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Exploring the nexus between digital maturity, entrepreneurial orientation, and SMEs' organization resilience in Johannesburg in the post-lockdown era

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Exploring the nexus between digital maturity, entrepreneurial orientation, and SMEs' organization resilience in Johannesburg in the post-lockdown era

A research proposal 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 Entrepreneurship and New Venture Creation

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**Wits Business School
23 February 2023**

Declaration

I, Irshad Mitha, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in the Field of Entrepreneurship at the University of the Witwatersrand, Johannesburg.

Dedication

I dedicate this research paper to my mom (Gilda Mitha), my younger brother (Omar Mitha) and my father (Omar Mitha), who have always supported me and loved me.

Keywords: Digital Maturity, Digital Technology, Organizational resilience, Entrepreneurial Orientation.

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Abstract

The research study investigates the nexus between digital maturity, entrepreneurial orientation, and SMEs' organization resilience in Johannesburg in the post-lockdown era. The research aims to understand the relationship between SMEs' digital maturity and organization resilience and to analyse the mediating role of entrepreneurial orientation on the relationship between SME retailers' digital maturity and SMEs retailers' organization resilience.

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1 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

According to Kraus, Jones, Kailer, Weinmann, Chaparro-Banegas, and Roig-Tierno, N. (2021) technology is, without a doubt, the most exciting development in the corporate world right now. There are, of course, a number of other major stories. The authors (Kraus et al., 2021) continue stating that the Great Recession that lasted from 2007 to 2009 and the ensuing sovereign debt crises were both extremely significant events. In the same line of reasoning, Martin and Dwyer (2021) state that these crises impacted the financial well-being of a vast number of individuals as well as businesses, and its reverberations are far from ended (Martin and Dwyer, 2021; Kraus et al., 2021). Moreover, globalization and offshore will continue to be important drivers that shape organizational strategy and structure for some time in the future as well as right now (Seferidi, Hone, Duran, Bernabe-Ortiz, and Millett, 2022). According to Seferidi (2021) the demographic landscape is undergoing profound and ongoing shifts, which will have repercussions for the economy. These are significant developments, but technology is far more so. It is more widespread as a result of recent developments in all aspects of digital technology, which are reducing limitations and generating fascinating new opportunities that have an impact on the lives of individuals and businesses (Kraus et al., 2021). It is safe to assume that the fourth industrial revolution, which is primarily characterized by digital transformation, is experiencing a period of explosive growth (Kraus et al., 2021).

As a result of the worldwide coronavirus (Covid-19) epidemic, according to Vide, Hunjet, and Kozina (2021) businesses faced unprecedented difficulties. Many academics claim that the Covid-19 crisis was worse than the Great Depression (Kraus et al., 2021; Vide et al., 2021). Covid-19 was particularly disruptive to small and medium-sized retail businesses (Becker and Schmid, 2020). From March 2020 forward, people spent far less money at your daily stores and made more purchases online (Donthu and Gustafsson, 2020; Pantano, 2021; Roggeveen and Sethuraman, 2020). Some businesses responded quickly, speeding up their use of digital technology (Guthrie et al., 2021; Klein and Todesco, 2021). As a result of adopting digital business methods, merchants gained access to complementary channels of sale and distribution (Priyono et al., 2020). Recent studies on the impact of the Covid-19 pandemic on the spread of digital technologies claim that this shock has expedited the adoption of digital collaboration platforms and remote working despite the fact that the pandemic's effects are still in the process of transforming the globe (McKinsey, McKinsey, Hampson, and Enriquez, 2020; Ferrigno and Cucino 2021). Recent research indicates that small and medium-sized enterprises (SMEs) were frequently able to outperform peers because of their ability to adjust through digital

responses (Klein and Todesco, 2021) and outperformed companies that continued to use conventional business strategies in terms of both survival and development. (Close et al., 2020).

There is the possibility that this phenomena can be explained using two different conceptual frameworks. The first is digital maturity, which, according to Westerman et al. (2012) and Westerman et al. (2014a), is "the capability that enables an organization to align its people, culture, structure, and tasks to compete effectively by taking advantage of opportunities enabled by technological infrastructure" (Kane et al., 2017, p. 29). The second concept is called organizational resilience, and it describes an organization's capacity to create and utilize "its capability endowments to engage with the environment in a way that positively adapts and sustains functioning prior to, while, and after adversity (Williams et al., 2017). Agility, collaboration, experimentation, and risk tolerance are all characteristics of digitally mature organizations because they are better able to affect and react to change (Rader, 2019). The capacity of some organizations to better deal with unforeseen disruptions and quickly learn from them is explained by organizational resilience (Hillmann and Guenther, 2021).

