therefore radicalizes thinking and the acting that flows from it”*(van Manen, 1997, p.154).

### 5.1. Introduction

The empirical findings are discussed in relation to the literature reviewed. The empirical findings and themes for the technology startup ecosystem are: The Humanity behind Technology, Meaningful Value, and The System of building a technology business in Africa.

The findings or themes for the system of the informal economy for female entrepreneurs in Johannesburg and Nairobi are: The Human behind the business, the markings of Entrepreneurship as they run their businesses as well as the Social system within which they run their businesses. The empirical findings are expanded as the support of literature for the findings is demonstrated.

#### 5.1.1. The structure of this discussion chapter is as follows:

1. The nature of the current relationship between technology entrepreneurs in the informal economy and female entrepreneurs in the informal economy; additionally, it alludes to how the relationship may be enhanced.
2. Concurrently there will be an expansion of the Humanity value through the sociological lens in order to enable a deeper way of seeing the Humanity of both entrepreneur groups.
3. The Sociological lens is then applied to the two groups to surface the empirical findings related to a sociological assessment of their responses.
4. The next subsection proposes a values-based approach for enabling a culture of engagement between the two entrepreneur groups.
5. The final section of the discussion brings the interdisciplinary conceptual framework developed to inform this inquiry into the discussion and an expansion of the framework. This expanded framework details **Phase I:** core concepts that enable the expansion of the framework, **Phase II:** discusses the ways in which the nature of the relationship between the two entrepreneur groups may be shifted and **Phase III:** finally proposes an approach for the relationship to translate to the system of digital inclusion in the informal economies of Johannesburg and Nairobi.

## **5.2. Connecting technology entrepreneurs and female informal economy entrepreneurs**

Africa's digital economy is set to contribute 10% to GDP by 2025 (GSMA, 2019). Unfortunately, marginalised women are less likely to be able to harness the opportunities the digital economy can bring (Venkatesh, Shaw, Sykes et al., 2017). The contribution of women to economic growth has proven to be significant, with the World Bank advocating that "gender equality is good business" and highlighting an economic development model that prioritises the role of women (Boeri, 2018). This study set out to determine how the projected growth of the African digital economy and the extent of the impact of women on economies, particularly informal entrepreneurship, could be harnessed by addressing the stated gap in relation to women's digital inclusion. Technology startups in Africa are at the forefront of building solutions that are contributing to the growth of the digital economy on the continent (GSMA, 2018), and these solutions have the potential to facilitate the needed digital inclusion of female informal economy traders.

This inquiry set out to understand the nature of the relationship between technology startups, and female informal economy entrepreneurs. The inquiry found a gap that relationally, their worlds are not clearly connected. They exist in a similar geographic and social context, but there are insufficient mechanisms that connect their interactions in a robust and ongoing manner, due to the challenges mentioned in the previous chapter. The aforementioned challenges result in startups finding it difficult to build robust technological solutions for the female informal economy entrepreneurs.

The majority of conversations with the female informal economy entrepreneurs diverged from a discussion about technology, because they did not have access to many technology solutions specifically created for their benefit. The conversations were about their life stories, as well as how they run their businesses and the challenges they face as they run their businesses. One of the initial expectations going into this research was to clearly see how informality does and does not connect to mobile technology, whereas the data collected does not show a clear mobile technology presence in the informal world of the female entrepreneur. This lack of connection is a gap that African technology entrepreneurs should be considering in line with the SDG 17 which is about expanding the partnerships for delivering on the aims of sustainable development (UN, 2015). The conversations were about their businesses and the mechanisms they use to run and sustain their businesses.

This inquiry focused on two very distinct groups: the technology startup entrepreneur and the female informal economy entrepreneur; and the purpose was to determine the extent to which this inquiry could develop an approach which connects these two groups to one another in a meaningful way. The more robust and inclusive definition of entrepreneurship is that the essence of what entrepreneurship is and may be missed, by failing to see the benefits and value that emerge from it by only assessing it through wealth accumulation and job creation (Ligthelm, 2008). Other ways of assessing entrepreneurship should include the role of partnerships, as well as how entrepreneurs not only exist in contexts but also create contexts through their problem solving (Welter et. al, 2020). This inclusive approach lends itself to then assessing how two groups of entrepreneurs could relate and co-create versus not seeing informal economy entrepreneurs as equals and merely seeing them as recipients of startup solutions.

This research engaged technology entrepreneurs building solutions for the informal economy in Africa, understanding their lived experiences and how they interface and navigate their world, their context, and their systems. The other respondents were female entrepreneurs in the informal economy, and the research sought to gain a glimpse into their lived experiences and how they navigate the challenges presented by their context. In engaging these two groups, the data did not show a strong relationship in terms of mobile technologies, largely because very few technology solutions have been developed specifically for female informal traders in Nairobi and Johannesburg.

The key is to create the nature of the relationship and how the relationship could be - to go beyond a mechanistic relationship related to the use of mobile technologies by female entrepreneurs in the informal economy, but to build connections between the systems of technology startups and the systems of the female entrepreneur in the informal economy. The relationship between technology startups building for the informal economy and female entrepreneurs in the informal economy is demonstrated in the empirical findings.

The remainder of this chapter is a presentation of a proposed approach to deepening the relationship and providing a perspective on how this co-creative, agentic energy might be incubated.

### **5.3. Expanding the depth and scope of the relationship between technology entrepreneurs and female informal economy entrepreneurs**

*“The last thing that any real innovator would outsource is perception. When innovating, we must go places ourselves, talk with people, and stay in touch with issues as they evolve. Without a direct link to the context of a situation, we cannot learn to see and act effectively” (Scharmer, 2007, p.9).*

Having understood that the relationship between technology startups and female informal economy entrepreneurs can be strengthened, this subsection discusses how the nature of the relationship might be enhanced and harnessed. The lack of perception, ability to truly “see” each other’s systems has been identified as a key reason for the state of the relationship.

An enhancement to the relationship would be for the benefit of the informal economy and the individuals therein - both on the side of the female entrepreneurs and of the technology entrepreneurs. When gathering people into an intentional collective, they are able to grow in their ability to see deeper and can sense the possibility of what they could create together. The “*collective organ of sight*” described by Scharmer (2007) is a potential mechanism for building collective capabilities of the two groups of entrepreneurs that exist in the informal economies of Nairobi and Johannesburg.

#### **5.3.1. Asymmetry of knowledge and co-learning**

A precursor to the ability to build collective sight is the recognition that there is an asymmetry of knowledge in the nature of the relationship between the technology ecosystem and the informal economy. True co-creation is yet to be tapped: the way of doing things in Africa, the human element which has emerged in the themes, means there is something deeper to be derived from relationships for human centred, open, and vulnerable learning and innovation to occur within the informal economy. Strong relationships must be nurtured, co-laboring permitted to occur, and an African archive of knowledge and innovation between technology entrepreneurs and entrepreneurs in the informal economy needs to grow -“*valorizing previously excluded forms of knowledge*” as Nilsson (2014) describes it. There is literature on grassroots innovation and frugal innovation, but these are not necessarily talking about entrepreneurs (startups) and entrepreneurs (informal traders), connecting to create. These theories also do not fully account for a knowledge building and learning led approach, one that accounts for the

individual's internal ecosystem and narrative and the greater ecosystem they are in, as well as the social narrative in that system.

In a co-creation space, it should be recognised that the women entrepreneurs are agentic in character, brilliant learners, and creators. The nature of the relationship needs to then be that of peers in this co-learning and a co-creative space, for both entrepreneur groups to bring digital inclusion within the informal economy to mature.

### **5.3.1.1. Co-learning and learning agency**

Co-learning is an important aspect for digital inclusion. The approach solves a real problem in order for the female entrepreneur to bring the gift of her highly elevated sense of agency. She learns because that is what she has already been doing to navigate the complexities of the informal system she operates in. The agency and learning potential of the female entrepreneur as well as the learning agency of the technology startup entrepreneur, become foundational to how the relationship might be developed.

*“There is a very big divide between what the tech sector is building for the informal sector and what the customers need, so there's a big divide. A lot of what is being built is not answering to the real needs. Guys are copy pasting Silicon Valley products into this market and hoping they'd work”* Startup, Kenya

*“I also then started making buckets for creating electricity. I taught myself how to make buckets for electricity. The ones where you pour water”*- Female informal economy entrepreneur, Johannesburg.

The mechanisms she needs to put in place to run her business means that her learning agency is high and therefore can benefit and be of benefit in a co-learning, co-creation relationship with technology entrepreneurs who also have high learning agency due to the requirements of the tough environment they navigate for building technology companies in Africa, and the added complexity of their building businesses within the informal economy.

The body of knowledge on how technology entrepreneurs in Africa and entrepreneurs in the informal economy have learnt from one another and developed learning that might be used and generously shared, appears to be nascent and an area of opportunity for the informal economies of African cities. The inclusive sharing economy of knowledge for digital inclusion in the informal economy needs to be crafted and is a revolving door - technology entrepreneurs being

included by the female entrepreneurs in the informal economy, and female informal economy entrepreneurs being included by the technology entrepreneur. This means inclusion is not a one directional power dynamic where entrepreneurs in the informal economy are invited to a table created by the rules and mechanisms of technology entrepreneurs, but one where inclusion is a gift for both.

