

The Dynamics of Digital Entrepreneurship Ecosystem in South Africa

Nthabiseng Cele

(2393302)

Supervisor: Dr Alagbaoso Manessah

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

Johannesburg, 2022

ABSTRACT

South Africa values entrepreneurship as a key to economic growth and poverty alleviation. The rapid growth in digital technologies has led to new digitally enabled entrepreneurial opportunities. However, these digital entrepreneurial ventures do not grow in silos; they are part of an interconnected system that influences their formation and development, a digital entrepreneurship ecosystem. This study explores the dynamics of the digital entrepreneurship ecosystem (DEE) in South Africa, with an objective of exploring the micro- and macro-level factors that influence the DEE in South Africa and how these enable or hinder the DEE in South Africa. This exploratory study adopted a qualitative approach as a method with purposive sampling. Semi-structured interviews were conducted, relevant documentation collected and reviewed.

The findings revealed that at a micro-level, the availability of digital skills, entrepreneurs with leadership skills, a passion for entrepreneurship, and an entrepreneurial mindset are essentials for the success of DEE and the digital entrepreneurs in South Africa do possess the relevant skill. At a macro-level, while a few factors emerged, the findings suggest the government is the most critical factor for South African DEE to see success. It was evident that government needs to play a leading role, collaborate with the private sector to make available the required support in enabling the DEE to thrive. While the government continues to make resources available in this regard, a gap seems to exist in implementation i.e., in the way that these resources are allocated. Both the micro and macro-level factors influence the DEE.

KEY WORDS: *Digital Ecosystem (DE); Digital Entrepreneurship; Digital Entrepreneurship Ecosystem (DEE); Entrepreneurship Ecosystem*

DECLARATION

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

Name: Nthabiseng Cele

Signature:



Signed at Johannesburg

On the 25th day of February 2022

DEDICATION

To Siya, my superhero husband, who believes in me and supports me in all my aspirations. Thank you for always being my hype-man, babe. Here's to all the sacrifices you've made!

To our lovely children, my heart in human form! Neo and Jason. May you always trust in your limitless capacity to be great, and that your best is always enough!

To my parents, who has raised me with so much love, kindness, and encouraged me to be! I am unapologetically myself in every aspect because of you.

Ntate, kea leboha Mofokeng!

I LOVE YOU

ACKNOWLEDGEMENTS

First and foremost, I'd like to give Glory, Honour, and Adoration to my heavenly Father in whom my whole being is held together! Thank you, Lord!

My supervisor, Dr Manessah. Words can't describe how grateful I am for all your support, advice, encouragement, and professionalism throughout this process. Thank you, this journey was lighter with you in it!

I'm grateful to Wits Business School for affording me this opportunity and the great lecturers and SME for their contribution. MMDB class of 2021, especially my syndicate group "*the digital runners*" thank you for expanding my experience.

I'd want to express my gratitude to all the participants who generously gave of their time, expertise and insights that enriched and made the completion of this study possible.

I acknowledge the leaders in my organisation who have supported my growth journey.

My friends for being my self-appointed accountability partners and cheerleaders. I'd be remiss if I didn't thank Tumi for all her help including being my children's co-mom.

Finally, to my husband and children, thank you for sacrificing family time in favour of my personal development.

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LIST OF ACRONYMS

DE	digital entrepreneurship
DEE	digital entrepreneurship ecosystem
R&D	research and development
SA	South Africa
US	United States
ZGC	Zhongguancun

CHAPTER 1. INTRODUCTION

1.1 Purpose of the study

The purpose of this study is to explore the dynamics of the digital entrepreneurship ecosystem in South Africa.

1.2 Background of the study

Bowmaker-Falconer and Herrington (2020) argue that entrepreneurial activity will increasingly be driven by digital technologies as they hold the potential to disrupt existing market dominance and create new market and customer opportunities. It can be argued that the future referred to above is now. With the lockdown protocols throughout the world due to the COVID-19 pandemic, there has been an increasing need to sustain and continue to grow economies through digital means. While the COVID-19 pandemic has challenged the survival and growth of start-ups, it has nonetheless created digital entrepreneurship opportunities (OECD, 2020).

The concept of entrepreneurship and its importance to economic growth and development has been researched in literature (Davidson & Vaast, 2010; Kraus et al., 2018). And literature highlights the importance of digital entrepreneurship as digital technologies continue to enable the creation of new business ventures and digital start-ups (Elia et al., 2020) and reshape the traditional business strategies (Bharadwaj et al., 2013).

South Africa, home to approximately 59 million people (Statistics SA, 2020), is counted amongst the five African countries (KINGS – Kenya, Ivory Coast, Nigeria, Ghana, and South Africa) believed to be leading the rest of Africa digitally. It was also included alongside Nigeria and Kenya in the Harvard Business Review's global list of fastest-moving digital economies (Osiakwan, 2017). While it is amongst the top economies in Africa from a digital perspective, it is worth noting that on a global scale, there is still a room to grow for South Africa in its journey of developing entrepreneurship as an economic driver (Bowmaker-Falconer & Herrington, 2020), leading to a view that digital entrepreneurship may be underdeveloped.

UNCTAD (2019) states that the digital economy is dominated by two countries, namely, North America with 68% and China at 22%, the rest of the world sharing the remainder and Africa only has 1.3% share. This means South Africa, as part of Africa, is contributing to the 1.3% mentioned above. China, as one of the biggest contributors to the digital economy, embraced the internet and digital technologies as a means of developing and improving the economy. It placed value on digital entrepreneurship as a way of lifting people out of poverty (Svensson, 2021). For this reason, there may be lessons that can be learned from China in its digital entrepreneurship journey.

1.3 Research problem

Entrepreneurship is the backbone of economic growth, and the digital transformation has given rise to the digital economy driven by digital entrepreneurship. Digital entrepreneurship is regarded as a key pillar of a digital economy and is linked to continued economic growth, wealth creation, and higher standards of living (World Bank, 2018). As stated in the Digital Entrepreneurship pillar of the World Bank (2018)

in its South Africa digital assessment report, South Africa is highly ranked amongst the African countries on the digital entrepreneurship ecosystem (DEE) and there are largely positive dynamics around its digital entrepreneurship.

Ács et al. (2018), in the entrepreneurial ecosystem and global prosperity, a chapter within the Global Entrepreneurship Development Index 2018, ranked South Africa second place after Botswana in Sub-Saharan Africa and 57th place overall out of 137 countries. The World Bank (2019) *Doing Business Report*, which tracks the government policy changes, also records South Africa's improvement and ranked it 82 out of 190 countries. This reflects the effort of the government on making it easier to start, do and grow business, whether traditional or digital business.

There is a rise in the digital entrepreneurship incubators or hubs, which are meant to support the digital start-ups and the large number of connected population as more people make use of digital technologies almost daily. This makes the consumers digitally accessible. With all the above positive factors relating to the digital entrepreneurship ecosystem, there is no clear evidence of digital entrepreneurship development in South Africa.

Further to the above, a challenge remains that while digital entrepreneurship is rapidly developing globally, Africa's growth has been slower with only 1.3% contribution to the digital economy (World Bank, 2018). COVID 19 pandemic may have propelled digital entrepreneurship globally and in South Africa. Gender and age are some of the institutional dynamics within the already low digital entrepreneurship in South Africa (UNCTAD, 2019). While these are not the focus of the study, they are still worth noting. More than 50% of the South African population is female yet, according to Bowmaker

and Herrington (2020), there is a higher number of male than female entrepreneurs 1.14 (10.9 male: 9.6 female entrepreneurs) in 2019, this is an improvement from 1.45 in 2018 (Bowmaker-Falconer & Herrington, 2020) but still not reflective of the population. Whilst this refers to entrepreneurship in general as opposed to being specific to digital entrepreneurship, it may provide a view in terms of digital entrepreneurship.

It is unclear what dynamics influence participation in the digital entrepreneurship ecosystem. Given the importance of a sustainable digital entrepreneurship ecosystem in driving the growth of the digital economy coupled with the need for digital inclusion, it is important to explore the dynamics of the digital entrepreneurship ecosystem in South Africa as a building block toward a sustainable digital economy. Hence, this paper sets out to explore the dynamics that influence the digital entrepreneurship ecosystem in South Africa.

1.4 Research objectives

The objective of this study is primarily to understand the dynamic that influence the digital entrepreneurship ecosystem in South Africa:

- To explore the micro-level factors that influence the DEE in South Africa i.e., digital skills and information acquisition.
- To explore the macro-level factors that influence DEE in South Africa, this includes factors, such as entrepreneurial culture, digital marketplace, policy and regulation, digital infrastructure, institutional support.

- To explore how these micro- and macro-level factors enable or hinder the digital entrepreneurship ecosystem in South Africa.

1.5 Significance of the study

Empirical evidence illustrates entrepreneurship as a key driver of economic growth (World Bank, 2018). Beyond the importance of entrepreneurship, with the new technologies rapidly developing, the significance of digital entrepreneurship to economic growth has attracted the world's attention (Nambisan, 2017). Many governments see digital entrepreneurship as a crucial component of digital economic development. It is critical to gain a thorough understanding of digital entrepreneurship (Shen et al., 2018). This type of entrepreneurship brings together the traditional (focusing on the business aspect of entrepreneurship) and digital (focusing on digital technology).

This study contributes to the body of knowledge in the field of entrepreneurship, specifically on digital entrepreneurship as a sub-category of entrepreneurship. It explores the Digital Entrepreneurship ecosystem from a South African perspective.

The findings will guide the participants of the ecosystem, such as digital entrepreneurs, and government, especially in emerging economies with similar characteristics as South Africa in shaping a supportive policy framework in this regard. This may also benefit academics as it adds to the academic literature.

1.6 Delimitations of the study

The study is limited to the South African digital entrepreneurship ecosystem. The respondents are current participants in the digital entrepreneurship ecosystem in South Africa.

In addition, this research focuses on ways of organising to support the development and growth of the digital entrepreneurship ecosystem, without assessing the impact of the different ways on organising.

1.7 Definition of terms

The following terms have had different definitions in literature by different authors, however, for this study, these definitions were adopted:

Digital ecosystem: a sustainable and self-organising system built of diverse digital entities and their interrelationships to boost system usefulness, cooperation, and innovation (Li et al., 2017).

Digital entrepreneurship: entrepreneurial opportunities being created and pursued using technological platforms and other information communicating equipment (Antonizzi & Smuts, 2020; Davidson & Vaast, 2010).

Digital entrepreneurship ecosystem: a combination of elements within a region that supports the development and growth of innovative start-ups pursuing new opportunities presented by digital technologies (Du et al., 2018).

Entrepreneurship ecosystem: Set of entrepreneurial actors including potential customers and suppliers, universities and research centres, social and cultural operators, institutions and policymakers, large companies, innovative start-ups and entrepreneurs, experts and professionals, investors, and a pool of Talented people (Isenberg, 2010)

Meta-organisation: an organisation whose agents are themselves

Legally autonomous and not linked through employment relationships, including both organisations and individuals (Du et al., 2018).

1.8 Assumptions

This study assumes that the digital entrepreneurship ecosystem, while self-organising, may require a further level of organising to support its success.

1.9 Chapter Outline

Chapter 1 provides an overview or introduction of the study, which includes the problem statement, the significance of the study, delimitations, assumptions, and definition of terms.

Chapter 2 details the literature reviewed on digital entrepreneurship ecosystem.

Chapter 3 covers the research methodology for the study.

Chapter 4 presents the findings of the study.

Chapter 5 discusses the findings in relation to literature.

Chapter 6 concludes the study and provides the recommendations based on the findings of the study.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

The sections below present the literature review of the digital entrepreneurship ecosystem, which is the focus of this study, starting with entrepreneurship, which is a basis upon which digital entrepreneurship evolves and eventually, the digital entrepreneurship ecosystem taking into consideration developed and emerging economies.

2.2 Entrepreneurship

2.2.1 *Entrepreneurship*

Digital entrepreneurship does not exist without entrepreneurship; hence the first step is to aim to understand entrepreneurship and its potential benefits to the economy. Studies have regarded entrepreneurship as self-employment in its simplest form (Antonizzi & Smuts, 2020). This definition oversimplifies entrepreneurship and therefore excludes some important aspects in defining it. The below by definition {Elia, 2020 #92@@author-year} is perhaps wider and encompasses aspects like opportunity identification and value creation. Entrepreneurship is defined as the process whereby potential opportunities are identified and exploited, using either the existing or new resources to create value (Elia et al., 2020). This value can come through developing and/or commercialising newly created products or services. Kuratko (2011) defines it as a process that is passion-driven with an objective of

creating value by designing, developing and the implementation of new innovative solutions through vision, change, and creation as the basis of the development.

2.2.2 *Digital Entrepreneurship*

Digital entrepreneurship is a type of entrepreneurship in which some or all of the entrepreneurial activities are performed on digital media or technology (Davidson & Vaast, 2010). However, this definition portrays digital entrepreneurship as an oversimplifies concept that can be done by all as long as it is in digital media yet there is more complexity than just digital media. Sahut et al. (2019) argue that taking digital entrepreneurship as a type of entrepreneurship does not do justice to digital entrepreneurship and its complexity. Digital entrepreneurship focuses on entrepreneurship in the digital context and is believed to be more complex than conventional entrepreneurship as it requires dual mastery, demanding that the entrepreneur masters both business and the digital arena, which is difficult to attain (Antonizzi & Smuts, 2020). Davidson and Vaast (2010) argue that it is a multi-faceted phenomenon bringing together three entrepreneurship domains: knowledge, business, and institutional entrepreneurship. Business entrepreneurship is a type of entrepreneurship that focuses on the creation of new ventures/businesses. Knowledge entrepreneurship, on the one side, focuses on leveraging information or knowledge to pursue opportunities; and lastly, institutional entrepreneurship can be defined by its core activities, which are focused on leveraging existing or new resources to create new or to transform existing institutions (Li et al., 2017). These three types are not mutually exclusive, they complement each other and, according to

Davidson and Vaast (2010), some digital entrepreneurship has succeeded by combining the three types of digital entrepreneurship.

2.2.3 *Digital Entrepreneurship Ecosystem (DEE)*

Studies have highlighted the importance of the interconnectedness of entrepreneurship, arguing that the success or sustainability of entrepreneurship does not occur in silos; its success relies on both the venture and the ecosystem within which it is imagined, established and nurtured (Elia et al., 2020). There seems to be a drive from many economies (developed and emerging), government and business leaders alike, to replicate the success of Silicon Valley and other more established ecosystems, such as Boston's Route 128, and they have attempted to employ design elements for their DEEs to emerge (The Economist, 2013a as cited by Li et al. (2017)). This shows the importance of understanding the dynamics of DEEs, however, ecosystem-level studies are limited (Du et al., 2018) as the existing studies on digital innovation and digital entrepreneurship are narrowly focused on a micro-level analysis (Bharadwaj et al., 2013). The digital entrepreneurship ecosystem plays a crucial role as accelerators (Elia et al., 2020).