Despite the fact that digital maturity and organizational resilience provide complementary perspectives on businesses' responses to disruption, the relationship between these two concepts has, to date, received limited attention in a small and medium-sized enterprise (SME) context, specially from a developing economy perspective. Furthermore, since most SMEs are quite small and often owned by an individual or a small group of individuals, this study will also explore the role played by the entrepreneurial orientation of the SME leader or lea. The purpose of this research is to address this knowledge gap.

1.2 THEORETICAL REVIEW

1.2.1 FIC and TRR theory

Both the failure induced change (FIC) theory and the threat-rigidity response (TRR) theory have found theoretical and empirical support within the expansive field of organization studies (Cyert and March, 1963). These contradictory theories are concerned with the effect that (economic) adversity has on the stability and change that occurs within organizations. According to the FIC, which originates from the behavioural theory of the firm (Cyert and March, 1963), conditions of adversity, which is defined as a discrepancy between the level of aspiration and the level of achievement, leads to problematic search, organizational learning,

and (radical) innovation in an organization (Kahneman and Tversky, 1984). Organizations that are successful in accomplishing their goals frequently overlook the changes that occur in their surrounding ecosystems, whereas organizations that are struggling face the need for corrective managerial action and structural reform (Kiesler and Sproull, 1982). In addition, on the level of individual cognition, the behavioural pattern of FIC is supported by the numerous discoveries in the body of work constituting prospect theory (Kahneman and Tversky, 1979, 1984). It is implied by FIC that, facing adversity, to bridge the aspiration gap, the SME will endeavor to find a radical solution. In particular, the SME will invest in new activities that are distinct from their present activities (radical innovation) as opposed to focusing on making slight adjustments to its core activities, which are already well-established (incremental innovation). Within the framework of this pre-digital registration's environment, FIC enables the possibility of a digital redesign of the company's operations, which may involve foraying into the digitally uncharted territory of becoming more digitally mature.

The contrasting concept of TRR asserts that a 'threat,' which is defined as an imminent loss or expense to the entity results in a restriction of the knowledge used in decision-making and a tightening of control over the circumstance (Staw, Sandelands, and Dutton, 1981). As a result, there is a focus on internal concepts and prior experiences, and there is also an increase in consolidation, formalization, and more uniformity of processes. Additionally, this stimulates increased formalization of procedures (Kahneman and Tversky, 1979). These answers, taken together, contribute to an increase in the rigidity of organizational decisions, an intensification of the inclination toward well-learned responses, and a decrease in the likelihood of radical innovation. All of the emphasis and effort will be directed toward (gradually) improving the operational efficiency of offline core activities rather than exploring uncharted territory in the realm of digital technology.

Within the context of small and medium-sized enterprises (SMEs) facing adversity such as the Covid-19, it is therefore possible to ascertain, that a non digitally mature business, such as a health club, facing adversity to adopt TRR, and instead focuses on increasing centralization, formalization, and more uniformity of processes (Core activities and well-learned reactions before adversity). On the other hand, however, another digitally mature gym adopting FIC is accelerating the pace of digital transformation, avoiding TRR, leveraging the digital maturity it has acquired, and expanding into online classes and apps. You may have invested in A digital platform for member experiences and/or training plans, nutritional advice, and educational videos making the business resilient.

1.2.2 BAS\BIS theory

It is possible that some characteristics of an entrepreneurial leader may be so dominating that they could interact with the effect of digital maturity and affect it. Gray's (1970) behavioural motivation theory explains two distinct systems present inside an individual: the behavioural activation system (BAS) and the behavioural inhibition system (BIS). The latter is linked to an increased sensitivity to punishments, whereas the former is related with an increased sensitivity to rewards (Carver & White, 1994). An individual has the option of approaching a particular circumstance of adversity or instability using either the BAS or the BIS method. Both of these systems will not be stimulated at the same time, and the one that takes precedence will be determined by the circumstances. The BAS system is responsible for reacting to stimuli that signal reward in the absence of punishment; it is sometimes referred to as the "just do it" system. BAS activity is related to the development of positive moods and impulsivity. On the other hand, the BIS assists the individual in recognizing unfavourable occurrences and putting a value on them.

Both BIS and BAS have been investigated in the context of business innovation and entrepreneurship. For example, the findings of Lerner, Hatak, and Rauch (2018) imply that there are robust connections between BAS/BIS and entrepreneurial behaviours. The BAS has a significant association with entrepreneurial activity, whereas the BIS has a strong association with poor company performance. In a same vein, the research that was conducted in 2016 by Geenen, Urbig, Muehlfeld, and Witteloostuijn reveals that BAS is a multidimensional system that positively promotes entrepreneurial intent. This study operates on the presumption that when confronted with adversity, the BAS system of SMEs leaders will be engaged, which will, as a result, favourably promote entrepreneurial orientation to adopt digital technology to help face the adversity.