An important element is deepening an appreciation of and legitimising existing systems of innovation that precede interventions by innovators. Additionally, developing an inclusive lens on what counts as innovation and expanding that perspective to what is already happening in communities.

Informal economy entrepreneurs mentioned mobile technology in various forms, but the richer, fuller stories were in how they ran their businesses, how they navigated their context, their strong characteristics becoming visible through their stories. These shone through much more strongly than their engagements with mobile technology specifically. This means that technology entrepreneurs would have much to gain by learning to and being given the tools to engage and honour the sociology of personhood, expanding how inclusion might look if co-creation means recognising social narratives, and responding to those in care of those deeply textured stories.

Technology entrepreneurs should shift from a “how do I get you to use my solution” objective when building relationships within the informal economy, but instead taking an approach to “see” them and for technology entrepreneurs to allow themselves to be seen as well. To see their humanity, and vice versa. There remains space to “see” the technology startup entrepreneurs as well, who have equally rich and deep stories that can be of benefit to the informal entrepreneurs and the greater informal economy technology ecosystem in Africa. An area of contribution of this research is in framing how inclusive knowledge sharing can be facilitated between technology entrepreneurs building for the informal economy in Africa, and entrepreneurs running businesses in the informal economy.

#### **5.4. Facilitating Co-learning and Connecting to the sociology of personhood and place**

There is wide recognition in the literature that digital inclusion cannot be worked towards without a broader focus on social inclusion (Csikszentmihalyi et al., 2018). A sociological view that is curious about the individuals and their deeper life stories -sociology of personhood - as well as a lens that is more curious about the sociological systems and context within which

these two groups of entrepreneurs exist. This process is referred to as taking a sociological imagination perspective, which examines how seemingly individual stories are linked to greater social narratives and social imagination (Mills, 2000). In line with sociological imagination framing, in terms of narrative, one of the technology entrepreneurs mentioned that mobile technology arrives with a narrative. It arrives as something most often pre-created from an external person's standpoint. The depth of care is not always at the level that would best benefit informal economy entrepreneurs.

*“So mobile technology is significantly important. But I think its power can only be dependent on A: whose hands it's in, B: who controls the narrative that flows through those particular channels and C: I think ultimately, the sorts of products and services that are delivered within those contexts to create value”.* Startup, South Africa

The social context for female entrepreneurs who are informal traders in Johannesburg and Nairobi comes with its own social dynamics. It is worth questioning the role of social memory, the history of the context and how that is impacting the lives of the entrepreneurs seeking to build lives worth valuing within these contexts.

*“Learning to “see” historically across multiple time scales is fundamental to understanding how ecologies come to be, how people come to see who they are and what they might become as part of those ecologies as well as what mediates their trajectories. Seeing historically is especially important for understanding how we might imagine the design, cultivation, and sustainability of resilient learning ecologies.”*  
(Gutiérrez, 2016, p.69)

The South African context is linked to the country's Apartheid history. Kenya's context is linked to the country's historically limited rights and social capital for women, and the impact of tribes on the social fabric of the country. These contexts impact the current experience of female entrepreneurs in the informal economies of these countries. At a more local level of partnership, it is worth noting that support relationships for female entrepreneurs in the informal economy exist. Examining the nature of the relationships female entrepreneurs have is an important perspective to have and from which to observe how people support each other in addressing broken social systems.

*“There was one time I went for a housewarming party and I left my stall. When I came back, everything was in shambles. It was at the very bottom. I actually lost over 50,000 shillings from*

*that. Thereafter the business just burned and burned [money] until I even raised my hands. But my people came through for me, and even said 'even if you don't have the money for the fuel right now we'll give you some so that you can continue working''* - Female informal economy entrepreneur, Nairobi

This perspective presents the opportunity to see what the community and network intends to support the individual through, what they are helping them push away from, or push towards. Katongole (2011) speaks about the concept of a traumatised social imagination being a dictatorship of: you can belong, you do not belong; you should have, you should not have; you can try, you cannot try. But there exists the recognition that at the centre of the business is the human being, and the human being has the ability to choose a different outcome from what their context may have told them is possible.

*"You know when you don't have money, dreams die. When you don't have money, dreams die".* Female informal economy entrepreneur, Johannesburg

*"No, nothing at all. [Government has done] Nothing at all. We are just suffering"* Female informal economy entrepreneur, Kenya

Considering the concept of traumatised social imagination, it is worth questioning the reasons why the agency of the female entrepreneurs in the informal economy is sacred to them. There is a growing body of work that recognises that the expression of entrepreneurship differs from context to context, influencing the kinds of people who get to and want to be entrepreneurs, and those who are not afforded the same opportunity (Baker & Welter, 2020). Therefore, female entrepreneurs in the informal economy have found their businesses to be, and have run their businesses, different to how they might have experienced the rest of life. It is remarkable that they have this conviction about their agency, they make decisions and choices that they would otherwise not have made in other aspects of their lives.

*"So someone can give you R3000, and then they question you wanting to know per day, how much do you make, per week, how much do you make, which means that now, I am sharing my business with them. Meanwhile I am waking up, and they are asleep. They can wake up at 13:00 and come here and ask 'how much have you sold'? no, I wake up at 4am to come and make magwinya, that money is mine".* Female informal economy entrepreneur, Johannesburg

For the technology startup entrepreneurs to make room for the informal economy female entrepreneurs and vice versa, it is worth exploring the extent to which it is possible to build a

meaningful relationship between these two groups of entrepreneurs in Nairobi and Johannesburg. To enable them to become more present in their lives and in their social systems, allowing them to better connect to their agency and their collective agency as entrepreneurs existing within the informal economy, albeit from different sides of the system.

*“Still very poor to be quite frank, still very poor-the relationship [with the informal sector players] isn't that strong as yet. What can be made better? I think at the core of that it's very important for the ecosystem to understand the sort of conversation it wants to have with the different actors”* Startup Entrepreneur, South Africa

The literature supports this assertion by highlighting that meaningful participation must extend beyond bringing the views of marginalised people to discussions that influence their lives. Inclusive development needs to empower and grow people's capabilities to be influential in the decision-making related to their lives, their livelihoods and their futures (Dugarova, 2015). Therefore, in seeking to understand the sociology of personhood, the lived experience of a human being, within the social context within which they exist and the impact of the sociological imagination of the space, there exists a deeper texture of what might be possible in creating space for the agency of the female informal economy entrepreneurs in Nairobi and Johannesburg in developing solutions for the informal economy. By taking empathy deeper than startups normally engage, by taking it to the sociological imagination and social fabric level, there may be more opportunities for meaningful value to be created through solutions.

Women's empowerment extends to the role of women in society, the validity and strength of their voices and opinions for decision making in communities and society - the output of which would be their extended autonomy, and an improvement in their well-being (Malhotra & Schuler, 2005). Therefore, co-creation and knowledge sharing between technology startup entrepreneurs and female informal economy entrepreneurs needs to hold in constant view the outworking of their relationship on the holistic empowerment of the female informal economy entrepreneurs.

### **5.5. Sociology of personhood and place for Technology startup entrepreneurs building solutions for the informal economy**

This subsection describes the perspective on the individual entrepreneurs from a personal narrative standpoint and highlights their system and the sociological implications of their contexts.

### **5.5.1. Personhood and personal narrative and technology development**

In assessing the role of personhood, the startups that build for the informal economy are largely led by their lived experiences and problems they have observed at some point in their lives. These lived experiences have impacted how they operate in the informal economy and the kind of value they seek to create in this sphere. They are led by problems they noted in their childhood, in their careers, within their families, failures they have experienced, as well as greater systemic issues they are moved to solve. They are individuals that are led by their mission and desire to make a difference in the areas that they operate.

*“So, I grew up in a neighbourhood where there were no kids to play with. So, I ended up hanging around too much with my shopkeeper...And so, she let me help around. And that was actually my job throughout my childhood, and I used to do it for sweets and yeah, she just paid me with sweets... Yeah. So, I got a front row seat to how they work and sort of what are some of the challenges around running one”- Startup Kenya.*

*“And I kind of know the feeling because again, in our shops, the second Spar opened, then the Checkers opened across the road. So, we have Spar and Checkers, and here is this small little butchery, and then down the road is our little takeaway thing. So, we felt the knock. Only people that came in was the customers that really enjoyed working with us”- Startup, South Africa*

The impact of their stories and lived experience is that these bring value to the co-learning relationship with female informal economy entrepreneurs, by showcasing what technology startup entrepreneurs have learnt and now know. This knowledge and lived experience become nourishment to the co-learning relationship, and the kinds of solutions that can be birthed.

### **5.5.2. Sociology of place**

Having valued and understood the personal narratives of technology startup entrepreneurs, it becomes important to connect their personal experiences to the social system. Challenges faced by startups are from two realms: the challenges presented by the informal economy and the challenges presented by the African technology startup ecosystem. While startups desire to make an impact in the informal economy, they soberly acknowledge the difficulty of solving problems within the sector due to the many systemic issues that are at play.