Du et al. (2018) define the digital entrepreneurship ecosystem as the combination of elements within a region that support the creation and nurturing of innovative start-ups pursuing new opportunities presented by digital technologies. It is regarded by Sussan and Acs (2017) as an integration of two broad ecosystems namely: digital ecosystem and entrepreneurial ecosystem. Elia et al. (2020) argue that the digital entrepreneurship ecosystem as a concept, delineates the emergence of a new entrepreneurial paradigm, with a much broader focus than just the open-source

innovation but incorporates the adoption of internet and digital technologies and leverages the innovation potential embedded in large and dispersed groups of individuals with heterogeneous backgrounds that participate in the entrepreneurial activities. The real value of the digital entrepreneurship ecosystem is in its ability to enable firms to overcome resource limitations as it is a collective and collaborative effort among both the entrepreneurial and digital species, and accelerate the creation and growth of digital start-ups (Du et al., 2018; Li et al., 2017). “Digital entrepreneurship ecosystem is an ecosystem where digital entrepreneurship emerges and develops” (Li et al., 2017), and an important construct within which digital entrepreneurship succeeds (Spigel, 2017), as it can facilitate the integration of resources to enable the venture to access resources beyond the firm level (Li et al., 2017). Elia et al. (2020) highlight that the entrepreneurial success relies on the elements of the venture and the environment or the ecosystem within which it is created and nurtured. Hence, the importance is to understand the digital entrepreneurship ecosystem.

The following illustration (Figure 1), which is adapted from Li et al. (2017), shows where the digital entrepreneurship ecosystem is located. This is what Sussan and Acs (2017) regard as the intersection between the entrepreneurship ecosystem and digital ecosystem. The bottom left quadrant is solely focused on entrepreneurship, which is a single firm level, not leveraging any digital or collectivism traits. Top left is where the focus is still just on the entrepreneurship, however this is beyond firm resources integration leading to operating in the entrepreneurship ecosystem. The right side of figure 1 focuses on the digital species, at the bottom, the focus is on single firm resources, however leveraging digital technologies and the top right is the ideal area

where collective efforts and digital species are integrated and leveraged, these beyond firm-level resources are what Sahut et al. (2019) regard as macro-level dynamics like digital technologies, policy/regulation, the digital marketplace and digital business platforms.

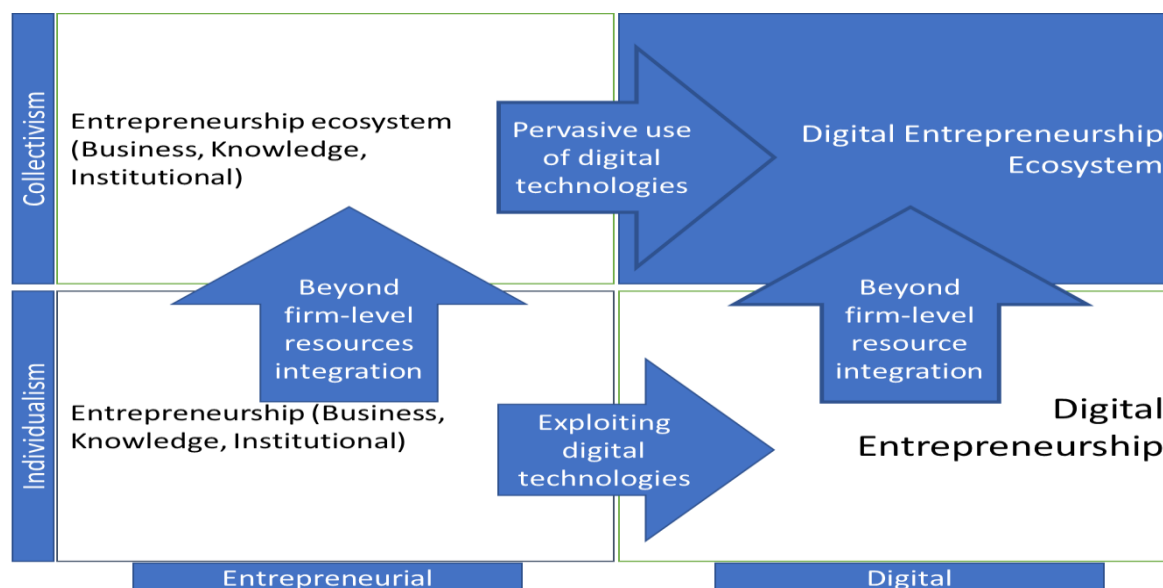


Figure 1 - Illustration of Digital Entrepreneurship Ecosystem adapted from Li et al. (2017)

DEEs are self-organising and the low level of centralisation is a key feature. However, studies have shown that some level of centralisation is deemed necessary, especially at the establishment stage of the ecosystem (Atiase et al., 2018; Du et al., 2018; Li et al., 2017). Due to its stakeholders not being bound by any formal contractual agreements, such as employment relationships or controlled by a formal hierarchy, Du et al. (2018) posit that the emergence of DEE can be viewed as a form of organising or the process of forming a meta-organisation directed by the system-level goal as opposed to the hierarchy (Ahrne & Brunsson, 2005) and this view supports the ability to influence the formation as opposed to random eruption and growth. Some authors

further argue that unlike the predecessors, such as Silicon Valley and Boston's Route 128, which are argued to have emerged organically, DEEs feature deliberate design considerations in their emergence. This provides an opportunity for an in-depth understanding of the dynamics of the digital entrepreneurship ecosystem, assessing factors that influence it as a meta-organisation and enable emerging economies to take the learnings and deliberately form successful DEEs.

Furthermore, studies suggest that the uniqueness lies in the way it organises to exploit the entrepreneurial opportunities presented by the digital technologies as opposed to specific technologies (Du et al., 2018). While digital technologies are an enabler, they are not the core focus of the DEEs. Further to this, DEEs place focus beyond a firm-level to community level or collectivism (Spigel, 2017), which highlights the importance of both the internal and external environment, tangible and intangible elements, for the success of the firm/venture. Studies attribute the successful forming of the DEE to several factors such as expertise brought by the presence of preferably entrepreneur-led large firms (Mason and Brown (2014), universities and research institutes, and an institutional environment that is conducive to the formation and growth of the DEE, not leaving out the culture.

Due to studies' view of DEE as a form of organising – meta-organisation (Du et al., 2018; Li et al., 2017), it seems beneficial to briefly discuss it below.

The concept of a meta-organisation was initially introduced by Ahrne and Brunsson (2005) with the defining characteristics as an organisation whose members are other organisations and the members are not bound by formal contractual agreement but rather by the system goal. Du and colleagues identify similar attributes, however,

structure them in alignment with the meta-organisation theory and provide the following as a framework. This model shows the two objectives of a meta-organisation – division of labour and integration of efforts (Ahrne & Brunsson, 2005), with the attributes that influence them i.e. Institutional support with factors like government, research institutes, and incumbent digital firms who would play a role and construct a common infrastructure and cultivate an entrepreneurship culture.

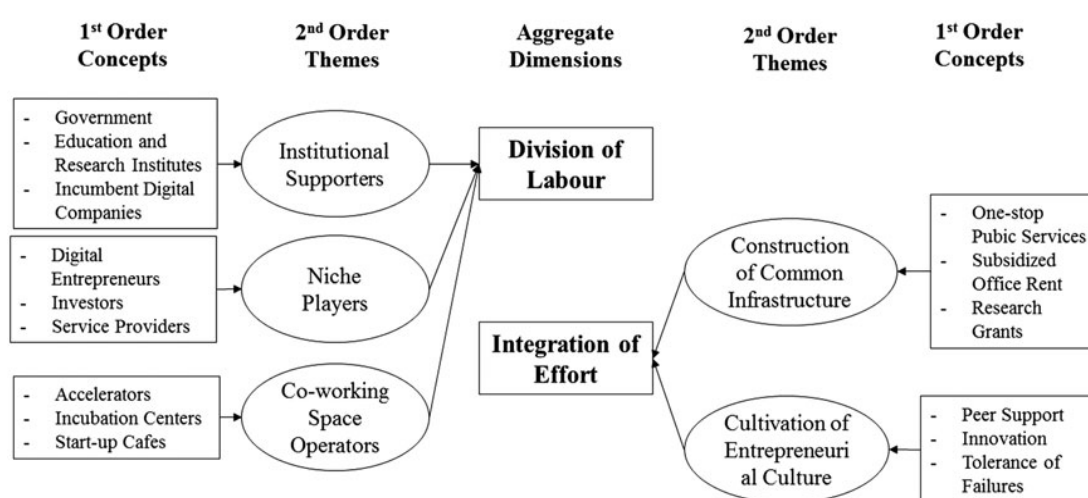


Figure 2 - Digital entrepreneurial ecosystem architecture (Du et al., 2018)

Spigel (2017) focused his study on the relational aspects of the DEE attributes and provided the following framework (Figure 3) in which the factors are categorised into three: cultural, social, and material attributes. Beneath each of the attributes lies a list of factors that are believed to influence the DEE. Through this framework, the author argues that these attributes provide either support or re-enforcement to one another. I.e. A culture that is conducive to entrepreneurship, where entrepreneurship can be regarded as a career path and there are success stories of entrepreneurship that encourage entrepreneurship and supports the social attributes /attitudes toward

entrepreneurship. This, in turn, supports the material attributes, which re-enforce the social that re-enforces the culture (see Figure 3)

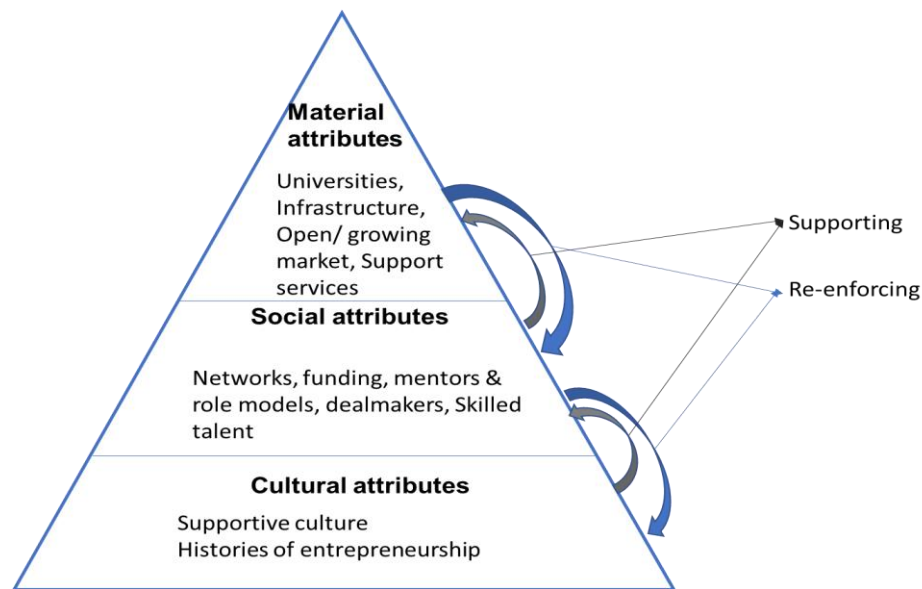


Figure 3 - Relational aspect of the DEE factors adapted from Spigel (2017)

Sahut et al. (2019) approached the digital entrepreneurship ecosystem framework using micro- and macro-level factors, defining micro-level factors as the factors that are within firm-level and macro-level as the factors beyond firm-level. This framework encompasses activities or tasks for digital value creation at the entrepreneur level starting from information generation, to consumption. In each of these stages, Sahut et al. (2019) display digital socio-technical enablers, the barriers, and the challenges faced by digital entrepreneurs with macro-level factors cutting across all the stages. This is a good reflection that the requirements differ, based on the stage of the digital venture as the challenges, barriers and enablers differ. However, no matter the stage, the macro-level factors play a part in the life of any digital venture.

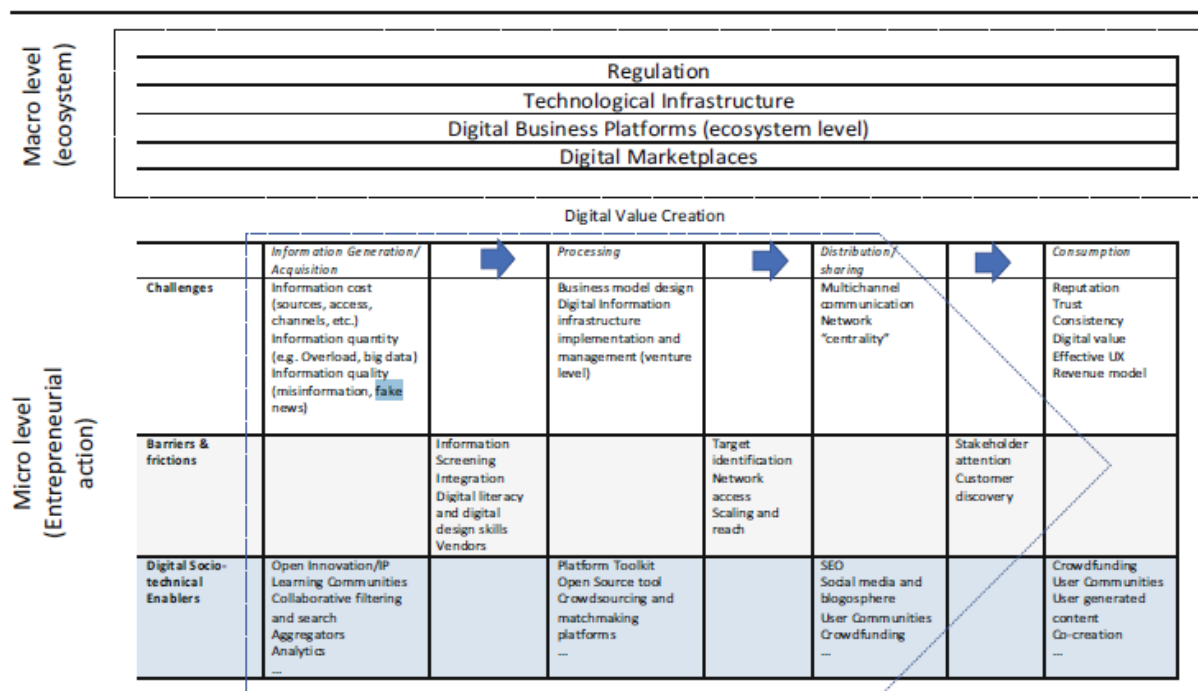


Figure 4 - DEE framework (Sahut et al., 2019)

Analysis of prior studies shows the authors' views on the factors that influence the formation and successful growth of the digital entrepreneurship ecosystem. These factors are tabulated below (Table 1).

Table 1 - Factors influencing digital entrepreneurship ecosystem

Factors influencing digital entrepreneurship ecosystem					
	(Trunina et al., 2019)	Du et al., 2018	Spigel, 2017	Mason and Brown (2014)	Sahut et al., 2019
Government & policy	X	X	X	X	X
Higher educational Institutions	X	X	X	X	X
Research & development institutions	X			X	
Large Firms (Digital companies)			X	X	
Skilled talent	X	X		X	
Entrepreneurial culture	X		X	X	
Location		X	X		
Open/growing market			X		X
Funding (investment capital)	X	X	X	X	
Support services (mentors/dealmakers)	X	X		X	
Digital & physical Infrastructure		X			X

The above frameworks have similar dynamics influencing the DEEs, suggesting these dynamics are present in the forming, developing, and nurturing of DEEs, the difference is the configuration thereof. Studies show that at its infancy stage, the ZGC ecosystem was following more of a top-down approach, whereby government was much more involved, and as it matured, a shift started to emerge where there is a more bottom-up approach (Du et al., 2018). However, this intricate balance of centralisation and decentralisation is key to ensuring that government is involved as architecture plays a catalyst role as opposed to a dictator role (Du et al., 2018). Different scholars reflect the different configurations, i.e. Spigel (2017) whose study focus was on the developed economies with two cases in Canada, the open market was highly rated; whereas the

rest of the studies highlighted the importance of a deliberate and supportive government (Du et al., 2018; Mason & Brown, 2014; Trunina et al., 2019).