*“The other challenge-things like fraud. So no one tells you that if you ever think of getting into FinTech, you have to, you have to have fraud detection systems, which yeah, so we have lost*

*some cash on the way due to that. So how we address that is just building more robust and more secure platforms” Startup, Kenya*

*“So, having to design curricula that go beyond your products, so training. Digital and financial literacy training. Yep. So you have to train your customers on skills before they pick up, before they take up the product, so that's another reality you need to prepare to face and then also, yeah, so one - a very high cost of acquisition and then the other thing you need to prepare for the reality of lower spending power by customers. So yeah, so the customer lifetime value is lower than the global average”- Startup, Kenya*

On the other hand, startups face pressure from the startup ecosystem that requires them to scale their businesses quickly, build businesses that are viable for venture capital funding, surrender some of the autonomy of running their businesses, and provide shareholder returns. When startups spoke about these issues, they exhibited some anxiety in relation to needing to be ready for capital and exhibited some cynicism about the kind of funding available and the extent to which that funding truly adds meaningful value to them and understands their contexts.

*“It's obviously more complex and difficult to do business in Africa, than it is in other markets. Typically, because of the lack of capital and the lack of broader resources. But I don't think those should be excuses. I think entrepreneurs like the Dr, the late Dr Allan Gray said- entrepreneurship who blame their tools more often than not, will not be successful”- Startup Entrepreneur South Africa*

Additionally, they raised concerns about the global north funders not having a good understanding of the African context and therefore placing requirements on African startups; particularly those serving the informal economy, that are not considerate of the challenging environment presented by informality. The other side of this challenge is the limited number of local investors who can support startups and also have the local context understanding.

*“I think the truth of the matter is of any challenge you have in Africa or in Africa, because we don't have enough capital that's willing to back jockeys. So, what I mean by that is you didn't have enough people who are willing to invest. So, the kind of capital that we have, people call themselves venture capitalists in the continent are actually private equity guys”- Startup Entrepreneur, South Africa*

*“In the African context, you need to have already solved something fundamental and you must be speaking to a large enough market within the space and a really pressing pain point. Versus in America, if the idea sounds good and you can sell it well, a lot of people are just latching on*

*to concepts versus businesses, that's really the big distinction here. So if you're an African tech business trying to raise funds, people are wanting to look at the business fundamentals. If you are in Silicon Valley, trying to raise funds, people are happy with a good narrative and compelling enough team but the business fundamentals- yeah, we'll figure that eventually. But can they get some early traction? Will they make enough noise? All right, let's go” Startup Support Organisation*

It seems that startups building technology solutions for the informal economy exist in two worlds that can often be in tension with one another: the informal economy and the technology world. At times, making the best decision for the one, negatively impacts the other.

*“You're needing a few more African investors, black African and investors who will play into that. But beyond that, I don't have another quick solve on it. The other piece that I think tends to be forgotten is when you look at the US environment, their VC space, is due to the factor of successful entrepreneurs who've wanted to plough back into the market. And we haven't had a lot of those guys just yet. Unfortunately, for us, if you've been really successful, you've seen those guys, then go and base themselves in those hotspots in the UK or the US and doesn't trickle back into their local economies, and you don't have a big enough mass of those successful entrepreneurs”- Startup Support Organisation*

## **5.6. Sociology of personhood and place for Female entrepreneurs & Technology startup entrepreneurs in the informal economy**

In this subsection, the perspective on the individual entrepreneurs from a personal narrative standpoint is described, as well as highlights their system and the sociological implications of their contexts.

The social lens of this inquiry and what emerged from the data, when assessed, sought to understand personal story, social context and how these influence the sociology of personhood and the sociology of place within which female entrepreneurs in the informal economy and the technology entrepreneurs building for the informal economy in Nairobi and Johannesburg exist. In assessing the context of female entrepreneurs in the informal economy and the contexts of technology startup entrepreneurs from a sociological imagination lens, the analysis looked at how people's stories and lived experiences are linked to a social context and a deeper narrative that has influenced or impacted the person's experience, their emotional state as well as their hopes and dreams.

*“By the way, you can leave the market without selling anything. Sometimes it becomes difficult. You leave with stress, you see. And your kids need to eat”* - Female informal economy entrepreneur, Nairobi

*“The whole point is we have to balance that it gets harder sometimes it feels like you[re] losing your purpose”* - Startup, Johannesburg

This inquiry evaluated the perspective of the human being and how their lived experiences link to the greater system within which they exist. One of the deeper reflections upon applying a social lens to this work is the fact that poverty requires their mental energy in finding ways to survive, and it takes from their emotional health because they fear being unable to meet their own and their family’s needs. *“Ya, I was just selling. I would run to Gikomba with my son, sometimes I didn’t have much money but would go and pick up a few things for about 300 shillings, come back and do the same thing again. On and on, struggling, struggling, struggling”* - Female informal economy entrepreneur, Nairobi

There has been benefit gained from a researcher standpoint by looking at this inquiry through the social lens, as it has unearthed a deeper empathy and a more circumspect reflection and more diverse insights. What has emerged is much more textured and has added more value to this exploration.

*“Hear what the people are not saying”* - Startup, Johannesburg

### **5.6.1. Appreciating the systems of technology entrepreneurs and informal economy entrepreneurs**

When looking at co-creation in innovation for development, the concept of appreciative inquiry becomes an interesting approach and inspiration for the process of co-creation. Appreciative inquiry theorists argue that knowledge is a tool of the culture, myths, traditions, values and language of the people in systems - and to drive the development of people, recognising and celebrating what they already do well is a stronger strategy than problem identification (Grant & Humphries, 2006). One of the key elements in contemplating this co-creative learning space that may be developed between the informal system and the technology system, is the invitation to evaluate what is already in the system that can be used as fuel for innovation. Not everything is broken in the systems of both entrepreneur groups and the purpose of appreciating what is in the system, would be to shorten and bridge the innovation gap.

By digging deeper and lingering longer, the technology ecosystem is able to build from the co-learning, co-creative space. The space that is facilitated by pausing, by applying the sociological lens, by appreciating the systems that already exist in the informal system, appreciating the human beings that exist in the system and their narratives, and their journeys and how their fears play out in the system, how their hopes play out in the system, how their mechanisms of survival play out in the system, and how their openness to growth plays out in the system.

*“The informal space is very tough to get into with your own pocket, no matter how well someone is doing. So unfortunately, we have to rally for support”* Startup entrepreneur, Kenya.

*“There are lots of people without smart cards, selling from the street and people buy from them, while mine are inside, people can’t see them. That is the thing that gives me stress. Because, why do they [metro police] want me to put my stock inside, but the stock of the people who are on the street, they don’t have the same problem with them”* Female informal economy entrepreneur, Johannesburg.

In the informal economy context, aspirations and the digital inclusion of those working in the sector, includes building strong relationships between the informal economy and the mobile technology developers in those countries. In conclusion, applying the sociological lens provides deeper insight in the analysis by providing a different vantage point from which to see the data. It is possible to see how an interdisciplinary way of analysing the systems of the technology startups and the systems of the informal economy entrepreneurs would be of benefit for a co-creative, co-learning space of connecting the informal economy systems and the technology startup systems that exist in Nairobi and Johannesburg.

The following subsection unpacks the culture and way of building towards co-learning and co-creation, proposing a set of values for building solutions for digital inclusion in the informal economies of African cities.

### **5.7. Proposing a Values based approach for engaging and nurturing the relationship between startup entrepreneurs and female entrepreneurs in the informal economy**

The data shows a set of values which might be of use for building a stronger, more inclusive sharing relationship between entrepreneurs in the informal economy and entrepreneurs in the technology economy.

The values-based approach is an inspiration from the field of technology software development which, in the early 2000s sought to ensure they were adding true value and doing the kind of work they would be proud of, limited by many processes and ways of working. They then developed the agile manifesto which was accompanied by a set of values which aimed to become the *culture* or *HOW* as they sought to do value adding work (Zaitsev et. al, 2018; Campanelli & Parreiras, 2014). The values proposed are not exhaustive, nor are they a finite list, rather they are indicative of what has emerged from this inquiry and form a basis of starting to nurture the culture of co-learning and co-creation between technology startup entrepreneurs and female informal economy entrepreneurs. The values identified are: simplicity of learning, an ecosystem approach, meaningful value and humanity behind technology. In the following sections each value is unpacked.

### **5.7.1. The proposed values for building an inclusive, co-creative relationship in the African informal economy**

The values that emerged from the data are around **simplicity of learning**. This relates to the pedagogy of technology for the informal economy in Africa and how learning curves related to solutions can be simplified for informal economy entrepreneurs, using the agency of the informal economy entrepreneurs as fuel for their learning journeys.

The second value is an **ecosystem approach**: this relates to how both entrepreneurs in the informal economy and entrepreneurs in the technology space are in a dynamic system which they continually adapt to. Both their contexts call for resilience and adaptability. Examination is necessary on how they might walk together in navigating the requirements of their parallel systems.

The third is **meaningful value**. This speaks to the ways in which technology startups engage with entrepreneurs in the informal economy and the need for them to refine their solutions, build for relevance, adapt their offerings, and enable a tangible need. The fourth value is the **humanity behind technology**. In Africa particularly, relationships are an inextricable part of doing business and of doing life. This principle highlights the mechanisms by both technology entrepreneurs and entrepreneurs in the informal economy to build relationships. This is valued and valuable for both - the question arises; how might the relationship between these entrepreneurs now be facilitated? How might it move beyond empathy, to a 'generative' level

of relationship in the language of Theory U's listening fields, facilitating co-learning and co-creation (Scharmer, 2007)? The next subsection provides a perspective on these questions.

### **5.8. Phase I: The work of bridging the systems of the female entrepreneur in the informal economy and the systems of the technology startup building for the informal economy**

*“When sensing happens, the group as a whole can see the emerging opportunities and the key systemic forces at issue”* (Scharmer, 2007, p.9).

Bridging the systems of female entrepreneurs in the informal economy and the systems of the technology startups that build solutions for the informal economy requires co-learning and co-creation. This section engages the question of *what it takes to bridge the relationship gap* in order to create an alternative social imagination of the role of relationship in the process of technology innovation in the informal economy in African cities.

#### **5.8.1. Bridging the relationship gap & Adaptive systems**

There are two systems at play in the digital inclusion for the informal economy: the adaptive system of the technology startup, and the adaptive system of the female entrepreneur. Considering the social narrative; the sociology of place and personhood and engaging to wade into a deeper narrative, beyond a mechanistic view or a superficial perspective of engaging.

#### **5.8.2. Bridging the relationship gap through Knowledge sharing and co-learning**

There is an invitation and proposal to facilitate a sharing economy of knowledge, making knowledge in the technology ecosystem more inclusive in the informal economy.

*“So, the informal economy is, it's a very difficult space and also costly to get in. So, I think incubators could have specific training around it. Yeah, actually the most important thing is, I think is, what do you call it? Supporting knowledge sharing amongst people in that industry. Because, for example, when we got into the informal space, we realized it's- there's a huge learning curve, which again is very costly. Which we could have avoided if we were put in an environment with similar people working in similar spaces. It could have helped us cushion certain mistakes”* - Startup, Kenya

One of the key outtakes from the focus group with startup support organisations and thought leaders in the African technology ecosystem, was how learning and knowledge sharing could be facilitated between the technology ecosystem and with the informal traders too. The

question arises of what it might look like for knowledge sharing to happen, by recognising and valuing the systems that the informal traders are existing in. They have been running powerful businesses for years, and there is something to learn there. There is something to garner that will help the types of solutions that get developed to enter back into that environment.

*“Yeah, but just taking it even a step further, it would be sharing and sharing with actually the participants in the economy. There is the startups, you know, sharing with each other, but actually, isn't there more value to be received from the actual consumer themselves? So the consumer who stays in the township, a consumer stays in the informal economy, that sharing? Yeah, that's more powerful. And that's not happening as much”* - Startup Support Organisation.

Di Domenico, Haugh, & Tracey (2010) corroborate this as low-income people are already exhibiting agency by solving their problems, without external intervention, as they are able to make sense of their context and transform it through technology and social interventions . In addressing the concept of the asymmetry of knowledge that exists between the technology startup system and the informal economy entrepreneur system, one can question how to bridge the knowledge possessed by traders with the knowledge possessed by startups. enabling the inclusive knowledge sharing to be inclusive of the traders themselves and their worlds.

The parasitic view of the informal economy argues that informal enterprises contribute little to capital or knowledge creation (La Porta, 2008). However, hybrid innovation perspectives disagree with these assertions and argue that knowledge creation in relation to what people need, as well as making use of existing knowledge, is pivotal in building new knowledge and strategies for the benefit of low-income people (Pansera & Sarkar, 2016). This perspective may be a mechanism to reduce power dynamics by starting to deeply value what the female informal economy entrepreneur does.

As one of the startups said - *“if you want to start a business, helping fruit vendors, with their business with a technology solution, go and sell some fruit. Go and sell some fruit on the side of the road, and you will really learn the vulnerability of that.”*

Literature supports this assertion and mentions that innovations should seek to build upon the systems that exist within communities rather than disregard them (Matthews, 2017). Therefore, an inclusive knowledge sharing space may be one where there is learning from the female entrepreneurs and an appreciation of their context in the world. Utilising appreciative inquiry, which appreciates what is already in a space that can be built upon, acknowledging that not

everything is broken, and considering how might the technology ecosystem learn from a system that is not fully broken - thus building solutions that are appreciative of what is not broken in the system.

*“Don't assume everything is broken, but really spend time to understand their needs, understand the logistics, understand trade, understand their universe, right. So their suppliers, how do they engage with the suppliers? Who are the suppliers? Why do they engage with those suppliers? What is the pricing and how sensitive are they or not? What are they willing to actually pay for because they are willing to pay for certain things and why? And then understanding the psychology of that market, the Makola market trader and understand why other things haven't worked. Because a lot of people have tried certain things, and they haven't worked, and understand that, don't think you're going to be this unicorn now”- Startup support organisation*

Knowledge sharing, not just between startups and with the technology ecosystem, but with the traders themselves is critical to the bridging of relational value. The findings of this study points to that: it has engaged the technology ecosystem and spoken to informal traders and has surfaced the vulnerabilities, the fears, and the hopes of the two groups of entrepreneurs. This, accompanied by the understanding of the context of each group, might be able to facilitate a culture of sharing between these entrepreneurs.

The next section puts forward a proposal for how the relationship and culture of sharing between the two entrepreneur groups could be nourished.

## **5.9. Phase II: Proposing framework for learning and building an inclusive system**

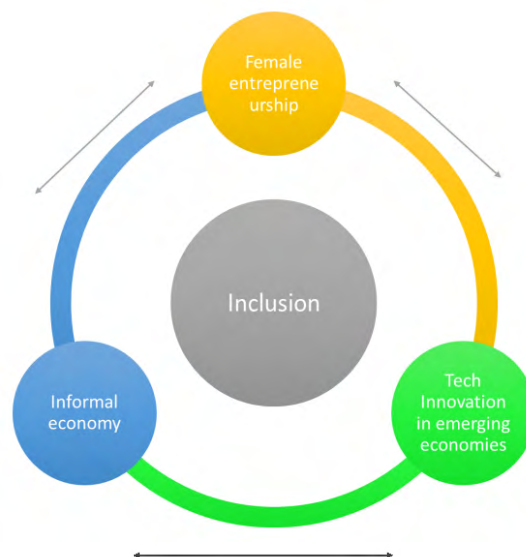
*“The limiting factor of transformational change is not a lack of vision or ideas, but an inability to sense—that is, to see deeply, sharply, and collectively. When the members of a group see together with depth and clarity, they become aware of their own collective potential—almost as if a new, collective organ of sight was opening up.”*  
(Scharmer, 2007, p.8)

A framework for learning and building a relationship that nourishes a co-creative, inclusive system is proposed. This relationship framework is proposed as a precursor to a systemic proposal, which is made in phase III. Phase III details the final systemic level version of the interdisciplinary conceptual framework which was used to frame this study, and which sought

to assess the interconnections between the informal economy, female entrepreneurship, technology innovation in emerging economies and digital inclusion.

### 5.9.1. Original conceptual framework created from literature

The literature analysis led to the development of a conceptual framework as a lens for the inquiry that sought to connect the **technology startup ecosystem** with the **system of the informal economy** and the intersection of these with **female entrepreneurship**. Due to the nascent interdisciplinary work connecting these fields, this conceptual framework was created by the researcher with the aim of beginning to assess how and whether the disciplines intersect. The interdisciplinary nature of this study connected the literature of the aforementioned fields to how they relate to the field of **digital inclusion**.



*Figure 12: Interdisciplinary Conceptual Framework developed from literature, by the researcher, used to assess the nature of the interrelationships between the fields in driving digital inclusion in the informal economies of Nairobi and Johannesburg*

### 5.9.2. Expansion of the conceptual framework based on empirical findings

The empirical findings of this research have enabled an expansion of the conceptual framework, by detailing the nature of the relationship between the concepts, which literature had not robustly articulated. Below is a detailed expansion of the conceptual framework, with the diagrammatic representation of the new framework following the description (figure 12).

### **5.9.2.1. Learning from the systems**

Looking firstly at the context and **what we can learn from the context** of the system of the informal economy, as well as the system of technology startups, and applying an appreciative inquiry approach to understanding and gaining deeper insights into these two systems. Appreciative inquiry in the context of viewing the systems themselves as adaptive systems, acknowledging and appreciating the systems that exist, becoming curious about the creation and the recreation.

### **5.9.2.2. Attending to sociology of place and sociology of personhood**

Secondly, examining the **sociology of place**, attending to the social field, and the deeper and often invisible social narratives that exist within the context within the systems of both the informal economy and the systems of technology startups. Thirdly, applying an appreciative inquiry lens to **the sociology of personhood**, which is about holding an empathy for the people, the human beings within the social context, their stories, beyond engaging them from a mechanistic curiosity and inquiry, which is often done when it comes to engaging human beings.

### **5.9.2.3. Bridging towards inclusive innovation through co-learning**

A bridge to inclusive innovation in the context of the informal economy in Africa, is the idea of the inclusive sharing economy of knowledge. The **co-learning is a critical unlock to co-creation**. Without co-learning, the co-creation process can perpetuate power dynamics of the ‘innovators’ and their perspectives continuing to be seen as more valuable than those of communities. The co-learning concept is an addition to literature which has largely focussed on the outputs: co-creation and co-production, rather than beginning with the process: co-learning, being vulnerable together, receiving and giving to one another.

Bridging social capital is related to networks and connectedness with people that are external to one’s immediate community (Woolcock & Narayan, 2000). **This concept of co-learning becomes a mechanism of bridging social capital** not only for the female informal economy entrepreneurs, but equally for the technology startup entrepreneurs. In a co-learning relationship, the female informal economy entrepreneur receives the gift of their already existing learning agency to be harnessed for co-creation, and their entrepreneurial experience and depth being appreciated. For the technology startup entrepreneur, co-learning becomes a means of bridging social capital by allowing them to gain insider knowledge, shorten their

learning curve and build the deep relationships and trust they need to deliver the kind of solutions their purpose and vision desire to express in the informal economy.