This study adopts the framework by Sahut et al. (2019) in exploring the dynamics that influence the digital entrepreneurship ecosystem in South Africa for the following reasons:

- It is comprehensive, as it considers both the micro- and macro-level factors
- It considers the different stages of the digital entrepreneurship venture against the enablers, challenges, and barriers that exists at each stage.

In addition, this study integrates factors from the other frameworks that Sahut et al. (2019) do not explicitly cover, such as entrepreneurial culture (Du et al., 2018; Li et al., 2017; Spiegel, 2017; Trunina et al., 2019) and institutional support, which include the availability of universities and higher learning institutions (Du et al., 2018; Li et al., 2017; Spiegel, 2017; Trunina et al., 2019) and large digital firms (Mason & Brown, 2014). These additional factors further enrich the contextual insights into the South African DEE environment. Below is the organising framework that guides the study. It considers the micro and macro-level factors that influence the DEE in South Africa and further assesses how these factors influence the success of DEE.

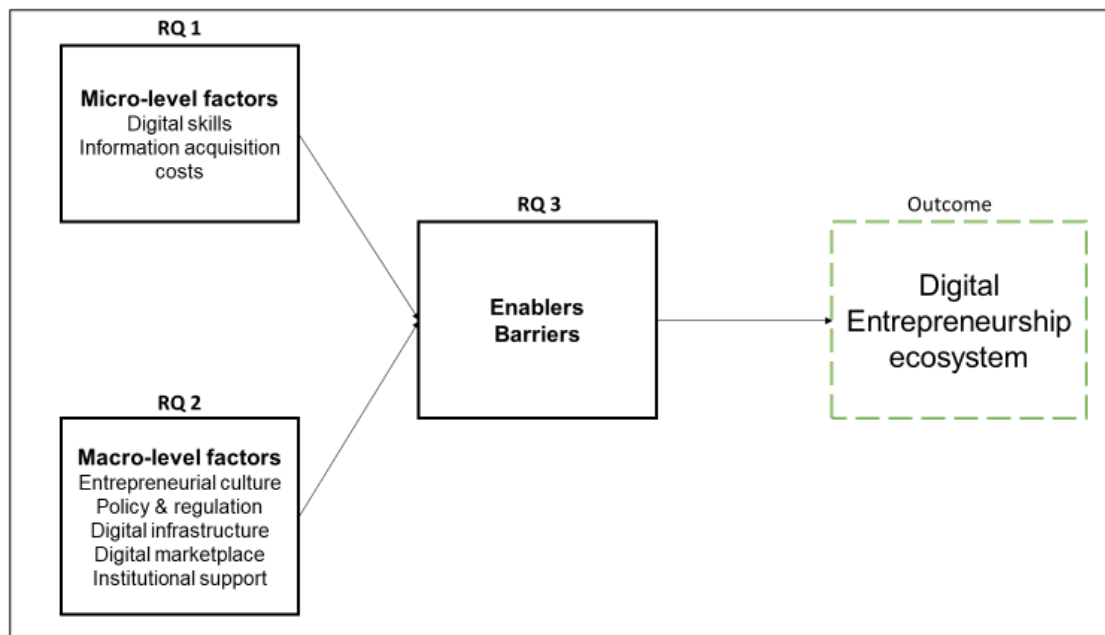


Figure 5 - Organising framework: Digital entrepreneurship ecosystem in SA

2.2.4 Digital Entrepreneurship Ecosystem in different contexts

This study explores the dynamics of the digital entrepreneurship ecosystem with a specific focus on South Africa. While South Africa is an emerging economy, reviewing the DEE both in the developed and emerging economies is deemed beneficial as learnings can be derived from both contexts. This is with the view that the formation and nurturing of DEE in a South Africa context as an emerging economy, may differ from the formation of the DEE in developed economies.

2.2.5 Digital Entrepreneurship Ecosystem (DEE) in developed economies

The mention of digital entrepreneurship or the innovation ecosystem in developed economies necessitates the inclusion of Silicon Valley and Route 128. This is due to

the impact Silicon Valley has made in this field. The US, especially Silicon Valley, has been at the forefront of digital and innovation disruption for decades (Deloitte, 2016) and its success has led to interest from governments and business leaders. Jung (2013), in his study "*can Silicon Valley be replicated*," highlights a few important elements that led to its success, namely, the government support, entrepreneurial culture, and skilled workforce.

Saxenian (1983, 1990, 1991, 1996) studies are referenced at great length in literature. The studies show that this is a self-organised ecosystem and its growth is due to the market demand. That said, Jung (2013) argues that Silicon Valley's infancy stages were sustained by the guaranteed demand which mainly came from the government through programmes such as the Apollo programme. There was a system-level goal of putting a man on the moon and the short-term wins were rewarded (Jung, 2013). This phenomenon of guaranteed demand is said to characterise the successful DEEs at their start (Jung, 2013; Spigel, 2017). However, as they mature, the demand starts to be market-driven (Spigel, 2017).

In the Canadian view, which is also a developed economy, Spigel (2017) shows the different dynamics and one challenge is worth noting. The concentration of large firms at times poses a challenge for entrepreneurship as the large corporates tend to acquire a talented and skilled workforce and therefore entrepreneurship is not pursued. However, the DEE formed in areas where certain assets existed (Mason & Brown, 2014). Both ecosystems in Spigel's study formed where there was the presence of higher education institutions and large digital firms; SMART technologies in the case of Calgary and Blackberry in the case of Waterloo (Spigel, 2017).

2.2.6 *Digital Entrepreneurship Ecosystem (DEE) in emerging economies*

From the emerging economies, China is one economy that cannot be left out of a mention on digital entrepreneurship ecosystem. Studies cover mainly three ecosystems in China: Zhongguancun (ZGC), Shenzhen, and Beijing. As previously mentioned, China is the second contributor to the digital economy, following the United States (UNCTAD, 2019). This positions China as an emerging economy from which others can draw learnings.

Studies show the importance of macro-level (Sahut et al., 2019) dynamics, especially government involvement, in the support of entrepreneurial ecosystem success. This dynamic is a key differentiator between the Chinese set-up and developed economies' DEEs, such as the US and Europe (Chen & Ogan, 2017; Du et al., 2018; Li et al., 2017). Drawing from the studies on the rise of ZGC as a DEE or its transition from being a marketplace for electronics to its current state as the DEE, Du et al. (2018); (Li et al., 2017) highlight the factors that led to its success. Likewise, (Chen & Ogan, 2017) conducted a similar study with a focus on Shenzhen. Drawing from meta-organisation theory, (Li et al., 2017) focus on how the digital entrepreneurship ecosystem organises to support digital innovations, using ZGC as a case study. They use the two main constructs of meta-organisation theory: the division of labour and integration of effort (Ahrne & Brunsson, 2005) to illustrate that a digital entrepreneurship ecosystem can be regarded as a meta-organisation. The authors present the factors that influence DEE in China, which may serve as a reference point for emerging economies. The success of the Chinese DEE is not only attributed to a single factor but a few factors working together harmoniously in support of the DEE. Cao and Shi (2021) found these three factors: resource scarcity, structural gaps, and

institutional voids to be the key differentiators between the developed and emerging economies, which suggests the emerging economies may have different requirement set-ups to successfully develop and nurture DEEs.

2.2.7 DEE in South Africa context

The digital entrepreneurship pillar by the World Bank (2018) portrays a positive outlook in the South African digital economy, driven by digital entrepreneurship. This report highlights five key findings that are of importance to building a flourishing DEE and align with the factors identified in the literature review, namely: policy, financial capital, support organisation, markets, and entrepreneurial culture and talent. AfriLabs and Briter Bridges (2020) found a primary hindrance in the African Ecosystem to be access to funding. These findings align with what literature reviewed in the Chinese context, suggesting that the environmental factors that influence the formation and nurturing of digital entrepreneurship ecosystem may indeed be similar.

South Africa is home to multiple technology hubs, approximately 78 hubs out of the 643 hubs in Africa, and it holds second place after Nigeria with 90 hubs (AfriLabs & Briter Bridges, 2020). However, some of the African ecosystem challenges include the inability to identify and share best practices due to inadequate track records coupled with the lack of success stories (AfriLabs & Briter Bridges, 2020). Though there is a reasonably large number of support organisations, only 10-15% are said to target digital entrepreneurs (World Bank, 2018). Cape Town has dominated digital innovation while Johannesburg has also been on the rise (Osiakwan, 2017).

2.3 Conclusion of Literature Review

The literature reviewed illustrated that digital entrepreneurship is influenced by beyond firm-level dynamics (see Figure 1) and digital pervasiveness (Du et al., 2018) which is still a beyond firm-level dynamic but this is worth the attention as the study is focused on the digital entrepreneurship ecosystem, not just the entrepreneurial ecosystem. It also aligns with the meta-organisation theory in that DEEs are predominantly self-organising and leveraging beyond firm-level enables the division of labour and the integration of effort (Du et al., 2018). The studies highlight the factors or attributes within these external dynamics. Amongst the factors that feature are; government's involvement, supportive institutional dynamics (presence of higher education, large pro-digital firms, research and development (R&D) institutes), support services (funding/investment capital and networks, etc.) And an entrepreneurial culture (Du et al., 2018; Mason & Brown, 2014; World Bank, 2018). These factors are consistent both from the developed and emerging economies.

The United States of America (US) leads the world in digital entrepreneurship, with mature digital entrepreneurship ecosystems, such as Silicon Valley and Route 128 (UNCTAD, 2019); followed by China, representing the emerging economies with Shenzhen (Chen & Ogan, 2017) and Zhongguancun (ZGC) (Du et al., 2018; Li et al., 2017; Trunina et al., 2019) often referenced in studies. The studies show the ecosystem level studies are limited; however, they are important for the formation and nurturing of digital entrepreneurship.

Based on the literature reviewed, the following research questions are deemed appropriate for this study:

- What are the micro-level factors that influence the digital entrepreneurship ecosystem in South Africa?
- What are the macro-level factors that influence the digital entrepreneurship ecosystem in South Africa?
- How do these micro- and macro-level factors enable or hinder the digital entrepreneurship ecosystem in South Africa?

CHAPTER 3. RESEARCH METHODOLOGY

This Chapter details the direction of this study by providing research approaches and design. It outlines the data collection methods as well as the approaches employed to interpret the data. It concludes with the ethical considerations.

3.1 Research design

Durrheim (2006) refers to research design as a plan or strategic framework that guides the study. The phenomenological research approach was adopted for this study to enable exploring the dynamics that surround the digital entrepreneurship ecosystem in South Africa. This methodology enabled the exploration of a phenomenon.

Firstly, due to the study aiming to explore a complex phenomenon (Yin, 2013) of DEE, which is embedded within the context of South African as an emerging economy, this design was the most appropriate. Secondly, the ecosystem level studies are limited and not well theorised (Du et al., 2018); this design was best suited as it may inspire new knowledge (Siggelkow, 2007) and lead to further research in this field.

3.2 Research approach

This study adopted a qualitative research approach as it best fitted the study's exploratory nature. Studies show that the qualitative approach is of great value in studies that are investigating or exploring a phenomenon as it provides rich descriptions of complex phenomena (Yin, 2013). It is also the best fit as it enabled purposive sampling (Gerring, 2017), as opposed to random sample selection, which

this study employed, through purposefully choosing the relevant participants within the digital entrepreneurship ecosystem in South Africa. One of the values for following the qualitative research approach is its focus on understanding the insider's perspective (Antwi & Hamza, 2015), which the study aimed to do.

3.3 Data collection methods

Semi-structures interviews with the participants in the digital entrepreneurship ecosystem in South Africa was the primary method of data collection.

Due to the benefits that may be extracted from using multiple sources of data, the industry documentation was also included, and participants were observed during the fieldwork and in this way, the three sources were complementary to each other and the benefit of triangulating multiple sources helped in improving reliability (Tellis, 1997). Table 2 reflects the strengths and weaknesses of each source, according to Yin (1994).

Table 2 - Strengths and weaknesses of the sources of data (Yin, 1994)

Source of evidence	Strength	Weaknesses
Documentation	- stable - repeated review - unobtrusive - exist before case study - exact - names etc. - broad coverage – an extended period	- retrievability - difficult - biased selectivity - reporting bias - reflects author bias - access - may be blocked
Archival Records	- Same as above - precise and quantitative	- Same as above - privacy might inhibit access
Interviews	- targeted - focuses on a case study topic - insightful - provides perceived causal inferences	- bias due to poor questions - response bias - incomplete recollection - reflexivity - interviewee expresses what interviewer wants to hear
Direct Observation	- reality - covers events in real-time - contextual - covers event context	- time-consuming - selectivity - might miss facts - reflexivity - observer's presence might cause change - cost - observers need time
Participant Observation	- Same as above - insightful into interpersonal behaviour	- Same as above - bias due to the investigator's actions
Physical Artifacts	- insightful into cultural features - insightful into technical operations	- selectivity - availability

3.4 Population and sample

3.4.1 *Population*

The population for this study was the digital entrepreneurs, other players such as investors and subject matter experts in the South African digital entrepreneurship ecosystem. This includes the participants in different roles, both the digital entrepreneurs and the subject matter experts.

3.4.2 *Sample and sampling method*

Purposive sampling was adopted for this study and it allowed for a selection of participants that best fit the objective of the study. 13 participants formed the sample of this study. This sample consisted of a variety of role players, such as digital entrepreneurs and subject matter experts in digital entrepreneurship in South Africa who were interviewed.

3.5 The research instruments

Due to the exploratory nature of this study, semi-structured interviews either through face-to-face or online tools (Microsoft Teams or Zoom) were conducted with the participants, allowing the participants to share their experiences, views, and learnings that had relevance to the study.

An interview guide, a copy of which has been provided in Appendix C was used as an instrument for this study, supported by the relevant industry documents that was collected and used to enrich the study and observation during the fieldwork.

3.6 Procedure for data collection

The participants were identified through the current digital entrepreneurship ecosystem using publicly available databases i.e. LinkedIn, Standard Bank Top Women Awards and some participants provided referrals as well. The identified participants were engaged directly, either telephonically or via email requesting their participation. Once each participant had agreed to participate, appointments were scheduled at a convenient time and the following documents were shared:

- **The consent form** for the participants to sign prior to the engagement
- **An interview guide** to enable the participant to acquaint themselves with the content prior to the discussion.

The majority of the interviews were conducted online using Microsoft Teams, and only two interviews were conducted face-to-face. All the interviews were recorded and transcribed using Microsoft Teams or Otter.ai.