A values framework for innovation emerges which should connect minds and hearts in the how - in the action of building inclusive innovation within the informal economies of Nairobi and Johannesburg. The values that have been proposed as an outcome of this research are: **human impact, meaningful value, simplification of learning and ecosystem thinking**. These values are the outputs and themes that have been discussed in the Findings chapter of this research. These values are reflective of what is needed for inclusive innovation for the informal economy, particularly within an African context.

*“Africa needs transformative development. It needs to own its own narrative of the future. A starting point is to promote an Africa-wide dialogue on innovation and structural reform”* (Hanna, 2016, p.2).

#### **5.9.2.4. The Expanded conceptual framework: A co-creative relationship through co-appreciation**

The convergence point for the systems is applying a values framework for this inclusive innovation, a co-creative relationship that is led by a concept of co-appreciation, which is appreciating the systems and lived experiences of entrepreneurs in both spaces. Furthermore, the systems and lived experiences of entrepreneurs in the technology startup ecosystem, appreciating the worlds of both entrepreneur groups, and what they might learn and glean from each other, creating a collective perspective on how to engage the system of the informal economy. This has the potential for startup entrepreneurs and female entrepreneurs in the informal economy to develop collective capabilities in relation to the dynamics presented by the informal economy within which both groups operate their businesses.

The mechanism of how this co-appreciation might happen is using language from Otto Scharmer’s Theory U (2007) - **generative listening** or a communal level of listening where you are engaging with another, you yourself are transformed by that experience. This is a perspective that can facilitate an inclusive co-creation framework and approach that is powered by emergence. Scharmer (2007) speaks to how we might learn from the environment by carefully listening to what the context is saying and what the context is leading us towards, especially when bringing new solutions and innovations to spaces. This framework is proposed

as an approach to building towards a co-creative relationship between technology startup entrepreneurs and female informal economy entrepreneurs.

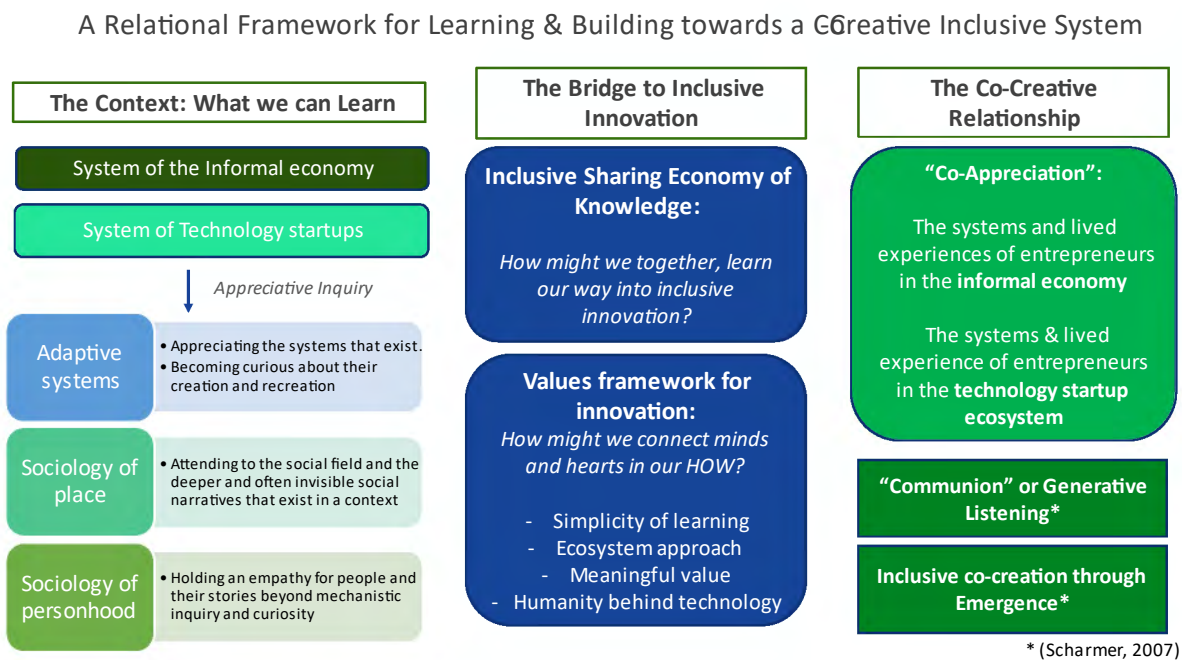


Figure 13: A framework for learning and building towards a co-creative inclusive system (explained above)- by researcher.

### 5.10. Phase III: Translating relationship to the system: An inclusive system for informal economy technology innovation in Africa

This section proposes an approach for the co-creative, inclusive *relationship* between technology startup entrepreneurs and female informal economy entrepreneurs to translate to *the system* of digital inclusion in the informal economies of Johannesburg and Nairobi. These two proposals align to the objective of this research which relates to understanding the nature of the relationship between technology startups and female entrepreneurs in the informal economy on one hand, and the objective of determining the role of social context in the work of digital inclusion. The second objective was articulating a lens for the inclusive system of informal economy technology innovation in African cities. The description below details this systemic level proposal and includes a diagrammatic representation following the description (figure 14). This systemic view presents the expansion of the original interdisciplinary conceptual framework of this inquiry (figure 12) and shows how the four fields connect in the African inclusive technology innovation ecosystem for the informal economy.

### **5.10.1. Translating relationship to an inclusive system: the entrepreneurs and their stories taking centre stage**

The first lens relates to engaging in a framework for learning and building towards a co-creative, inclusive system can result in a co-creative relationship. The proposed inclusive system starts with co- appreciation: co-appreciation of the stories and contexts of both informal economy entrepreneurs and the stories and context of technology startup entrepreneurs.

*The starting point of this remaking of the system towards being an agency enhancing, digitally inclusive system, is the human being.* It is the entrepreneurs themselves, their stories, and connecting them on the ideals of entrepreneurship, on which the two groups of entrepreneurs converge. It is valuable to unearth and connect the stories of the entrepreneurs within these two groups.

### **5.10.2. Translating relationship to an inclusive system: The systems and contexts of the entrepreneurs**

The second lens relates to the entrepreneurs within their systems. The systems within which they operate as well as the social contexts, the sociological context within which these entrepreneurs are building their businesses, living their lives and working towards their hopes and dreams for the future.

### **5.10.3. Translating relationship to an inclusive system: Co-learned and co-created solutions**

The third lens is concerned with creating a co-learning and co-creation solution space by 1) having appreciated the entrepreneurs and their stories on either side of the entrepreneurship journey 2) appreciated the systems and the context and 3) in so doing enabling inclusive co-learning and co-creation. The description below details this systemic level proposal and includes a diagrammatic representation following the description (figure 14).

## An Inclusive System for Informal Economy technology innovation in Africa

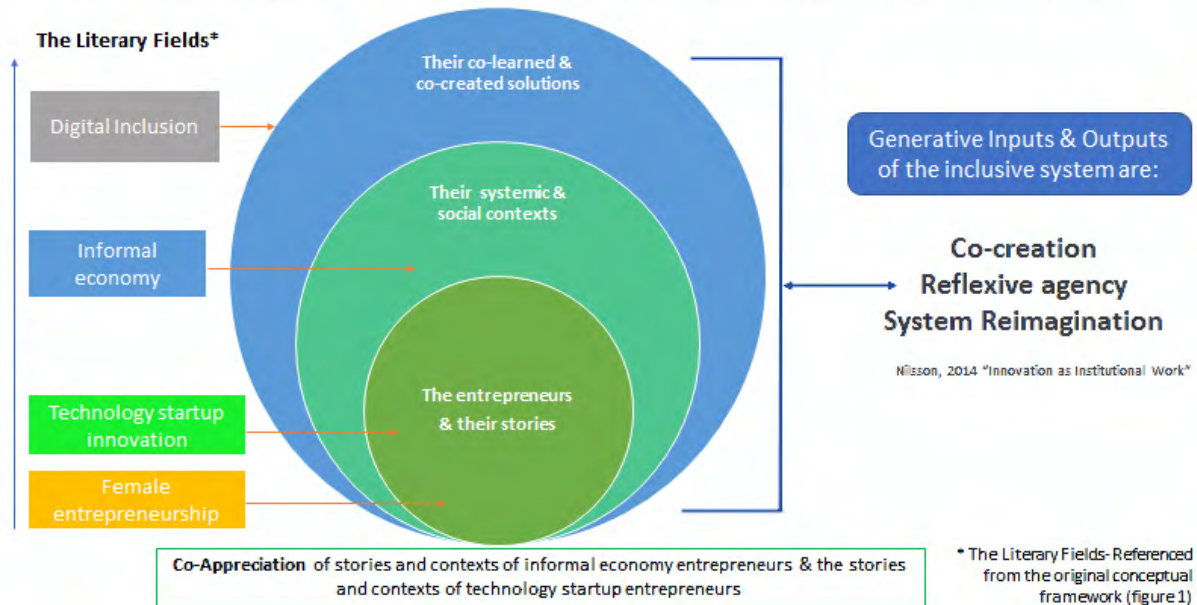


Figure 14: Proposed Inclusive relational system for informal economy technology innovation in Africa (explained above) By Researcher

Nilsson (2014) discusses how inclusive systems that enable co-creation and co-learning, build generative inputs in the way of building co-creation within the system. They allow the system the capability and the space for reflexive agency and also enables system reimagination, where the system is able to look at itself and transform itself in light of pausing and engaging itself in a different way. In investigating the role of mobile technologies in advancing digital inclusion, the aim is for existing knowledge and innovation to be equitably distributed, but more importantly that growth of mobile technologies allows underdeveloped communities the capability and capacity to produce new knowledge and new innovation as a result (Mormina, 2019). In support of Scharmer's assertion on learning and listening to the context, Hamalainen & Heiskala (2007) states that the unmissable feature of social innovation is that it should elevate '*collective learning and collective power*', in order to expand a system's ability to reflect on itself and become a breeding ground for new co-creation capabilities.

### 5.11. Summary of Discussion

This chapter elaborated on the nature of the current relationship between technology entrepreneurs in the informal economy and female entrepreneurs in the informal economy. This study has found that the current relationship is not strong, as the worlds of the two entrepreneur groups are not sufficiently connected. The Sociological lens was then applied to the two groups

to surface the empirical findings related to a sociological assessment of their responses, facilitating a deeper way of seeing the Humanity of both entrepreneur groups. This chapter then proposed a values-based approach for enabling a culture of engagement between the two entrepreneur groups, as a means to build the relationship between them for the digital inclusion of female entrepreneurs in the informal economy.

The interdisciplinary conceptual framework developed to inform this inquiry was then expanded, based on the empirical findings of this study. The chapter discussed the ways in which the nature of the relationship between the two entrepreneur groups may be shifted by engaging the asymmetry of knowledge inherent in the relationship between the entrepreneur groups, by nurturing co-learning and co-creation which harnesses the agency and learning capability of female entrepreneurs in the informal economy. Finally, an approach was proposed for the aforementioned co-creative relationship to translate to a system level perspective and framework of digital inclusion in the informal economies of emerging economies like Kenya and South Africa.

## CHAPTER 6: CONCLUSION & DIRECTIONS FOR FUTURE RESEARCH

This concluding chapter reflects on the research question of this inquiry as well as detail the contributions of this research to academia and praxis, while alluding to opportunity areas for future research.

The research question explored by this inquiry has been: how might socially contextual mobile technologies enable the digital inclusion of female informal traders in Johannesburg and Nairobi? The response to this question from the findings is that **nurturing relationship** (reflected in the journey framework for learning and building towards an inclusive system - figure 12), as well as **connecting the contextual systems** of startup entrepreneurs and informal economy entrepreneurs (captured in the proposal for an inclusive system for informal economy technology innovation - figure 13), digital inclusion of female informal economy entrepreneurs in Africa can be enabled and nourished.

Informality is a powerful economic driver in emerging economies and a viable space for mobile technology innovation. Women are key participants in the informal sector; however, they have specific contextual challenges, needs and aspirations. Furthermore, the mobile technology startup ecosystem has an opportunity to address the challenges, needs and aspirations of marginalised people through the kinds of solutions they develop, although it has been found that the work of mobile technology ecosystems in Africa is not sufficiently contextually relevant to be of real impact in the lives of those it seeks to impact. Therefore, one of the areas addressed through this research has been describing the requirements of a mobile digitally inclusive ecosystem that supports female informal entrepreneurs.

### 6.1. Contribution of the study

The first objective of this study was to understand how digital inclusion through the use of mobile technology can support informal traders in Johannesburg and Nairobi.

A contribution of this study is firstly on digital inclusion. This study contributes to expanding the academic field and body of work related to the role of context in digital inclusion for women in the informal economy and the nuances thereof.

This was an interdisciplinary study assessing the intersection of technology innovation in emerging economies, the informal economy and female entrepreneurship and how these fields intersect in the quest for digital inclusion. This research has added to this nascent body of work.

This study has provided insight into the ways in which female informal traders display the characteristics of entrepreneurship, calling to question the assumption in the literature that only “opportunity” entrepreneurship constitutes expression of freedom and agency (Schumpeter, 1934). The shift in language from female informal traders to female entrepreneurs in the informal economy is a significant invitation to a more nuanced narrative about entrepreneurship in emerging economies and presents an opportunity for more equality between the two entrepreneur groups that have been part of this inquiry as they interact.

Another two objectives for this study were to explore how the mobile technology startup ecosystem might enable Africa-based technology to be harnessed by women in the informal economy, as well as determine the nature of the relationship between technology startups and female informal traders. This study has answered these objectives by articulating a conceptual framework describing how technology startups entrepreneurs and informal economy entrepreneurs can journey towards and nourish a co-creative relationship. This study also provides a lens for the co-creative relationship between the two entrepreneur groups to translate to the system of digital inclusion in the informal economy. This is a contribution to system thinking and deepens understanding of the system at play between the informal economy and the startups that build for the informal economy in Africa. This study’s relational and system level contributions towards co-learning and co-creation capture the high aims of inclusive innovation. Future researchers should assess the requirements of co-creative relationships within other emerging economy settings. Actioning research to test this framework would add value to academia as well as practitioners.

From a praxis standpoint, this inquiry highlighted the challenges faced by startups in building for the informal economy, and these learnings add to the nascent knowledge sharing base between technology startups working in the informal space. Capturing these challenges and the ways in which startups engage them becomes a helpful reference point for other startups in shortening their learning curves and potentially reducing the probability of repeating avoidable mistakes.

This inquiry has also surfaced the lived experiences, personal narratives, emotions and human side of both technology startups building for the informal economy, as well as that of female informal economy entrepreneurs in Africa, and connected the lived experiences of these two groups in a way that has not been surfaced by a significant number of studies. The impact of this established connection for practitioners is in aiding the storytelling and narratives within the African technology ecosystem. If Africa's great gift to the world is giving it a more human face, the storytelling and narratives within the technology ecosystem in Africa need to meet this high call and become much deeper, diverse and more textured than the normative rhetoric of predominantly communicating about startup fundraising rounds.

The more significant benefit of this research for practitioners is that it has proposed a conceptual framework for building solutions for digital inclusion in the informal economy. The conceptual framework would be of value to startups developing solutions for the informal economy, becoming a reference point; not a set of rigid rules, but a guideline that may allow them to engage the system of informality and their own system in deeper, more meaningful ways towards the goals of co-learning and co-creation of innovative solutions.

This study also presents policy implications, as it highlights the need for clear and enabling frameworks that facilitate meaningful co-creation between technology entrepreneurs and female informal economy entrepreneurs in efforts to address sustainable development goals particularly in emerging economies. Economic development policies aimed at enabling businesses need to consider formal and informal entrepreneurs as equal, collaborative and full participants in economic development.

## **6.2. Directions for future research**

Future researchers should conduct similar research, without the immediate influence of covid-19, across multiple contexts to expand the multiplicities and considerations necessary for contextually relevant, inclusive solutions to emerge.

Future research should continue adding to the nascent interdisciplinary approach of connecting the bodies of work within the informal economy, digital inclusion, female entrepreneurship and technology innovation in emerging economies. This will enable deeper and more robust insights to emerge, creating a body of literature that is more representative of the context of entrepreneurship in emerging economies.

The invitation is open to future researchers to articulate a growing and clear narrative on the role of language in entrepreneurship research in emerging economies, while also challenging the pervasive perspectives on even the positive sounding ideals of digital inclusion and the implications thereof for informal entrepreneurs who exhibit high levels of agency and learning

## APPENDIX

### **7.1. Appendix 1: Reflexivity: Reflection as a researcher on the data analysis**

*“Phenomenological projects and their methods often have a transformative effect on the researcher himself or herself”*(van Manen, 1997, p.155).

Hermeneutic phenomenology calls for the researcher to be reflexive as they analyse data (Chowdhury, 2015). This research included me recording a total of ten reflective voice notes which I then transcribed. The below are two of the reflections that became the most significant to the findings and discussion of this study. The below is written in conversational language as these were my personal reflections recorded.

#### **7.1.1. Reflection on 4 April 2021 while conducting data analysis of informal trader transcripts.**

Some initial observations in relation to the informal trader analysis. There are a few things that are interesting to me that were not really expected. I think quite a lot of the character of traders was a really interesting thing to emerge as well as some of the really big ways that they display the character of entrepreneurship. Just the characteristics and kind of the behaviours of entrepreneurs, it was really interesting to see how they communicated those behaviours and characteristics quite, quite clearly and quite consistently across most, most traders and just being able to see what they were saying and relating it to the behaviour that it was indicating. So that's a really interesting, interesting space to have analysed, I think the one on the, you know, issues that are faced by women within the trade, I think that is one where I, as a researcher, really expected to hear quite a lot of actual feedback around how potentially they're treated and how, some of the specific challenges they might face. But actually, quite a lot of them at first, when the question was asked, didn't really understand the question.