Documents were collected from the participants and in some cases, through the relevant websites, and the observations were made as the interviews were conducted during the fieldwork. Two incubation hubs based in Gauteng were also visited for observation purpose (one in a suburban area and the other in a township).

3.7 Data analysis and interpretation

Atlas.ti version 9 qualitative software was utilised to code and analyse the interview transcripts and ensure accuracy of data, and this was done following the interviews.

The interview recordings were transcribed and organised into files before data analysis began.

The process that was followed in data analysis and interpretation is detailed below:

In addition, the accuracy of the information contained transcripts was validated by the participants before the commencement of data analysis.

- **Organising and preparing data for analysis:** the data was organised into the different files, i.e. Digital entrepreneurs, and subject matter experts, face-to-face vs online interviews.
- **Reading through the collected data:** the data was read through to ensure familiarisation and understanding of the feedback that was provided by the participants and initial codes established.
- **Themes:** main themes were then established as they emerged from the data and categorised accordingly, and they were further reviewed and refined through continuous analysis and as more understanding of the data was gained.
- **Interpretation:** the interpretation was determined by the understanding of the text and context.

3.8 Limitations of the study

- Due to COVID protocols, there was limited observation as many sites did not allowed guests on their premises.
- It was not possible to capture all the activities and engage with all the participants within the DEE.
- The collection of data was primarily done through online meetings which may have limited the observations. In a few cases, due to connectivity challenges, the video functionality had to be switched off.

3.9 Transferability and dependability

3.9.1 *Transferability*

Anney (2014) identifies a clear description of context and purposive sampling as the criteria for transferability. In this study, the context is clearly described as the South African digital entrepreneurship ecosystem. Further to that, purposive sampling was used in executing this study. Whilst, these two criteria are somewhat met, the study may not be fully transferable as the context of each emerging market may differ in some ways from that of South Africa.

3.9.2 *Credibility*

Credibility refers to the extent to which the findings can be trusted (Tracy, 2010). The credibility of this study was improved by the adoption of multiple sources of data to explore the dynamics of DEE in South Africa, namely, interviews, industry

documentation, and observation; coupled with the literature review on the subject. Secondly, the study was guided by the principles provided by the research committee and the supervisor's guidance to maintain credibility throughout the study.

3.9.3 *Dependability*

According to Morse (2015), dependability is attained through credibility, and dependability is determined by the stability of the findings over time, which includes the interpretation and study recommendations. In this study, an audit trail was kept, which included the recordings, transcripts, and recorded observations.

3.9.4 *Demographic profile of respondents*

The study aimed to engage with the fair representation of the DEE in South Africa, considering gender, age, race, and potential educational background.

3.9.5 *Ethical considerations*

Ethical considerations ensure both researcher and participants are protected, and they serve as guidelines for how the study is conducted. Ethics are important and this study was conducted in consideration of all important ethical matters, from personal information protection, treating the participants fairly, respectfully, and professionally to maintaining the highest levels of transparency and honesty. The field work only commenced after the necessary ethical clearance were obtained from the university and the relevant consent was obtained from the participants. Where organisations were involved, the relevant sign-off was obtain prior to engaging with participants.

CHAPTER 4. PRESENTATION OF FINDINGS

4.1 Introduction

The previous chapter provided an outline of the research methodology that has been adopted for this study as well as the ethical considerations. In this chapter, findings are presented in a form of direct quotations from the participants and tabular form where necessary.

Thirteen participants were interviewed using the semi-structured interview guide. The Interview guide was provided to the participants prior to the interview to enable the participants to peruse and prepare for the interview. All interviews were recorded using MS Teams and the transcription was done using the MS Team and Otter.AI transcription software. This chapter starts with an overview of the participants' profile, followed by presentation of the findings relating to research question 1 and 2 respectively, concluding with the summary of the findings.

4.2 Participants

A total of 13 participants took part in this study, made up of nine experienced and skilled digital entrepreneurs and the four subject matter experts from government and large firms. Below is a tabular view of the participants' profile. The following table shows four subject matter experts and nine digital entrepreneurs. This is because one of the participants is a SME, however he also has built and run digital entrepreneurship

ventures. All the participants have corporate experience except one who pursued entrepreneurship upon obtaining her tertiary qualification.

Table 3 - Participants' profile

Participant	Gender	Digital entrepreneur	Subject Matter expert	<5 years' experience in digital entrepreneurship	>5 years' experience in digital entrepreneurship	Corporate experience
1	Female		1		1	1
2	Male		1			1
3	Female		1		1	1
4	Male		1			1
5	Male	1	1		1	1
6	Female	1		1		1
7	Male	1			1	1
8	Male	1			1	1
9	Male	1			1	1
10	Male	1			1	1
11	Male	1			1	1
12	Male	1			1	1
13	Female	1			1	
		9	5	1	10	12

4.3 Findings related to research question 1

Research question 1: What are the micro-factors that influence digital entrepreneurship ecosystem in South Africa?

The research question 1 set out to discover what the micro-factors are that are influencing the digital entrepreneurship ecosystem in South Africa. The themes that emerged from data were as follows:

- Digital skills
- Leadership and Passion
- Entrepreneurial mindset

4.3.1 Digital Skills

Whilst the participants mentioned the need for affiliation with digital technologies, the general view here was digital skills in isolation do not make one a successful digital entrepreneur. However, these augment digital entrepreneurs in the digital era when overlayed with the core or foundational entrepreneurial skills, such as leadership, networking, resilience, and more importantly, an entrepreneurial mindset (ability to identify and solve problems). The following are some of the comments from the participants regarding digital skills

“I think, is a combination of having both business acumen, also some technology affinity.” (Participant 7 10:28)

“There are many complex semantics that are in the space. When you're taking your business digital, you're no longer going on people's faces to beg for their support, you're not relying on relatives to spread the word you're selling to strangers, you need to be able to earn their trust, you need to establish a brand, a trusted brand is a popular brand. And now you need to even tap into social media to be able to get as many people as you need. So this is where the Tech speaks on your behalf. So then you would need the digital skills to be able to create something that is vibrant or appealing enough for your audience.” (Participant 3 12:8)

“The technology is changing as well. For instance, building a website used to be difficult back in the days, today it's not difficult, anyone can have a website, very easy, so it just means that also the barriers to entry become low. That's why you need to make sure you keep at it in terms of the technology, continuously refining your skills. Know the new digital technologies that are out there that are solving problems that could help progress your business.” (Participant 10 15:3)

4.3.2 Leadership and passion

Leadership and passion were highly regarded as enablers for digital entrepreneurship ecosystem at a micro-level and the following are participants' views on the need for leadership and passion.

"I think leadership is certainly one of them. And you don't have to be blessed or endowed with years and years of experience. But I think a leadership management capability to inspire and guide people and to work to certain outputs and objectives is critically important. So, leadership, I think is fundamental as far as skills are concerned. Secondly, I think is to have a passion or a vision that effectively drives that particular leadership objective to achieve a particular outcome and objective." (Participant 7 10:1)

Participant 10 shares a similar view on leadership as shown below:

"Just like any company, I think leadership skills are critical" (Participant 10 15:1)

Participant 4 highlights the need to be passionate for what one does and ensuring that the problem being solved connects to the entrepreneur as this creates staying power.

"What's important to be a successful entrepreneur is a passion for what you're trying to solve for, you need to be very passionate, you need to be very involved, you need to have knowledge in the space that you're trying to solve."

And I think it needs to connect to you as an entrepreneur. When you start a business or you have an idea, it's about something that connects to you. So, most of the successful entrepreneurs out there, are solving for a challenge that they've experienced, or they have knowledge into the pain points on the problem.” (Participant 4 17:1)

Participant 3 echoes similar views as the above comments with the ability to lead. However, the participant calls this entrepreneurial acumen as she couples the ability to lead with resilience and ability to claim one space in the marketplace.

“..the entrepreneurial acumen comes in, the ability to lead a small team, but also the ability to be able to fight for your space in the marketplace, no one can teach you that, you have to have skin in the game for that, you have to do it the hard way and develop thick skin and experience that affirms you that you can survive all the challenges that are in the marketplace.” (Participant 3 12:6)

Participant 13 noted that the landscape is ever changing, and it is noisy. Knowing the value one brings to the market and the ability to establish a brand is important. This supports the above view by participant 3. Branding seem to be one way to assist entrepreneurs to build their online presence and claim their space in the marketplace. She noted digital skills are important, however, an entrepreneur can always hire for those.

“It’s an ever-changing landscape, right? So, your value becomes, in what you can offer that other people can’t in the way that you offer. I feel like a lot

of people would focus on: you need to know how to code and stuff, But I don't think those are the skills you need because you can hire someone to do that. Yeah, read up and understand so that people don't like scam you or like give you stuff that doesn't make any sense because you need to know how to navigate through those platforms. But I think you must have a very specific value that you offer the market. I think personal branding is becoming incredibly important in the market, I don't think you can win on such a noisy landscape or in such a noisy density without having brand.” (Participant 13 19:1)

4.3.3 Entrepreneurial Mindset

Beyond the skills, the participants mentioned the importance of an entrepreneurial mindset as a behavioural trait that supports the success of digital entrepreneurs.

“When you talk about entrepreneurship, you're talking about the ability to solve problems beyond the skill that you have learned so if you are engineer it does not necessarily mean that engineering as a skill set allows you to solve business problems right? You need a different mindset to be able to do that.” (Participant 9 14:1)

The same participant continued to note:

“Having worked with so many entrepreneurs you get to realise that mindset is one of the biggest enabler or hindrance that could exist.” (Participant 9 14:6)

Participant 1 echoes the above assertion by participant 9 and adds the geographical aspects and impact, noting that entrepreneurs who are pushed into entrepreneurship by circumstances such as unemployment have a different mindset to those that choose entrepreneurship.

“No, it's the mindset. And I'll tell you, let me backtrack a bit. I've worked in a suburban area where we've got entrepreneurs in affluent suburbs and entrepreneurs across the colour line. So, I've worked with different people, where you get white entrepreneurs in the suburban areas and black in the suburban area. And then I've worked in a rural, deep rural area in Limpopo, where there is no infrastructure to speak of. And now I'm in the township. So, then you realise the dynamics and you also realise the mindset that is also different towards entrepreneurship. I'll tell you why this is: it speaks to the skills as well the attitude towards entrepreneurship and how it's perceived by these different groupings. Most entrepreneurs, be it digital or otherwise, who are pushed to entrepreneurship, don't seem fully driven to succeed. Yes, they just need to put food on the table. You find that they're pushed by circumstances, even beyond them and you find that those that have the pulling factors, those drawn to entrepreneurship. Entrepreneurship is more like second nature, whatever tools they have, they use efficiently and it's just seamless.”
(Participant 1 1:1)

The geographical differences seem to have some effect on the success of digital entrepreneurship as some areas seem to have more exposure than others.

“if you're coming from a township, and you have a great idea, yeah, it's very difficult for you to visualise how that looks, technology in a tech space if you don't have access to technology, and you don't have access to what people are doing with platforms, and with software, and all of that, it's difficult to try to translate your idea into a business.” (Participant 4 17:9)

4.4 Findings related to research question 2

Research question 2: What are the macro-level factors that influence digital entrepreneurship ecosystem in South Africa?

The second research question focused on the macro-level factors that influence the digital entrepreneurship ecosystem in South Africa, the following are the themes that emerged from data analysis:

- Entrepreneurial culture
- Government
- Digital infrastructure
- Institutional supporters
 - Educational institutions

- Incubators
- Large firms

4.4.1 Entrepreneurial culture

There were some views amongst the participants that the entrepreneurial culture, digital or otherwise, is still in its very infancy stage. South Africa has largely been a job seeker market, as opposed to job creation through entrepreneurship.

“I think we're very much at an adolescent stage, even in entrepreneurship in general, let alone digital entrepreneurship. You know, there're many times where you're engaging on, it'd probably be easier to be a business that's manufacturing toilet paper than a business that's building software as a service, for example.” (Participant 8 13:11)

He further added saying, from the client readiness perspective:

“very much in its infancy, customers aren't used to doing digital, I think we're still getting used to ordering groceries online, ordering food online, let alone all these kinds of services that are available to us.” (Participant 8 13:12)

Participant 7 had a similar view as the above participant. With a view that while the culture is still at its developmental stage, there are positive areas that show that it can grow to be a force to be reckoned with.

“I think it's pretty nice and very young at this stage, but I think there are certainly signs that it could be a force to be reckoned with. If we get away from all the corruption and nepotism, the cronyism that we're reading about in the papers on day-to-day businesses, I think entrepreneurs will flourish in this country. So I think certainly from just the network of people that I know, that are trying to play and compete in the space, these are very flourishing, very encouraging sort of entrepreneurs in spirit, youthful approach in business, to get things done, and moving forward in the country.” (Participant 7 10:16)

Participant 3 noted that the culture of digital entrepreneurship is still in its infancy due to lack of exposure in some instances, therefore still recognising businesses that are no longer sustainable and do not lead to the growth possible in digital entrepreneurship. This comment also aligns with the view mentioned above on the digital skills and exposure on the geographic dynamics:

“A larger proportion of our youth are still stuck on the traditional ways of making money as our parents did. Because some didn't go to school enough to be exposed to taking advantage of the digital economy.” (Participant 3 12:10)

The participants also noted the difference in the culture based on background, with those who are previously disadvantaged being behind with regard to seeing digital entrepreneurship as an opportunity:

“There is a basic disconnect between the bright sparks, the empowered and enabled entrepreneurs, and the marginalised ones. In historically disadvantaged communities, there's still a gap. But talking about now as South Africa as a whole, where we have sound digital culture, where you can find those bright looking guys talking to investors coming from Cape Town, Limpopo or Johannesburg, but our Tech ecosystem is highly congested in Cape Town for some reason. What needs to be driven is an innovation culture in the country, more than a digital culture as the digital culture is there. It needs to be supported through connectivity.” (Participant 3 12:27)

“It's very intrinsic with suburban, because it's coming from the inside, entrepreneurship seem to be something that is given as an option for one to take. So, it becomes an option even throughout their studying, be it from high school or secondary level. So, they're constantly told there is an option of going onto entrepreneurship, as opposed to looking for work. So already when they have that mindset. Within the black communities, when we look at entrepreneurship, obviously we look at spaza shop, we look at, you know, all of these informal sectors, but it's not something that is taken seriously and that we could look into people venturing into and becoming successful at it. So, there are pushing factors such as poverty in general.” (Participant 1 1:4)

The above participant goes on to suggest that the focus area to start influencing a positive entrepreneurial culture is at school and is supported by participant 7 on the importance on influencing culture at a school level.

“The culture of entrepreneurship in South Africa and in South African schools is not cultivated. We need to start there, see if we do not do that to and we start there, then we are doomed, then government is going to try and have all of these policies and try to come up with all of these programmes on entrepreneurship, and they're not going to work because who are you making these programmes for? If we start cultivating the culture of entrepreneurship from a very early stage, and this we have seen, like your SEDAs and even innovation hub to a certain degree doing where they have schools programmes, where they go there, they target, maybe the learners from grade 10, up to grade 12. And they start having school programmes and teaching them about entrepreneurship, doing business model canvas, lean manufacturing, and just showing them what options are there for them post school.” (Participant 1 1:6)

“I think the culture can be enhanced by creating entrepreneurship type models and businesses, it must be enabled by legislation. And I said, I think we need to start not only at the university level, we are at the moment, but then needs to start at a school level as well. If I have the decision, I think we

need to have entrepreneurship as a subject at a school level, particularly even at secondary school, before you even get into university.” (Participant 7 10:19)

Participant 2 notes the growing appreciation for digital entrepreneurship.