I think that was telling- even of the nature of the question, and that it potentially is not something that they engage with on an ongoing basis, and even potentially talk about on an ongoing basis. I didn't find a lot of input in relation to that. There were a few of them that had some feedback. But even their feedback was in relation to them, you know, some of them being like single women and feeling like because they're single mothers, you know, the responsibilities of the families fully fall on them, whereas in dual income homes then it becomes easier. That is how some of them interpreted the question. It was probably two or three who interpreted from a lens of the struggles that women will face as a result of other

women, men in the trade. I think that was a big reflection point for me as a researcher who was potentially expecting, and even trying to really get answers from that. That is the reflection for me as I had quite a very strong stance on that, and an expectation to really hear some of the female specific issues that they have, potentially in relation to harassment or things like that, however that didn't really come up. That is a big reflection point. For me as a researcher in terms of what I came into the research expecting to see.

The other thing that has been really surprising is the big, big focus in their responses on their independence, and the freedom and then kind of not wanting anybody to encroach on that in any way, whether it's through debt, whether it's through someone saying they're coming to help, and then trying to take over their business and things like that. They really are quite clear on what their space is, and really proud of the space that they have created for themselves and the freedom that they have as a result of it. It was really interesting to see the permutations of independence and even how independence and agency in and of themselves are just high level and the ways that they emerge. So, there's, independence in relation to fear as well, independence and freedom, independence and control, independence and self-sufficiency. All these different ways that independence starts to play out has been really interesting to see as well.

Also, the relational side of it. In some instances, I expected to see more of a relational element coming in. The way the relational side was communicated was kind of interesting, as well from this is how we do relationship, this is how they do community together. When it came to another really interesting one that was just an observation as I was listening, really listening to the interviews and re-reading the transcripts, there's a lot that comes up around the emotional state of the traders as well. how they're feeling. There is some contentment, there's some hopelessness, there's some anxiety, there's some, you know, there's a whole thing around the emotional state and wellbeing and fear that that comes in as well. I think that part is another interesting one that I didn't necessarily expect to emerge. It's just the emotional state of the trade. Then, it is really interesting about family, and how, you know, family is a big driver of what they are doing, but also how they do the business in families, as well.

I think one of the things that I do want to do, in closing this part of the analysis, is really do a high level analysis of what are some of the tensions that traders face in general, in light of all of this data, in light of all this input? What are some of the tensions that they face in their lives in relation to things that make them happy and sad things that drive them forward and hold

them back? So, what are some of those, and surfacing those from the research, and probably doing a similar exercise for the tech ecosystem as well. We'll see how that nets out and how valid that then becomes in the findings document.

### **7.1.2. Sociological lens reflection- 18 June 2021 (Post focus group)**

So I think one of the first observations, as I've been rereading these transcripts through this lens, is just my own note taking as a researcher, and I see that, you know, I was quite mechanistic, even in some of the coding that I've done. I think my explanations and comments were not deep enough, in some of the areas that weren't particularly my focus, or particularly the social lens. I was not reflecting deep enough on someone's comments. Someone would make a comment about, for example, the competition in the market, and the fact that there are a lot of women and it's very competitive. However, I wouldn't sit with that and probe deeper to ask -What is it in that place that creates competition? What is it that would make women make the same thing or sell more of the same thing? What's the deeper social fabric? What is the fear, maybe there's a safety net in people doing something that they've seen a lot of people do?

One of the reflections I've had is the fact that poverty is so demanding and the trauma that comes with it. That came from reading something that one of the ladies in Kenya spoke about that she had started a business she had nothing and she started a business with 300 shillings, that's the equivalent of \$5 and less. I think just looking at it from that lens and just sitting with it allowed me to see a little bit more than I was seeing. This is what I'm benefiting from as a researcher by even looking at my own research through the social lens is a deeper empathy and a deeper reflection and deeper insights. Even what is emerging, is so much more textured, and is adding a lot more value to my research. It's not that I'm just listening better for the sake of listening, saying I've heard this story. Rather, it is me having expended that reflection, and that pausing moment, has meant that my output, my research, my insight is, is beginning to be a lot deeper. I think that's one of the key things, even as I think about this co creative, co-learning space that we get to build between the informal system and the tech system and bringing those together. This idea of engaging the social-engaging in what is in the system, appreciating what is in the system, and bridging that gap through co creation, through vulnerability, through openness, through appreciating learning systems that exist in the informal that are not as valued valuing fringe stakeholders or fringe voices, as is referenced in the literature.

I'm already, just with my own engagement with my research and now looking at it from the sociological lens, the richness of my own research is already expanding. So there's potentially

that that is available-just by sitting deeper, what can the tech ecosystem now be able to build from this co creative co learning space, facilitated by pausing, facilitated by applying the sociological lens, facilitated by appreciating the systems that already exist in in the informal system, appreciating the human beings that exist in the system and their narratives and their journeys and how their fears play out in the system, how their hopes play out in the system, how their mechanisms of survival play out in the system, how their openness to growth plays out in the system. Just sitting deeper with the research with the sociological lens has already provided me with a much deeper texture, just in terms of analysing the data itself. I see how this might be of benefit for this co creative co learning space of connecting the informal system and the technology system.

## 7.2. Appendix 2: Summary of Seminal Literature Reviewed

Discourse	Author	Title & year	Key Issues dealt with
Social development & social innovation	Amartya Sen	The Capabilities Approach, 1989	The work of human development needing to build capabilities and freedoms of people
	Ingrid Robeyns	Collective Capabilities	Capabilities are not only for individuals. There are capabilities that are for, and can only be achieved for groups, communities and societies.
	Mills	The Sociological imagination	The experiences of individuals are always connected to a greater social system that impacts the experiences
	Emmanuel Kotongole	The Sacrifice of Africa	Societies need to address the socio-historical narratives that exist if they are to move towards growth and social wellbeing of citizens
	Kris Gutiérrez	Designing Resilient Ecologies: Social Design Experiments and a New Social Imagination, 2016	The role of a socio-cultural imagination in designing learning programmes
	Ellen Helsper	The Social Relativity of Digital Exclusion: Applying Relative Deprivation Theory to Digital Inequalities, 2017	Discusses the role of digital exclusion across contexts and the need to build stronger theories around the phenomenon.
	Julian Rappaport	Empowerment meets narrative: Listening to stories and creating settings, 1995	Discusses the intersection of empowerment theory and narrative theory.

	Warren Nilsson	Innovation As Institutional Work, 2014	Connects the fields of social innovation and institutional theory and details the ways in which both fields can learn from each other.
	Maru Mormina	Science, Technology and Innovation as Social Goods for Development: Rethinking Research Capacity Building from Sen's Capabilities Approach, 2019	Proposes the need for science and innovation development to focus on the socioeconomic and political structures that facilitate knowledge creation and expanding social or collective capabilities.
	Marien & Prodnik	Digital inclusion and user (dis)empowerment: a critical perspective, 2014	Discusses how disempowerment occurs in societies and the ways in which social exclusion limits the work of digital inclusion as a mechanism of empowerment.
	Otto Scharmer	Theory U: Addressing the Blindspot of our Time	Addresses the mechanisms for innovating by learning from environments and the transformation of and collaboration between those who are involved in innovation work.
Female entrepreneurship	Helene Ahl	Why Research on Women Entrepreneurs Needs New Directions, 2006	Outlines the need for research on female entrepreneurship to extend beyond normative questions that compare female owned businesses to male owned businesses.
	de Bruin et. al	Advancing a Framework for Coherent Research on Women's Entrepreneurship, 2007	Discusses the need to expand the research and theoretical frameworks used for female entrepreneurship.
	de Bruin et. al	A gender-aware framework for women's entrepreneurship, 2009	Proposes a need to add Motherhood and Meso/Macro environment to the 3Ms (money, market, management) that have historically been used to assess entrepreneurship.
	Smallbone et. al	Entrepreneurship in emerging market economies: Contemporary issues and perspectives, 2014	Discusses the need to evaluate entrepreneurship across more diverse contexts than mature economies, and advocates for more research entrenched in emerging economies.
	Nataschia Boeri	Challenging the Gendered Entrepreneurial Subject: Gender, Development, and the Informal Economy in India, 2018	Argues that informal entrepreneurship is not a choice women make and the romanticized, neo-liberal view of the role it plays in the wellness of women is overstated and does not represent the true reality as women's roles as mom and wife overwhelm their role as entrepreneur.

Informal economy	Martha Chen	Informality and Social Protection: Theories and Realities, 2009 The Informal Economy: Definitions, Theories and Policies, 2012	A cross sectional analysis of poverty in different countries and proposes the need for different economic policies to address the growing poor, particularly in the informal economies of the world.
	Martha Chen	The informal economy: Recent trends, future directions, 2016	Details a need to segment the different kinds of people operating in the informal economy and argues for policies that account for the different needs of the diverse people within informality.
	Sowatey et. al	Spaces of resilience, ingenuity, and entrepreneurship in informal work in Ghana, 2018	Discusses the mechanisms of strategy and structure used by women operating in open markets in Accra, Ghana. Which is a different perspective to the widely held notion that informal markets are disorganised.
	Rafael La Porta & Andrei Shleifer	The Unofficial Economy and Economic Development, 2008	Detail different views about the informal economy- the parasitic, romantic and dual views which offer distinct lenses to the study of informality and how it is regarded.
Technology Innovation	DJ Jackson	What is an Innovation Ecosystem, 2012	Argues for a closer connection to research and the economics of developing an innovation ecosystem, advocating for building stronger and more diverse relationships to facilitate ecosystem growth.
	Kate Meagher	Cannibalizing the Informal Economy: Frugal Innovation and Economic Inclusion in Africa, 2018	Discusses how frugal innovations tend to be in the interests of formal businesses, largely ignoring the needs and existing systems within informal economies
	Kentaro Toyama	From needs to aspirations in information technology for development, 2018	Proposes an approach to technology innovation for development that is focussed on people's aspirations, over a focus on needs.