“Um, I think there is a growing appreciation of digital entrepreneurship. And many people want to get into it. But also, I think there are still some limitations in terms of what one can be able to do, because the next level really is going beyond just IT to perhaps 4IR type of applications.” (Participant 2 5:7)

4.4.2 Government

Government, as part of the macro-factors, was seen by the participants as a crucial enabler. Firstly, from resource allocation, secondly, through crafting legislation and regulatory framework that is supportive and induces digital entrepreneurship, and thirdly, ensuring the successful implementation of the programmes by playing an integrator role between all the player in the digital entrepreneurship ecosystem, as well as creating access to markets through either procuring the services or putting in place measures that encourage large firms to use the digital entrepreneurs, thereby providing access to market.

“Government's role is to protect the interests of business, consumers citizens, and make sure that they are not abused, or taken advantage of in

the marketplace. And that's what government needs to do.” (Participant 7 10:6)

From the resource allocation perspective, the participants gave the following views, which mainly align in that government does make the resources available. There were some positive sentiments on government making the resources available, such as participants 1, 8 and 3:

“By just making resources available. Most definitely, which I think I should just give credit to them. I mean, they have opened up quite a few hubs, which, really, in terms of infrastructure, digital, digitalisation, they are on par. I mean, now they even opening up hubs that are very specific, even into gaming, for instance, you know, that will look on to entrepreneurs in the gaming space. So just making the resources available. I think that's the one of the not be a stumbling block. Okay. There's so much red tape.” (Participant 1 1:10)

The same participant notes that while the government does provide the resources, the effectiveness of the same can be interrogated further.

“Most definitely, in terms of the resources it's trying whether they're effective or not, is a totally different story. We'll deal with that later. So, let's just say for now that the resources are there.” (Participant 1 1:8)

Participant 8 shares similar sentiments in that indeed there are positives in as far as the government's involvement in the digital entrepreneurship ecosystem is concerned.

He notes that their funding support at the start of their venture was made possible by the supportive legislation:

“Our first R500,000 in funding came from a grant fund from one of the organisations, which would be the reason that they were doing that was due to a corporate equity covalent programme that spearheaded by the government that is similar to BEE. Those things help because now you had a corporate looking to invest in technology start-ups because government said, this is important.” (Participant 8 13:6)

Participant 3 acknowledges government for its effort to enable the digital entrepreneurship ecosystem. The gap appears to be on the effectiveness of the work that government is doing as there is no monitoring and assessment to ensure effectiveness or that learnings are taken into the next projects.

“The government does a lot. Now, I’m not just a cheerleader. The problem is the lack of co-ordination of things. If you go to any government website, you are bound to find a programme that supports digital entrepreneurship. You’ve got how many SEDAs? If you investigate all these SEDAs that are here, and the training authorities you’d find that a big chunk of their budget is allocated to digital transformation. Yes, they are very much aware that the economy has gone digital and if you’re not part of that, you will lose more than make more money. However, the administrative approach of tick boxes still hinders a lot of development in this country.” (Participant 3 12:16)

Contrary to the above, participant 7 does not believe government is doing enough to support his domain in the digital business:

“Let me just focus in the fintech domain specifically. And this this has been my experience, certainly over the last two, three years, and even engaging with authorities like the financial sector Conduct Authority, like the South African Reserve Bank, etc. At the moment, the in terms of entrepreneurs, particularly in the fintech space, I don't think government is doing sufficiently enough to enable fintech entrepreneurs to compete and operate both in South Africa and on a global scale right now, what is happening is that they trying to fit a square peg into a round hole. What I mean by that is that fintech players like ourselves, who've come up with some innovative ways of delivering financial solutions to the marketplace, they wanted to fit us into the framework of traditional financial institutions.” (Participant 7 10:8)

There were also views amongst the participants, that whilst government seem to be trying, there seem to be a gap between what is done or intended and the outcome of same:

“A big hurdle for many government programmes is measurement. Because when that is done, there isn't a monitoring and evaluation session that says, what has come out of that programme. And how are these people making use of the skills that they've learned from that programme, the digital skills

that they've learned from that programme to actually become digital entrepreneurs.” (Participant 3 12:13)

Participant 13 brought forth the view that the gap is due to a leadership problem. The people in government offices who are trusted with the mandates are not implementing the well-intended policies in a way they are meant to be implemented to bring positive impact.

“I think we live in a country where we have a leadership problem. Because of that, a lot of policies, while they are well meaning are superficial, because the effects of those policies never reach the people. We create and write beautiful things; we have good intention. But it's not implemented well, because of the leadership issues that we have in our country. And so once again, it's the people who are supposed to implement and are supposed to be in charge that are a problem, not because they have a malicious vendetta or whatever. But literally, because some of them are not qualified to do, and they don't understand. And that's dangerous. Because if you have people like that, then nothing can help. And whenever they have to impact spaces, they bring people like them in the spaces, which means they're just expanding the gap of no value.” (Participant 13 19:4)

“What we can improve on also is monitoring the impact, we keep on doing these things, yet the success is not well defined and monitored.” (Participant 1 1:13)

“I think for digital, it's always hard, because digital is always ahead. Right? A lot of people expect that the government will play a key role. But to be fair, even in developed countries, it's always hard for government to catch up with all the things that are coming from the digital platforms you cannot just expect the government to sort of like, be in the forefront.” (Participant 10 15:7)

4.4.3 Digital infrastructure

There was a general view by the participants that connectivity is crucial from an infrastructure perspective as digital entrepreneurship is highly dependent on connected communities or suppliers and consumers making reference to the importance of spectrum allocation in order to enable affordable and reliable connectivity.

“The ability for digital economy to thrive is highly dependent on the quality connectivity.” (Participant 9 14:15)

“The key thing would be connectivity; we need to get as many people as connected as possible. And somebody needs to be able to subsidise that community, and somebody needs to be able to make money out of that connectivity. Somebody needs to be able to partner with young entrants, to make sure that they diffuse connectivity as our daily bread, we need to get to a fair level of us being like a developed economy, if we want to be a

powerful country, we need to be connected as much as possible. We cannot have the rendition of a song around Africa is not connected, for the longest of days, all those UN sdgs that we preach about in when we're wearing suits needs to become a reality. Because connectivity has become more of a human right, next to water and all these other human rights like peace and everything. It's no longer a luxury so infrastructure has to serve people's needs.” (Participant 3 12:29)

“Broadband access. So, we need to have cheap, reliable, and fast broadband access, not the sort of the service disruption that you were talking about early on as well. So, we need to have real time, broadband infrastructure and very cost-effective broadband infrastructure in South Africa.” (Participant 7 10:29)

“What I think none of us can say cheaper data enough. We are probably one of the most expensive data providers in the world. And without having access to data and affordability of data. It's basically a nonstarter for any one of our businesses, at the end of the day, because you need people playing with technology.” (Participant 8 13:16)

There was a general view that government opening the spectrum access may have a positive influence on the cost of data which in turn, leads to affordable cost of attaining information and growing a thriving digital entrepreneurship ecosystem.

“Government freeing up the spectrum is an issue because if government was to free up more spectrum, or make spectrum available, then it could actually drop in the cost of, of data, in essence, so as I think government policy can be an enabler and it should be an enabler and governments should be able to figure out how do you actually make spectrum available.” (Participant 2 5:5)

“The issue of spectrum - we speak about it all the time and that is one thing that needs to be resolved as quickly as possible. I think Internet is a basic need for everyone. It's just like water and electricity, everybody should have access to unlimited internet.” (Participant 10 15:19)

“If they can get the spectrum resolved, it decreases the data costs. It gives a far greater geographical reach, and that will allow citizens to become part of the Fourth Industrial Revolution or the digital intrapreneurship.” (Participant 5 6:5)

Participant 12 focuses on the need for the infrastructure to be built in a way that enables all in the economy to access, noting that the townships should be a focus area

as that is where the majority of the people are. In this way, all may have the similar opportunities. This will also support the entrepreneurs in that they do not have to have offices to accommodate the employees, but employees can support the business from anywhere.

“So fibre, Let's talk about fibre, put fibre in township spaces. If you are saying that you're creating hubs, put hubs in townships, because people must travel from Soweto to come to Braamfontein on a daily basis, some people are traveling very far to come to access these resources. So, these things are not accessible. Government must create an environment that will speak to digital, where people are, it ought to go to the people, I think that's the most important thing on the point of fibre. Considering the largest populations are in townships, if townships are solved for adequately, most people can have access to good internet, we can grow the economy. We can solve unemployment, because people can start working from home, we can start having call centres, because there's a lot of jobs. I mean, if you look at what Amazon is trying to do, it's hiring a lot of South Africans, and most of them are just customer service people. Because in South Africa, we don't have that infrastructure. You can only find it in suburbs. That's why people in the suburbs get the jobs and opportunities but these other people are just left behind. And you can imagine as entrepreneurs, we can, we can literally run e-commerce stores, I don't need people at the office, I just need people to

process payments, call people and just do your thing. But if you don't have that you have to come to an office.” (Participant 12 18:9)

Whilst there was the above view of the digital infrastructure that is needed, there was a further view that there is good progress in as far as connectivity is concerned:

“Many areas, like Soweto for instance have fibre, my brother's also in that space, Cosmo City, they've got fibre now, so there's numerous examples of townships that now I've got fibre or even where I come from most of the town there now have fibre, so that's, that is encouraging. So, we are somehow moving in the right direction.” (Participant 10 15:22)

4.4.4 Institutional supporters

On institutional supporters, education institutions, incubators and large firms were the themes that emerged from this study.

Educational Institutions

Participants saw universities as an important institutional support by being the knowledge hub, playing an important role of producing ready to market entrepreneurs

as opposed to graduates who only have the theoretical aspects upon completing their qualifications

“...universities are our knowledge engines, ...” (Participant 3 12:1)

“The first one is obviously one of education and training. The second one is perhaps research. The third one is probably more around support and enabling because they've got access to certain infrastructure, which entrepreneurs generally would require. And, there's a role that they play, particularly from a policy point of view in terms of policy development, particularly the universities.” (Participant 2 5:9)

“I think universities have got a fundamental role to play, I think, really at two levels, one from an instructional point of view. The concepts of entrepreneurship, both on an academic best practice, theoretical standpoint, I think, certainly needs to be bolted into the curriculum. And if anything, I'd like to see entrepreneurship built into all disciplines, you know, across universities at this point in time.” (Participant 7 10:22)

There was also the importance of entrepreneurship being included in the curriculum at universities and ensuring that the graduates they produce are well equipped to be entrepreneurs.

“I think it's very important for universities not to produce students just for the sake of doing so to meet certain scores or getting grants or funding from government. But they should be enabled as individuals that when they walk out of the doors and graduate that they should be able to actually start their own businesses.” (Participant 7 10:23)

“The students also need to be able to do certain things, for instance, if you're doing software development, I expect you to be able to when you graduate, you should be able to do basics, like build an app, and you should have done that at university, build a website, where I can do stuff. But in South Africa there're a lot of people who end up not knowing how to do those things.” (Participant 10 15:24)

He continues to say it is important for the higher education institutions to partner with corporates to enhance the curriculum and bring more relevance.

“So the higher education could help in identifying companies that are playing in that space and actually finding a way to say how do we blend or lend the right things, so we can incorporate these things into our curriculum, that is absolutely critical for higher institutions to start doing that.” (Participant 10 15:27)

Incubators

There was a general sense of understanding amongst the participants that incubation hubs can be a great institutional support for digital entrepreneurs, thereby playing a crucial part in the digital entrepreneurship ecosystem. However, there was also a view that the current way that the incubators are set-up or run has some inefficiencies. Their role was understood to be one that can provide the digital entrepreneurs knowledge and skill through training, mentorship, and coaching.

“Incubators and accelerators out there that provide the skills, knowledge, expertise, mentorship, coaching, etc. They are few, but very difficult to access and get into.” (Participant 4 17:3)

However, the incubation hubs were seen by a few participants as ineffective and are structured to run programmes and not necessarily to create entrepreneurs, the comment by participant 11 refers:

“Incubation hubs are not necessarily a breeding ground for you to create new entrepreneurs, most of these places that I’ve seen, consume existing entrepreneurs, they don’t create new ones necessary. The incentives are structured to run programmes, not create entrepreneurs” (Participant 11 16:8)

The above is supported to the comments from participants 8 and 10, with the view that these incubators enrich the people who run them as opposed to ensuring the funds are accessible to the entrepreneurs.

“No, let's be honest, a lot of these things are money making schemes. And maybe people start with good intentions, but I've seen it even in the enterprise development space, where you get a lot of the providers of enterprise development, making a lot more money than entrepreneurs themselves”
(Participant 8 13:25)

“So unfortunately, in South Africa, what a lot of these hubs are doing is use the hub as a way to take money out of the system, and not bring value, right? So what they do is, is instead of a business getting a grant for 1 million Rand, they say, they're going to give you a training for 1 million Rand, but when you look at it, you can see that training is worth nothing, you can even see it to the people that they're using to train those people.” (Participant 10 15:31)

Participants' views were the incubators need to be run by entrepreneurs who understand entrepreneurship and have the relevant experience:

“They need to be getting real entrepreneurs to come and assist. And you know, stop doing this PR exercise that they always do. If you're going to be an entrepreneurial innovation hub, you must also be entrepreneur.” (Participant 8 13:31)

"It's hard to say anyone can just come from work and train entrepreneurs I think let's just face it, that's just not practical yet that's what you see in South Africa."
(Participant 10 15:32)

Participant 8 further proceeded to saying most of the funds should be for the benefit of the entrepreneurs with a smaller portion going to the incubation hub for managing the project

"Give the money to the entrepreneurs, you know, 10% goes to project management and 90% needs to be funding directly to entrepreneurs."
(Participant 8 13:27)

Further views were that they must be result oriented, there is a need to stop measuring incubators on the number of programmes they have or number of people they trained, but rather be measured on the sustainability over time. Of the number of the entrepreneurs they have trained, how many are still in existence in 3/5 years' time and how many of them are contributing meaningfully to the economy?

"I think these incubation hubs need to be regulated, they need to be results oriented." (Participant 8 13:26)

Participants 7's view supports the results orientation in that the investment that the government makes must produce the entrepreneurs who contribute to the economy. Contrary to the above views that the incubators are unproductive, and they seem to

focus of getting the money out of the system, this participant noted that incubators are a fundamental tool that can be utilised to grow entrepreneurship in South Africa.

“I think what is important is to ensure that the investment that has been made by government into those facilities produces entrepreneurs that effectively can contribute meaningfully to the economy of the country. Once again, it should not be a white elephant, it should not be a political statement that has been made. But this needs to drive the economy, drive commerce in the country as a whole and ensure that it grows the economy going forward. So, it's imperative that we do have many of these innovations. So we need to have our own Silicon Valley type setup in South Africa, to ensure we can get, you know, these innovations, these sort of breakthrough ideas coming through and collaborating with people that are like minded and producing something very innovative and very disruptive the marketplace that effectively can drive innovation going forward. So they need to be welcomed, encouraged and supported, particularly financially, making sure that they have access to the right facilities and the right resources as they are a fundamental tool that can be used to ensure we grow entrepreneurship in the country.” (Participant 7 10:26)

Large Firms

Large established firms in the industry are valued for the expertise they can provide to the digital entrepreneurs and playing a role in mentoring the digital entrepreneurs. The

common view was that of providing access to markets by buying the products or procuring services from these digital entrepreneurs and due to their financial muscle, they can provide facilities and sponsor some of the innovation hackathons and entrepreneurial initiatives.

‘There are two key players who have resources that can support digital entrepreneurship ecosystem. Firstly, the government and secondly corporates. To a large extent these are gatekeepers to enabling the ecosystem. They play a pivotal role in helping formulate what the ecosystem ought to be and what's needed in the ecosystem because they have the muscle to do so.’ (Participant 9 14:7)

On expertise, Participant 8 highlights the useful experience that comes from entrepreneurs who have been employed in corporate organisations, highlighting the importance of experience as a supporting function to digital entrepreneurship.

“Most successful businesses in the world, come from people that were past that weren't working in corporate, corporate professionals. And a lot of the times we have we sell this dropout story, but that's not true. Even Apple. And if you, if you go read the troublemakers in Silicon Valley, you'll, read up on a lot of this. Taking it to a fortune 500 company. And the first investor who really wrote the business plan for Apple, and really wrote the marketing strategy and brought in a lot of the human capital was Mark Macular, and he came from Intel. It was a corporate experience person. We did this also.

Steve Wozniak, not Steve Jobs was an experienced professional as well. And there's a lot of these businesses, you know, Jeff Bezos, from Amazon, he was a vice president at a, at a hedge fund. A lot of these guys you will see are very experienced corporate professionals that are majority of the time successful. And I always say this to guys, is that a lot of what you struggled with, I've been doing at a higher level. In fact, it's easier for me to be managing 100 million Rand business than to be managing a start-up, because of my experience. So yeah, when it's time to do proposals, when it's time to do reports to investors, a lot of these guys are always impressed to say, man, you know, you guys are doing a lot more than other young entrepreneurs out there. And it's because we have the experience. So, I always tell guys to go and work if they can, obviously, if you can't, entrepreneurship is your other outlet. But do your best to work because corporate experience is an added advantage.” (Participant 8 13:38)

Participant 2 and 12 share a similar view, noting that firms can enable access to market.

“They give access to market, or they should enable access to market. So the entrepreneurs should in essence be working on solutions that these big companies can be able to take on board and we’ve seen the like of Google and others that run hackathons to look for the next solutions, and those solutions come from entrepreneurs. So, in the first instance, you know, the

big companies, they've got a role to play around building a vibrant ecosystem, by how they engage with entrepreneurs, and how they are able to provide access to market or at least validation of some of the solutions that the digital entrepreneurs are actually working on.” (Participant 2 5:11)

“I think large firms can play a part and especially from a place of, especially in digital now. Because they have the financial muscle and I think they have a social responsibility as well, too. And I also think, from a leadership perspective, they can also create an environment where they create leaders just by collaborating with entrepreneurs.” (Participant 12 18:11)

Participant 10 put emphasis on the need for vertical integrating of policies within the corporates without ignoring the need for quality of the products and services from the entrepreneurs.

“Yes, within the large corporates, there need to have a sound vertical integration policies that allowing the value chain to be vibrant of new entrants, but those entrances have to be vetted of course and they have to deliver quality services because big business don't have time to play with their money, you're not going to buy for someone who's mediocre because you're trying to be empowering, they have to rise up to the opportunity, and you have to give them the chance. So, the vertical integration side of things

“I think the biggest thing is the capital what you need is one or two large firms that are intentional on supporting the digital entrepreneurship ecosystem. If we’re to talk about how the likes of Silicon Valley were created. There were companies who played quite a big role in terms of enabling the environment, ensuring that the start-ups are well funded.” (Participant 10 15:14)

“They can certainly fund those facilities; they can certainly support things like hackathons and things like entrepreneurial type days. And those are fundamentally important because corporate South Africa can offer a lot as far as experience goes and from a governance point of view. Also, from a business point of view, they can certainly offer a lot in that domain. What is important, though, is that they should not be obstructive in that approaches, or what do I mean by that? Well, in the case of the financial institutions, you’re trying to block smaller players like ourselves in the fintech domain”. (participant 7 10:27)

While it is often viewed as though the entrepreneurs are on the beneficial side of the equation and the firms are on the giving, the following comment shows that in progressing the digital economy, both the entrepreneurs and firms stand to benefit. The firms benefit in buying the innovation forward, which is, they invest today into an entrepreneurial venture that could be a unicorn in future without taking all the risk as the entrepreneur continues to run the business. On the other hand, the entrepreneurs benefit by getting access to resources that enable them to continue being innovative.

“Start-ups have innovation and they move much faster, but their challenge is resources to grow, while corporates are asset/resource rich but lack innovation.” (Participant 9 14:12)

4.5 Findings related to research question 3

Research question 3: How do these micro- and macro-level factors enable or hinder the digital entrepreneurship ecosystem in South Africa?

4.5.1 Micro-level factors

According to the findings, the micro-level factors namely: digital skills, leadership skills, passion, and entrepreneurial mindset enable the digital entrepreneurs by improving their ability to successfully operate their ventures. Digital skills enable them to navigate their environment and know which digital technologies would be appropriate for the solution on which they work. With Participant 9 below stating that being skilled leads to self-sufficiency.

“I’ll tell you two things on based on what I’ve seen over the years good and skilled entrepreneurs know how to find things and bad entrepreneurs want to be handheld and spoon fed throughout the journey. Oh I need this or I don’t have friends or who can help me with this, that and the other and you realize that there is that skills help build self-sufficiency the ability to find things the ability to know where to go to find stuff.” (Participant 9 14:4)

Leadership skills enable des to have the ability to set their goals, surround themselves with the right team and get the best out of the teams around them as per the below participants' views: while passion enables them to have staying power.

“Skill helps you to have is the ability to select an impactful team. Now no man is an island, you can come up with a concept and be 100%, owner of your company that will go nowhere. Or you can be a person that will be able to engage with others and grow...” (Participant 3 12:7)

“But what you need to do is to ensure that you can take people from diverse backgrounds, whether it's a legal adviser, whether it's an auditor, an accountant, whether it's a software developer, project manager, a UI specialist, and work across multiple disciplines, and effectively bring them all together to deliver a specific outcome. Now, the important thing to note here is that people approach, centricity around people is not being able to do their job for them. They are skilled and qualified in doing what they can. And what you have to do is lead, bring the best out of them to achieve a particular business outcome. I think leadership is fundamentally important.” (Participant 7 10:39)

Similar to the above views, participant 9 noted the importance of leadership skill as it enables one to communicate and share a vision in a way that others can buy into it and help take it forward:

“Being an entrepreneur requires that you are a leader, you need to be able to communicate exceptionally well, be good storyteller. This basically means you need to tell a story about a future that does not yet exist but in a way that the listener gets its existence.” (Participant 9 14:2)

Further to the above, participant 10 notes the importance of possessing the relevant skills to aid the digital entrepreneur in progressing quicker as it enables them to know their environment and learn from the mistakes made by others as opposed to repeating those.

“Having the right skills will help you as an entrepreneur as well, to know that some of the problems have already been solved, you just have to look at this thing and say, Oh, this makes sense, right. So, it also helps you when you're building a product that you have, or other similar businesses that are also doing more or less what you want to do. It helps you not to repeat a lot of mistakes and it helps you move faster, because someone could have done it somewhere else.” (Participant 10 15:44)

Entrepreneurial mindset enables them to problem solve and keep *au fait* with the new and emerging opportunities. Below are some of the views from the participants:

“When you talk about entrepreneurship, you're talking about the ability to solve problems beyond the skill that you have learned so if you are engineer it does not necessarily mean that engineering as a skill set allows you to

solve business problems right? You need a different mindset to be able to do that.” (Participant 9 14:1)

4.5.2 Macro-level Factors

The macro-level factors that have emerged above were seen to enable the digital entrepreneurship ecosystem through creating an enabling environment. Based on the findings, there are several ways in which the macro-level factors were viewed to enable the DEE in South Africa. However, the following were highly regarded:

- Providing access to market
- Providing funding
- Producing the skilled talent

Access to market

Access to market was seen by the participants as the function of the large firms and the government. Through procuring the services of the digital entrepreneurs. The business to consumer market did not come strongly here. It seemed the digital entrepreneurs are mainly trying to break into the corporates or government as suppliers.

“Well, I think the digital marketplace is still largely controlled by large, well established businesses.” (Participant 2 5:15)

Yet there are views that it is very hard to access the market as an entrepreneur and the firms, including the government, do not enable market access to the young digital entrepreneurs

“There is no market to speak of, if you speak to any other entrepreneur, all they want is give me an opportunity. Give me a chance to do business with you. But there isn't any reception for that. Worst of all, even government itself is not even buying from the entrepreneurs.” (Participant 1 1:15)

Participant 3 brings forth the importance of government buying from local companies, therefore supporting the digital entrepreneurs to grow.

“The one thing that the government can look into now is providing access to markets for these guys. It's one thing to take money and say, I want to help to enable them to do something. But it's another when you are a direct customer for those people you are giving them bread. Yes, you're buying from your own you are you're recycling your own money, your own investments into a supplier. So, supplier development must be greater in this country. Because you're deliberately choosing to localise and to say I am buying from my people, because I use my own money to develop them, even if they didn't take money from me to develop their technology or their products. But because their product

is relevant to me, as public sector in this industry, from them if they can get that mentality, right. And right now the mentality is staggering around a lot of rigid mindsets, I'm saying this on the record, we need to make sure that we demarcate those, we can't have gatekeepers that are prohibiting small businesses from growing in an ailing economy like ours. That's where we need to recycle money amongst ourselves the most, to make sure that the small players they go home with something to eat. And before we know it is no longer something to eat, but something to sustain other jobs. And before we know it is not something to sustain other jobs, but a growing company, A millionaire here and there, a black millionaire if I have to be precise.” (Participant 3 12:17)

Participant 11 noted that financial support and access to market go hand-in-hand in that where they are provided access to markets without financial support, delivery of services becomes a challenge and that instead leads to the ventures failing:

“access to market without money to deliver on that access, doesn't mean anything.” (Participant 11 16:16)

With all the challenges mentioned above, participant 7 noted the positive side in that the market is ripe for disruption

“I think it's ripe for disruption at this point in time. And I'm taking a very bullish, very optimistic, very entrepreneurial view at this point. And I think there's huge

opportunities, especially for digital marketing in the South African context.”

(Participant 7 10:34)

Funding

Funding was also viewed by the participants as a way of enabling the digital entrepreneurship ecosystem as it enabled the digital entrepreneurs to progress their ideas into businesses and enables them to test with the market and eventually scale the businesses. Furthermore, funding was also viewed as a function of government at early stage start-ups and the large firm as well.

“I think the success of the ecosystem is dependent on funding. There has to be some minimal funding, particularly at the earlier part. You can't do it without funding. But at the same time if there is no funding cannot say that you can do it at all. It goes back to my previous point that there has to be some funding to get to a minimum viable product, where an entrepreneur is able to test with a customer, that the solution that has been developed, in essence addresses a particular problem and/or is worthy to scale and/or worthy to put in the bells and whistles. It's the development of that version of the solution that has got the bare minimum that is required to solve the problem. That funding is required. And then once that funding has been in place, and in essence, an entrepreneur has developed the bare bones of a solution, it becomes easier, in essence to then either raise in a debt funding or to raise, you know, venture funding.” (Participant 2 5:14)

On the part of how large firms can enable digital entrepreneurship ecosystem, participant 7 comments:

“They can certainly fund those facilities; they can certainly support things like hackathons and things like entrepreneurial type days. And those are fundamentally important because corporate South Africa can offer a lot as far as experience goes and from a governance point of view. Also, from a business point of view, they can certainly offer a lot in that domain. What is important, though, is that they should not be obstructive in that approaches, or what do I mean by that? Well, in the case of the financial institutions, you're trying to block smaller players like ourselves in the fintech domain.”
(Participant 7 10:31)

There was a general view amongst the participants that there is money in the country to fund digital entrepreneurship. The challenge is accessibility of these funds. Participants 11 and 7 noted the availability of funds and put forward that the real challenge is in accessing these funds or the funds being distributed to the correct activities.

“I think the first myth we need to dispel is there's no money, there's a lot of money out there, TIA is sitting on lots of money, IDC sitting on lots of money. Private businesses sitting on lots of money. Vcs in this country have money as well.” (Participant 11 16:15)

“I think funding, you know, there's a lot of funding floating around, but is that funding going into the right place and actually growing the GDP of the economy are probably argue no.” (Participant 7 10:18)

Challenges regarding access to funds include the need to have connections in the places that are trusted with the funds and somehow the assessment of the digital entrepreneurship venture being aligned to the traditional or general entrepreneurship.

“Um, look, funding in general is in its infancy, and I said I was in the enterprise development space. We did a lot of funding, you will be very shocked that as I mentioned about TIA, DTI, IDC, NYDA how much of these guys still hold on to the funding? How much funding is still provided as a form of patronage to friends, as opposed to really going out there to grow the economy?” (Participant 8 13:43)

Participant 2 has a similar view as the above in that, perhaps due to its infancy stage, funding digital entrepreneurship is not yet fully understood by the players in the digital entrepreneurship ecosystem.

“Well, my sense is funders have not really gotten around to understanding digital entrepreneurship. I think funders still measure digital entrepreneurs in the same way that they measure other entrepreneurship on the market.” (Participant 2 5:12)

Participant 10 recognises the improvement in this space while there is a need for more.

“Look, I think there's been a lot of improvements in the past maybe few months, so is everywhere in the world. But I think things can always get better. We would like to see more like more vcs playing their role. What we want to see as well is, I think what's difficult is the VC space is quite new, the guys are still learning there right? And the entrepreneurs are still learning right, and often we make the mistake of thinking that the VC know, they don't know, right?” (.....)

The importance of funding in the ecosystem was one that echoed throughout the engagements with the participants. There was no doubt that funding is crucial for digital entrepreneurship to thrive.

Producing skilled talent

Producing skilled talent was viewed by the participants as a function of educational institutions, incubators, and large firms by providing training, research, mentorships, coaching and continuous learning opportunities. The following are some of the participants' comments:

“I think it's, it's perhaps two-fold. The first one is around, training because the likes of innovation hub do offer a specific training called coach lab which focuses on ICT graduates, and it connects them to industry experts, then

provide them with mentorship. But also, you know, these skills, soft skills linked to that particular programme. Secondly there's certain infrastructure that innovation has, that gets provided to the entrepreneurs.” (Participant 2 5:10)

“From a corporate perspective, they can certainly mentor and inspire the budding entrepreneurs, people like Brian Joffe, who's now retiring, but there's a wealth of institutional industry experience that one can certainly tap into.” (Participant 7 10:38)

4.6 Summary of the findings

The findings are based on data collected from 13 participants who took part in this study. The majority were the digital entrepreneurs, making up almost 70% of the participants (9) and the rest being subject matter experts.