## **7.3. Appendix 3: Research Protocol**

### **7.3.1. Case 1: Startup founder semi-structured interview guide**

#### *Context*

1. Please tell me a bit about yourself- where you are from etc?
2. What business do you run, and why did you start your business?

#### *Involvement in technology ecosystem*

3. How has being part of the technology ecosystem helped you in building your business?
4. What do you believe is the role of a technology ecosystem?

#### *Business priorities*

5. What challenges have you faced in building your business?
6. What is your dream and vision for your business?

#### *Mobile technology in Africa*

7. What do you believe is the role of mobile technology in Africa?
8. What role do you believe mobile technology can play in the lives of poor people in Africa?
9. What are some of the challenges in developing mobile technologies that meet people's needs?
11. Do mobile technology startups in Johannesburg work with the informal economy, and if so how?
12. What do you think could be the benefit for the startups by working with the informal sector, if so, how? If not, why?

### **7.3.2. Case 1: Startup support organisation semi structured interview guide**

#### *Context*

1. Please tell me a bit about your story and your journey?
2. What is your organisation about, and what is your role in the tech ecosystem?
3. What are characteristics of the startups that successfully build solutions in Africa?

### *Involvement in tech ecosystem*

4. What do you believe is the role of a technology ecosystem in supporting startups in Africa?

### *Business priorities*

5. What are some of the key differences between building a startup in Africa vs in the Global North? What are the nuances?
6. In your view what would an African version of tech incubation and acceleration look like? Who would be involved and what would their roles be?

### *The informal sector- opportunities and challenges*

7. In what ways have the tech incubators and accelerators you have seen succeed, tackled the challenges presented by the informal sector?
8. What is the kind of ecosystem needed for startups to develop solutions for the informal economy specifically?
9. What is the role of tech incubators and accelerators in helping startups build solutions that are relevant for the informal sector?
10. If you were to advise a green-fields entrepreneur wanting to develop a solution for the informal sector in Africa, what would you say?

## **7.3.3. Case 1: Technology ecosystem thought leader semi structured interview guide**

### *Introduction*

1. So xxx what's your story? Can you tell me a bit about your background?

### *Context and conversations*

2. What does contextual relevance mean to you, and what does it facilitate?
3. What does inclusion mean to you?
4. What has been most surprising to you in the conversations you've had since you started last year?
5. What are the conversations related to building tech in Africa that you think we aren't having enough of, and should be having?
  - a. What could be some of the reasons we aren't having those conversations enough?

### *Building tech in Africa*

6. In your view, what are some of the key differences between building a startup in Africa vs in the Global North? What are the nuances?

7. In your view what would an African version of tech incubation look like? Who would be involved and what would their roles be?

*The informal sector- opportunities and challenges*

8. What opportunities for mobile tech solutions do you see in the informal economy?
9. In what ways have the startups you have been speaking to, tackled the challenges presented by the informal sector?
10. What is the kind of ecosystem that needs to exist for startups to develop solutions for the informal economy specifically?
11. What is the role of tech incubators and accelerators in helping startups build solutions that are relevant for the informal sector?
12. If you were to advise a green-fields entrepreneur wanting to develop a solution for the informal sector in Africa, what would you say?

**7.3.4. Case 2: Female Informal Trader semi structured interview guide**

*Context*

1. Please tell me a little about yourself, where you grew up, your family life?
2. When did you start selling in the market? What are you selling? Have you always been selling xxx?
3. Why did you start selling in the market?

*The business operations*

4. What is the process of starting to sell in this market?
5. Tell me about a typical day for you from morning till evening- what activities do you do?
6. How do you get new customers? What are some of the ways you get people to choose your stall over other stalls?

*Challenges and opportunities in the informal economy*

7. What do you enjoy about running your business in the market?
8. What do you **not** enjoy about working in the market?
9. What problems do you have to solve in running your business? How do you solve them?
10. Do you work with anyone else here in the market to help each other with your businesses?
11. What kind of help would make it better or easier for you to run your business?

12. Do you think as a woman working in the market you have different problems to men who sell in the market?
13. Have you changed anything about how you run your business because of Covid-19?

*Impact of mobile technology*

15. Do you use your cell phone while you are working in the market? If so, what do you use it for? If not, why do you not use it?
16. Do you ever use your phone to help you with running your business? If so, what do you use it for?
17. Do you know of any mobile phone services, which are meant to help people with businesses like yours? Have you used any of these mobile phone services?

*Future plans and dreams*

18. What are your hopes for yourself and your business in the future?
19. What do you think you need to make those dreams come true?
20. Are there new skills you are learning to help you make those dreams come true?
21. If you were not working here in the market, what would you be doing?

#### **7.4. LIST OF TABLES & FIGURES**

Table 1: Interview schedule

Table 2: Principles of interpretive research (Klein & Myers, 1999)

Table 3: Code Book for Case study 1: Technology startups Data analysed on Atlas.ti

Table 4: Code Book for Case study 2: Female informal traders. Data analysed on Atlas.ti

Images 1: Toi Market, Ng'ong Road, Nairobi, Kenya (Photos by researcher)

Images 2: Maasai Market Junction Mall, Ng'ong Road, Nairobi, Kenya (Photos by researcher)

Images 3: Pan African Taxi Rank, Alexandra, Johannesburg, South Africa (Photos by researcher)

Images 4: Bree Taxi Rank Market, Johannesburg CBD, South Africa (Photos by researcher)

Figure 1: Interdisciplinary Conceptual Framework developed by the researcher to be used to assess the nature of the interrelationships between the fields in driving digital inclusion in the informal economies of Nairobi and Johannesburg

Figure 2: Research Methodology summarised (by researcher)

Figure 3: The Hermeneutic Cycle (Gadamer, 1976)

Figure 4: Summary of data collection and data analysis processes for the case studies across time

Figure 5: Technology startups-Code Group Relationships

Figure 6: Code group relationships for case study 2- female informal traders

Figure 7: Technology startup ecosystem Themes

Figure 8: Technology ecosystem themes and associated code groups

Figure 9: Relationship between the key Themes in the technology ecosystem case study

Figure 10: Technology ecosystem themes and associated code groups

Figure 11: Relationship between themes for female informal traders

Figure 12: Interdisciplinary Conceptual Framework developed by the researcher to be used to assess the nature of the interrelationships between the fields in driving digital inclusion in the informal economies of Nairobi and Johannesburg

Figure 13: Journey framework for learning and building towards a co-creative inclusive system (explained above)- by researcher.

Figure 14: Proposed Inclusive relational system for informal economy technology innovation in Africa (explained above) By Researcher

## **7.5. Ethical Clearance**



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19/02/2020

Graduate School of Business

University of Cape Town

REF: REC 2020/02/020

**The role of mobile technologies on sustaining informal business:  
the case of female street vendors**

We are pleased to inform you that your ethics application has been approved. Unless otherwise specified this ethical clearance is valid until 28 February 2021 .

Your clearance may be renewed upon application.

Please be aware that you need to notify the Ethics Committee immediately should any aspect of your study regarding the engagement with participants as approved in this application, change. This may include aspects such as changes to the research design, questionnaires, or choice of participants.

The ongoing ethical conduct throughout the duration of the study remains the responsibility of the principal investigator.

We wish you well for your research.

A handwritten signature in black ink, appearing to read 'Jacques Rousseau'.

2020.02.19  
16:38:35 +02'00'

Jacques Rousseau  
Commerce Research Ethics Chair  
University of Cape Town  
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## 7.6. Consent Form



### MASTER OF PHILOSOPHY IN INCLUSIVE INNOVATION

Title: **The role of mobile technologies on sustaining informal business: the case of female street vendors**

#### CONSENT TO TAKE PART IN RESEARCH

I .....

- I volunteer to participate in a research project conducted by Mbalil Ndandani as partial fulfilment of the requirements for the MPhil Degree at the Graduate School of Business.
- I have had the purpose and nature of the study explained to me and I have had the opportunity to ask questions about the study. I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.
- I understand that participation involves sharing my own experience and own opinions about the research subject, and that the views are my own and are not those of the organisation I work.
- I understand that I will not benefit directly from participating in this research.
- I agree to my interview being audio-recorded.
- I understand that all information I provide for this study will be treated confidentially.
- I understand that in any report on the results of this research my identity will remain anonymous. This will be done by changing my name and disguising any details of my interview which may reveal my identity or the identity of people I speak about.
- I understand that disguised extracts from my interview may be quoted in the dissertation, conference presentation, published papers etc.



- I understand that if I inform the researcher that myself or someone else is at risk of harm they may have to report this to the relevant authorities - they will discuss this with me first but may be required to report with or without my permission.
- I understand that signed consent forms and original audio recordings will be retained in Google Drive until the exam board confirms the results of their dissertation.
- I understand that a transcript of my interview in which all identifying information has been removed will be retained for two years from the date of the exam board.
- I understand that under freedom of information legislation I am entitled to access the information I have provided at any time while it is in storage as specified above.
- I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

Should you have any questions or concerns please contact me:

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\_\_\_\_\_  
Signed by interviewee

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signed by Student

\_\_\_\_\_  
Date

### 7.3. REFERENCES

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