On the first research question, what are the micro-factors that influence the digital entrepreneurship ecosystem? The themes that emerged from the data were

- Digital skills
- Core/foundational skills (leadership, passion, teamwork)
- Entrepreneurial mindset (problem solving)

The participants noted that whilst the digital skills are important, an entrepreneurial mindset is just as crucial, supporting both digital and core/foundational skills.

The second research question focused on the macro-factors that influence digital entrepreneurship ecosystem and the following themes emerged from the data analysis:

- Entrepreneurial culture
- Government as a critical player
- Digital infrastructure
- Institutional supporters
 - Educational institutions
 - Incubators
 - Large firms

On this research question, the participants highlighted the importance of all the above, however, it was evident that the government is the most critical. The findings reflected that the government has influence on the rest of the macro-factors, from the entrepreneurial culture to the school curricula.

Research question 3 focused **how** these micro- and macro-level factors enable or hinder the digital entrepreneurship ecosystem in South Africa, and the findings pointed to the importance of both micro- and macro-level factors in enabling the DEE by creating an enabling environment which would lead to a sustainable and thriving digital

entrepreneurship ecosystem in South Africa. The findings suggested that the micro-level factors enable the digital entrepreneurship ecosystem through improving the digital entrepreneur and enabling them to operate their ventures efficiently and effectively, and successfully navigate the ecosystem to position themselves well for success.

Findings revealed that macro-level factors enable or hinder the digital entrepreneurship ecosystem in South Africa mainly in three ways, namely: providing access to market, providing funding, and producing skilled talent. Whilst there were views that all the macro-level factors do play a part in all three in different ways, providing access to market and funding was seen as a function of government and large firms in partnership. The skilled talent was viewed to be a function of educational institutions and incubators through education skills development programmes and research as well as the large firms through giving opportunities for digital entrepreneurs to gain experience and exposure.

CHAPTER 5. DISCUSSION OF FINDINGS

5.1 Introduction

This chapter discusses the findings, which have been presented in the previous chapter.

The purpose of this study was to “*explore the dynamics that influence the digital entrepreneurship ecosystem in South Africa*” with a focus on micro- and macro-level factors and how they enable or hinder the South African digital entrepreneurship ecosystem. The study set out to explore these dynamics by answering the following research questions:

- What are the micro-level factors that influence the digital entrepreneurship ecosystem in South Africa?
- What are the macro-level factors that influence the digital entrepreneurship ecosystem in South Africa?
- How do these micro- and macro-level factors enable or hinder the digital entrepreneurship ecosystem in South Africa?

The chapter starts with the demographic profile of the participants, thereafter there is a discussion of the findings pertaining to each question based on the semi-structured interviews conducted with the participants, the relevant documentation, the observations during the fieldwork and the literature reviewed.

5.2 Demographic profile of participants

Thirteen experienced participants, the majority of whom were digital entrepreneurs, were interviewed and they had been in digital entrepreneurship for more than five years. Four participants were female, two of whom were digital entrepreneurs, one with less than five years' experience in digital entrepreneurship and the other had more than five years' experience. The other two females were subject matter experts. The rest of the participants were males and had more than five years' experience in the digital entrepreneurship ecosystem. All the participants, but one, had had a corporate career prior to embarking on the digital entrepreneurship journey.

5.3 Discussion pertaining to Research Question 1

Research question 1: *What are the micro-level factors that influence the digital entrepreneurship ecosystem in South Africa?*

This research question was to explore the factors that are seen to influence the success of digital entrepreneurs at a venture level as they attempt to successfully participate in the digital entrepreneurship ecosystem.

The themes that emerged from the data analysis on this research questions were:

- Digital skills
- Leadership and Passion
- Entrepreneurial mindset

The participants noted the availability of digital skills is an important micro-factor for the digital entrepreneurship ecosystem to thrive, this finding is consistent with [Sahut et al. \(2019\)](#), who placed value on digital or technical skills as the micro-level factors that influence the DEE. The participants further noted that from the digital skills perspective, South Africa is well-positioned and can even compete globally.

Whilst participants acknowledged the importance of digital skills, the view was that entrepreneurs do not necessarily have to obtain these skills themselves; they can access these digital skills through hiring a digitally skilled workforce or even partnering with digitally skilled business partners. Participant 8 mentioned that there are three partners in their venture, and they bring different skill sets that complement each other and lead to success. Participant 3 was of the view that it would be great if the same person that came up with the idea had the digital skills to be able to promote it or develop that business idea into a digital business, however it is also acceptable to access the skills in the market.

While the digital skills were seen by participants as accessible, with participant 6 stating that in her venture, she is working with a digital team based in India, the findings highlighted the high cost of digital skills in South Africa. Highlighting that due to scarcity, having a full digital team in South Africa is costly. Both digital entrepreneurs and large firms need digitally skilled talent, the cost becomes quite high for entrepreneurs as the corporates can afford to start these digitally skilled graduates with high-income levels. This is consistent with [Spigel \(2017\)](#) and [Mason and Brown](#)

(2014), who noted that where people value employment more than entrepreneurship, the accessibility of skills becomes a challenge as the skilled labour would value working in large firms more than in start-ups.

On the part of skills, the findings suggested leadership skills and passion for entrepreneurship as a necessity. With participant 10 stating the following “just like any other business, leadership skills are critical” this goes beyond [Sahut et al. \(2019\)](#) whose framework focused solely on digital skills and the cost of information as the micro-level factors influencing the DEE.

There was an emphasis on an **entrepreneurial mindset** as a critical behavioural attribute that is key when coupled with the relevant entrepreneurial skills, aligning with [Spigel \(2017\)](#), who noted the importance for the workforce to have a risk tolerance similar to entrepreneurs to thrive in the start-up environment. The participants argued that with all the resources and skills that are available, if the people do not have the entrepreneurial mindset, it becomes a challenge to have a thriving entrepreneurial ecosystem. The findings also reflected some differences in the mindset of DEE players in different geographical locations. With participants bringing forth that suburban players seem to have a different mindset toward digital entrepreneurship than those in townships and rural areas. Some of the reasons being poverty lines and/or lack of access to relevant resources, leading to limited exposure for township entrepreneurship, especially digital entrepreneurship.

Data analysis reflected that digital and leadership skills are complementary to each other for digital entrepreneurs to succeed. Beyond skills, an entrepreneurial mindset is a key behavioural attribute as it can create resilience.

5.4 Discussion pertaining to Research Question 2

Research question 2: *What are the macro-level factors that influence the digital entrepreneurship ecosystem in South Africa?*

Research question 2 focused on what the macro-level factors are that influence the DEE in the South African context. Following the interviews with the participants and the data collected, the following themes were identified:

- Entrepreneurial culture
- Government as a critical player
- Digital infrastructure
- Institutional supporters
 - Educational institutions
 - Incubators
 - Large firms

It was evident that for the digital entrepreneurship ecosystem to thrive, these macro-level factors are to work in support of the digital entrepreneurship ecosystem. While these are not within the digital entrepreneurs' control, being aware of them would

enable them to position themselves in a way that benefits their ventures and in turn, the entire ecosystem.

The findings suggested that the government should be the initiator and play a central part in the digital entrepreneurship ecosystem and was viewed as the most crucial enabler. This finding aligned with the literature review that suggested that for emerging economies, the involvement of government in the formation and development of a DEE is key as in the case of ZCG DEE in China noted by [Du et al. \(2018\)](#); [Li et al. \(2017\)](#). [Jung \(2013\)](#) also suggested that at its origin, Silicon Valley was significantly supported intentionally by the government that had set up a system goal to put a man on the moon and also created market access as it procured services, bought the products and continuously funded the digital entrepreneurs. Sahut et al. (2019) noted a partly aligned but slightly different view in that government is important as part of the collaborators in the DEE, however, citizen entrepreneurs should play the facilitator role. For the DEE to develop and grow in South Africa, the participants stated the need for government to be intentional and at the forefront, collaborating with the private sector and the digital entrepreneurs.

The findings noted that the South African government is supportive of digital entrepreneurship, based on the budget allocation to digital entrepreneurship and some progress in the legislation. However, implementation seem to be a challenging area on the government's part, therefore, a key area for improvement. Due to this gap, there

seems to be no real progress. Some participants highlighted the mismatch between government priorities and the activities on the ground that are supposed to support the priorities. I.e. The way **incubators** are measured, based on how many entrepreneurs they have trained or the number of programmes they have run as opposed to the number of entrepreneurs produced over time; this has led to **incubators** being seen as structures to get the funds out of the system without real success in producing sustainable digital entrepreneurs that contribute positively to the economy. There seem to be no long-term measures of success.

Digital infrastructure: again on the part of digital infrastructure, the participants noted the need for government to get the country well connected. The participants highlighted the need for affordable, fast, and reliable internet connections. The more connected the people, the better they can access the information and learnings and therefore, the higher the probability of a successful DEE. In essence, government policy can be an enabler and it should be an enabler. Further to this, emphasis was made by participants that there needs to be a concerted effort to get the township economy on-board in terms of digital entrepreneurship to ensure economic inclusion.

Large firms: were seen to provide skilled talent with the corporate experience who can run their ventures. The participants also noted the importance of large firms in providing access to the market by buying from the DE. They were seen to have the resources and lacked agility which they can access through the digital entrepreneurs (DE) as the DE access the resources that help them progress.

Educational institutions: the participants stated that higher education institutions are important in the ecosystem as they are the knowledge hubs and produce the research that enables the digital entrepreneurship ecosystem. This finding is consistent with literature as it showed that the thriving ecosystems were in areas where there is a presence of universities and research institutions with the Silicon Valley supported by the University of California, Berkeley, Stanford, University of California San Francisco, etc., and the ZCG digital entrepreneurial ecosystem supported by Peking University, Tsinghua University, Chinese Academy of Sciences, etc. As noted by [Trunina et al. \(2019\)](#).

Some of the challenges noted regarding higher education institutions as enablers of digital entrepreneurship in the South African context were 1) the relevancy of the curriculum, which some participants saw as outdated and still focusing on producing job seekers or graduates who are only equipped with theory as opposed to graduates who are ready to create their entrepreneurial venture upon completion. Only getting one digital entrepreneur who embarked on digital entrepreneurship immediately upon completing studies out of the 13 participants may support the above finding. 2) There is a small population in South Africa who are able to access universities, therefore starting to influence digital entrepreneurship culture at the tertiary institution level is limited to a few that make it into the tertiary system.

Throughout the engagements with the participants, there were strong views that **the school level** would be the best starting point for South Africa given its challenges with

unemployment, especially for youth. The school curricula review was deemed necessary to include entrepreneurship and digital modules to positively influence the innovation and entrepreneurship culture. There were views that the schooling system is still predominantly focused on producing workers/job seekers and not entrepreneurs, therefore entrepreneurship becomes the last option after people have failed to secure jobs.

5.5 Findings related to research question 3

Research question 3: How do these micro- and macro-level factors enable or hinder the digital entrepreneurship ecosystem in South Africa?

Research question 3 goes beyond just identifying what the micro- and macro-level factors are that influence the digital entrepreneurship ecosystem in South Africa, it pays attention to how these identified micro- and macro-level factors from the above two questions enable or hinder the digital entrepreneurship ecosystem in South Africa.

Micro-level factors

The findings suggested that the micro-level factors support the digital entrepreneurship ecosystem by providing the entrepreneurs with skills development and knowledge acquisition. (Du et al., 2018) note that at the core of any digital entrepreneurship ecosystem is the digital entrepreneurs, therefore skilled digital

entrepreneurs are crucial. The participants noted that the leadership skills and entrepreneurial acumen helps the digital entrepreneur know how to take their venture from an idea to a business, refine their ability to put together a team and choose the right partners and this is congruent with Mason and Brown (2014), who note that skills enable entrepreneurs to identify and find ways of exploiting entrepreneurial opportunities. Further noting that the more skilled the entrepreneurs the higher the possibility of success. The skills enable the entrepreneurs to add value to the ecosystem and to be positioned well for success. The entrepreneurial mindset in particular, was viewed to create staying power and sustainability.

Macro-level Factors

The findings of this study identified several ways in which the macro-level factor can enable the DEE in South Africa. However, providing access to markets, providing funding, and producing skilled talent were highly regarded by the participants. The following discussion focuses on how the macro-level factors potentially enable or hinder the digital entrepreneurship ecosystem in South Africa.

The findings suggested that government could enable the DEE by being a consumer of the product and services; in this way it would be providing both access to market and funding as it would be buying from the digital entrepreneurs. Jung (2013) argued that Silicon Valley at its infancy was funded by military as they created a constant demand for the product, in this way the government provided both funding and access to market to these digital start-ups. Similarly, ZGC DEE was funded by the Chinese

government in collaboration with the private sector as per (Du et al., 2018; Li et al., 2017; Trunina et al., 2019). It was evident that government is key to enabling the DEE as the findings pointed setting up of digital infrastructure as another responsibility of the government, highlighting a need for fast, stable, and affordable internet, bringing forth that government freeing up the spectrum could be one way to enable this need. If the government was to free up more spectrum or make spectrum available, then it could drop the cost of data, which would support the connectedness of the DEE.

Further to the above, the findings showed that government needs to play an integral role in the following ways:

1. Resource allocation: the participants argued that the government is responsible for ensuring the country's resources are allocated well to support the country to progress and for all citizens to share and benefit accordingly. This includes the resources that get allocated to drive digital entrepreneurship.
2. Crafting the relevant legislation that is supportive of digital entrepreneurship. The legislation helps in ensuring the resources are directed well.
3. Diligently Implementing policies, according to the set legislation, to ensure indeed the resources are allocated in a way that was intended and set objectives are achieved.

The findings in the study recognised the government's effort in points 1 and 2 above. They noted a major challenge in South Africa as failure to implement well. The

government does make the resources available; however, the resources are seen to be misdirected when allocated or the government agencies hold onto the funds. Participants 3 and 13 argued that there is a need for a nexus between the leadership of the country entrusted or mandated to allocate the resources and the digital entrepreneurs who ought to be enabled to move the country forward, stating that at times, the mandated leadership acts as a hindrance as opposed to enablers of the digital entrepreneurship ecosystem.

According to Trunina et al. (2019), government enables the digital entrepreneurship ecosystem by creating comfortable working conditions for all in the ecosystem through defining the rules. The participants truly shared a similar view as the above, putting forth that for South Africa to compete in this field, the government would need to play a central role and be intentional, set up goals and measure those with the correct metrics. This is consistent with the literature, especially in the Chinese context, which is also an emerging economy. The Chinese government was involved in the forming of the ZGC through setting the system goal which was “to become a globally leading innovation hub” (Du et al., 2018), and focused on well-co-ordinated initiatives to support that goal.

Funding was viewed as a function of the government and large firms, which necessitates the need for collaboration between the government and the private sector to support the DEE. China may be a great example on government and private sector

collaboration. Li et al. (2017) highlighted Tencent's and Lenovo's involvement in funding the digital entrepreneurs. Funding of these digital ventures was deemed to be at an infancy stage by the participants, noting that to a large extent the funders attempt to assess digital ventures the same way they assess the other entrepreneurial ventures, requesting the documentation that may not be available in digital entrepreneurship. Funding dynamics were seen to go hand-in-hand with access to the market. The participants stated that there were funds available in South Africa; the challenge is co-ordinating the allocation thereof efficiently to go to the right hands. They highlighted the difficulty of accessing funding when one does not have connections, showing the value of an ecosystem and the social network can be built by having and being part of an ecosystem. This finding was congruent with the finding from the developed economy studies, "the ability of new ventures to benefit from these networks requires pre-existing connections among entrepreneurs, investors, and other entrepreneurial actors" ([Spigel, 2017](#)). However, the participants had negative sentiments when this was brought up, which could be due to the infancy of the ecosystem and therefore the participants not yet utilising it effectively for networks that could potentially progress their growth.

The findings suggested that the production of skilled talent was a function of a collaboration between educational institutions, both lower and higher education, incubators, and large firms. It was evident that educational institutions and incubators could enable the DEE through education and research and enable the digital

entrepreneurs to build networks. Large firms could enable the DEE by providing opportunities that lead to experience which supports the digital entrepreneurs as well as provides exposure. This is in agreement with Mason and Brown (2014), who noted the importance of the incubators in equipping the digital entrepreneurs with the relevant technical skills and the business knowledge.

5.6 Chapter Conclusion

This chapter discussed the finding of the study, which aimed *to explore the dynamics of the digital entrepreneurship ecosystem in South Africa*. The framework by [Sahut et al. \(2019\)](#) was adopted as the guiding framework for this study.

Based on the findings, it can be concluded that at the micro-level the following four factors enable digital entrepreneurship; namely: digital skills, leadership skills, passion, and entrepreneurial mindset. The DEE requires competent and skilled digital entrepreneurs and a skilled workforce, who have the relevant entrepreneurial acumen to thrive. The findings provided a view that in South Africa, there is skilled talent who have an entrepreneurial mindset, and passion for digital entrepreneurship. The availability of skilled talent is therefore an enabler for the DEE.

Beyond the firm-level lay the macro-level factors, the findings of which led to a conclusion that the following factors have influenced the DEE in South Africa: Entrepreneurial culture, Government, Digital infrastructure, Incubators, Large firms,

Educational institutions, including schools and access to funding. Of the above macro-level factors, the government was regarded as potentially the greatest influencer. The government appeared to have the potential to enable through playing a central role of setting the pace for all the players. By prioritising and being intentional about driving digital entrepreneurship, the government could positively influence the culture surrounding entrepreneurship in South Africa, as well as digital entrepreneurship thereby influencing the rest of the players like large firms and educational institutions to jointly drive and nurture the digital entrepreneurship ecosystem.

CHAPTER 6. CONCLUSIONS & RECOMMENDATIONS

6.1 Introduction

This chapter focuses on drawing the conclusion to the study, providing the conclusion relating to each of the research objectives of the study, followed by the contribution and recommendations based on the findings, concluding with the suggestions for future studies.

6.2 Conclusions regarding research objective 1

Research objective 1: To explore the micro-factors that influence the digital entrepreneurship ecosystem in South Africa

The findings of this study were in agreement with previous research, noting the importance of digital skills as the micro-level factors that enable the digital entrepreneurship ecosystem. Furthermore, the findings of the study placed the entrepreneurial mindset in high regard for the success of the digital entrepreneurial ecosystem. The digital skills were seen to be complementary to the core/ foundational skills, such as leadership skills, passion for digital entrepreneurship and networking.

6.3 Conclusions regarding research objective 2

Research objective 2: To explore the macro-factors that influence the digital entrepreneurship ecosystem in South Africa

Of all the macro-level factors that were deemed important in influencing the digital entrepreneurship ecosystem in South Africa, government was regarded by the participants as the most crucial enabler, from bringing all the players together, collaborating with private sector and digital entrepreneurs, and ensuring connectedness through availing the required digital infrastructure that enables the digital entrepreneurship ecosystem to thrive. The importance of government in enabling the digital entrepreneurship ecosystem in South Africa was congruent with literature in that in their infancy stages, the successful DEEs seem to have been supported by the governments (Du et al., 2018; Jung, 2013; Li et al., 2017; Trunina et al., 2019). The majority of the macro-level factors that were highlighted by the participants were aligned to the macro-level factors that were cited in previous studies. Government, higher education institutions, skilled talent (Du et al., 2018; Li et al., 2017; Mason & Brown, 2014; Sahut et al., 2019; Spigel, 2017; Trunina et al., 2019), large firms (Mason & Brown, 2014; Spigel, 2017), entrepreneurial culture (Mason & Brown, 2014; Spigel, 2017; Trunina et al., 2019) and funding (Du et al., 2018; Mason & Brown, 2014; Spigel, 2017; Trunina et al., 2019). The importance of influencing the digital entrepreneurship culture starting at school level was not covered in the literature

that was reviewed through this study, which could be a nuance for the South African digital entrepreneurship ecosystem.

6.4 Conclusions regarding research objective 3

Research objective 3: To explore how these micro and macro-factors enable or hinder the digital entrepreneurship ecosystem in South Africa.

It was evident that both micro- and macro-level factors could enable the DEE in several ways. The participants noted that micro-level factors enable the digital entrepreneurship ecosystem by producing well-equipped digital entrepreneurs who have the relevant skill and experience. On the macro-level factor, whilst there were a few ways in which the DEE could be enabled, the following three were highly regarded: 1) providing access to market, 2) funding, and 3) producing skilled talent. Providing access to market and funding were viewed to be a function of the government and the private sector together, through procuring the services of the digital entrepreneurs and through supportive legislation that enables the digital entrepreneurs to operate in the market. Educational institutions, incubators and large firms were viewed as enabling the DEE through education, training and research which ensures the digital entrepreneurs are well equipped to participate in the ecosystem. Furthermore, large firms were viewed as great training grounds for the digital entrepreneurs and they breed experience which supports the ecosystem.

6.5 Contribution to this study

The findings of this study contribute to digital entrepreneurship ecosystem literature by extending the research scope to South Africa and at a practical level, by providing the below as a proposed theoretical framework for DEE in South African context. This may be relevant for the players in the digital entrepreneurship ecosystem. Reflecting on the organising framework presented in chapter 2, the factors highlighted in green are factors that emerged out of this study. While some were included previously, they have shifted in position. Policy and regulation, access to marketplace, funding and production of skilled talent were found to be the means through which the micro-and macro-level factors enable or hinder the digital entrepreneurship ecosystem in South Africa.

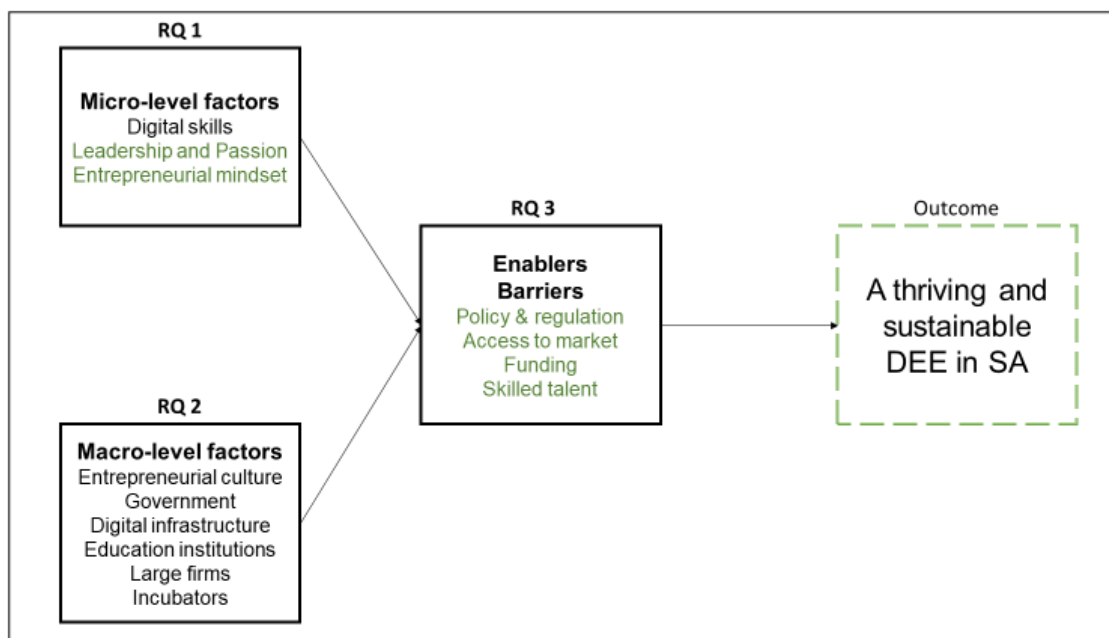


Figure 6 - Proposed theoretical framework for DEE within South Africa context

6.6 Recommendations

It has been noted that the key to a successful digital entrepreneurship ecosystem is influenced by both the micro- and macro-level factors. It is crucial for the digital entrepreneurs to be well equipped at a micro-level, and well informed of the macro-level factors and how both enable or hinder the success of their ventures. It is recommended that entrepreneurs continuously refine their digital skills. Further to that, it may be useful for the digital entrepreneurs to seek the relevant mentors who can support their growth. They should partner and network with other players in the ecosystem to access the relevant opportunities and be involved in providing input to inform some of the policies.

Based on the findings in this study, it is recommended that government takes on a leading role in the DEE to set the pace for the rest of the players. It should review its measurement structures on the incubators and other government agencies that are meant to enable the success of digital entrepreneurship by putting in place success measures that are more long term, incentivising the incubators and government agencies for producing sustainable digital entrepreneurs as opposed to the short-term measures, such as the number of training interventions held. They should review the school curricula to ensure entrepreneurial and digital modules are included. Further to the above, it is recommended that government partners with the private sector and higher education institutions to jointly make available the necessary support to the digital entrepreneurship ecosystem. Partnership between government and digital

entrepreneurs is also critical, especially when reviewing or drafting policies that are meant to support the digital entrepreneurship ecosystem.

6.7 Suggestions for further research

The findings in this study suggest that government is very important in the DEE, it may therefore be beneficial for further research focusing on the role of government in a digital entrepreneurship ecosystem. Further study can also be conducted for the purpose of applying the proposed theoretical framework in other contexts in South Africa, which can serve as a guide for the formation and development of the digital entrepreneurship ecosystem in South Africa or other emerging economies similar to South Africa.

Lastly, a study can be conducted to critically assess the effectiveness of incubators as catalysts for digital entrepreneurship.

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APPENDIX A – The participant Information sheet



Dear <participant>,

My name is Nthabiseng Cele and I am a student, pursuing a Master of Management in the field of Digital Business degree at Wits Business School, University of the Witwatersrand, Johannesburg. As part of my studies, I am undertaking a research project, in which I am exploring the **dynamics of digital entrepreneurship ecosystem in South Africa** under the supervision of Dr. Alagbaoso Manessah. This study will potentially highlight the factors that influence the digital entrepreneurship ecosystem in South Africa and provide a guide on how digital entrepreneurship ecosystem can be optimized.

I would appreciate your contribution to this study by affording me an opportunity to interview you in this regard. This interview will take approximately 1 hour and will be audio-recorded to ensure accuracy and quality of information are maintained. There may be a need for further contact should clarity be required following the interview. I will also require any documents relevant to the study that can enrich the quality of the study. The information you provide will be treated confidentially and will be used only for this study. It will be coded to ensure anonymity is upheld. The transcripts will be provided for your review prior to inclusion in the research report. Your participation is

voluntary and should you wish to withdraw at any point, you can exercise this right at any time.

Should you require further clarification regarding this research, please feel free to contact me on the below contact details.

Thank you in advance for your participation.

Regards,

Nthabi Cele

Email: Nthabi.Cele@Standardbank.co.za | Nthabiseng.Cele2@students.wits.ac.za

Tel +27 (0)11 721 7154 📞 | Mobile +27 (0)82 443 2579 📞

Supervisor:

Dr. Alagbaoso Manessah

Email: Manessah.Alagbaoso@standardbank.co.za | obinali.alagbaoso@wits.ac.za

Tel +27 (0)11 721 8957 📞 | Mobile +27 (0)72 922 0206 📞

APPENDIX B – Participant agreement form

I _____, agree to participate in this research project aimed at exploring the **dynamics of digital entrepreneurship ecosystem in South Africa**, conducted by Nthabiseng Cele for the purposes of completing a Master of Management degree at Wits Business School. I confirm that I am adequately informed, my participation is voluntary, and I can withdraw at any time. I agree for the researcher to anonymously process the information I provide into the research report.

(Please circle the relevant options below).

I agree that the interview may be audio-recorded YES NO

Participant's details:

Name: _____ signature: _____

Date: _____

Researcher's details:

Name: Nthabiseng Cele signature: _____

Date: _____

APPENDIX C – Interview guide

Below are the potential questions that will be used for the interview. The questions may differ slightly at the time of engagement as this is a semi-structured interview.

The interview will begin with formal introductions. The purpose of the interview will be re-iterated, and clarity provided regarding the purpose of study and objectives thereof.

Study	Exploring the dynamics of Digital Entrepreneurship in South Africa		
Participant Details:		Role:	Date: 2022/01
		Probing questions	
Micro-level factors	1. What are the micro-level factors that influence the digital entrepreneurship ecosystem in South Africa?	• What influenced your involvement in digital entrepreneurship ecosystem? • What skills are <u>required</u> for digital entrepreneurs to succeed? • How do these skills enable digital entrepreneurship?	
Macro-level Factors			
Government/ Policy/ regulation	What role does government play in the development of the digital entrepreneurship ecosystem in SA?	• How does government influence digital entrepreneurship ecosystem? • What more could the government do to support the success of digital entrepreneurship ecosystem?	
Digital entrepreneurship culture	2. What role culture play in the development of the digital entrepreneurship ecosystem in SA?	• How would you describe culture in South Africa in the context of Digital entrepreneurship ecosystem? • How does it enable or hinder the DEE? • What could be done to enhance the culture that supports the DEE?	
Digital infrastructure	3. What influence does digital infrastructure have on the digital entrepreneurship ecosystem?	• How does digital infrastructure in South Africa enable or hinder the DEE? • What could be done to make available the required infrastructure that is not yet available?	
Institutional support	4. What role is played by the institutional supporters in the digital entrepreneurship ecosystem?	• What role is played by Universities /higher education institutions in the digital entrepreneurship ecosystem • What role is played by incubators hubs in the digital entrepreneurship ecosystem • What role is played by large firms in the digital entrepreneurship ecosystem • What other institutional supporters play a role in the DEE? • In what way do they play their roles?	

	5. How does access to funding influence the digital entrepreneurship?	• How would you describe the funding dynamics in the digital entrepreneurship ecosystem? • How do these funding dynamics influence the digital entrepreneurship ecosystem?
Digital marketplace	6. How does access to digital marketplace influence the digital entrepreneurship ecosystem?	• How would you describe the digital marketplace in South Africa? • How does access to digital marketplace enable digital entrepreneurship ecosystem?
Thank you		