1.3 CONTEXT

The effects of lockdowns led to a worldwide recession, which affected both the world's leading economies and developing nations (Globaldata, 2020; OECD, 2020). Due to the fact that its consequences are still transforming the globe and the way business is conducted, the pandemic has presented an unparalleled challenge to the business sector. The SMEs (small and medium-sized firms), SBs (small businesses) (Bartik et al., 2020), or SMBs (small and medium

businesses) (Beley & Bhatarkar, 2013) have characteristics that rendered them more susceptible to the pandemic problem than the other impacted corporations. It was difficult for them to respond to the problems that were presented by the Covid-19 issue as a result of their lack of financial resources as well as deficiencies in their understanding of specialized topics. Because of the outbreak of the Covid-19 pandemic, a number of new contexts have arisen for the study of small and medium-sized enterprises (SMEs). These new contexts include the necessity to be agile in order to boost a lag in performance (Bartik et al., 2020), as well as the necessity to increase productivity (Sandberg et al., 2020) in order to mitigate against financial difficulties. Emerging research suggests that gaining access to funding and successfully adjusting to shifting patterns of consumer behavior were two of the most difficult obstacles that small and medium-sized enterprises (SMEs) encountered throughout the epidemic (Sandberg et al., 2020).

Due to the fact that they make up more than 70 percent of all businesses in South Africa, small and medium-sized enterprises (SMEs) are extremely important to the nation's efforts to foster economic growth and employment expansion (World Bank, 2022). Concerning small and medium-sized businesses, it is of the utmost significance to point out that there is no consensus among scholars on a broad meaning of the term "small and medium-sized firm" (SME). According to the Organization for Economic Co-operation and Development, also known as the OECD (2018), these are uniquely characterized or defined in the legislation across countries, and that the measurement "small" and "medium" of a firm are relative to the size of the domestic economy. Despite the fact that different countries have different perspectives and criteria on what constitutes a small and medium-sized enterprise (Van Scheers, 2018), there is a general consensus that SMEs are "a separate and distinct business entity, together with its branches or subsidiaries, if any, including cooperative enterprises, managed by one owner or more predominantly carried on in any sector or subsector" (Rajagopaul et al., 2020, p. 2). The number of employees and the rate of turnover are both important factors in South Africa's economy. According to Small Enterprise Development Agency (Seda) (2020), small and medium enterprises (SMEs) are organizations that employ between 10 and 249 people and have a yearly revenue that does not exceed R50 million. These enterprises can be further subdivided as follows: micro (1 to 9), small (10 to 49), and medium (50-249). This study will focus on small and medium-sized enterprises (SMEs), and it will investigate the relationship between digital maturity and organizational resilience, which has, to this point, received limited attention in a SMEs context. Additionally, the role played by SMEs leader's entrepreneurial

orientation in the relationship between digital maturity has also received limited to no attention, particularly in the context of developing economies.

1.4 RESEARCH PROBLEM

Global lockdown was implemented as a precautionary measure in response to the Covid-19 outbreak. Major portions of the economy had either come to a total offline stop completely (such as pubs, restaurants, and cultural events), or suffer a large decline in demand for their products and services (e.g., air traffic and retailing) (Roggeveen and Sethuraman, 2020). The pressure and danger that was felt was significant, and it had an effect on virtually all businesses, including the SMEs used as a sample in this study; failure to respond would very probably have resulted in failure to survive the crisis. It is still too early to tell what the long-term effects of the Covid-19 epidemic will be, but the pandemic's immediate impact on small and medium-sized enterprises has been severe (Roggeveen and Sethuraman, 2020). Small and medium-sized enterprises (SMEs) that deal in vital products such as groceries, food, and healthcare have seen a spike in demand, and consumers have been hoarding (Pantano, Pizzi, Scarpi, & Dennis, 2020), which has created both possibilities and problems for SMEs that service clients at home (Naeem, 2021). On the other hand, small and medium-sized enterprises (SMEs) that deal in non-essential commodities like clothes and homeware witnessed a large decline in sales and have been forced to develop new strategies to approach and engage clients who are housebound as a result of the epidemic (Roggeveen and Sethuraman, 2020).

Such disruption as the covid outbreak creates possibilities. Many scholars (Carvalho, Bonzo, & Zenaide, 2020; Ceylan, Ozkan, & Mulazimogullari, 2020) stated that digital technology assisted many business in taking advantage of the opportunity presented by the outbreak. So much so that scholars (Baig, Hall, Jenkins, Lamarre, & McCarthy, 2020) argued that the catastrophe advanced the adoption of digital technology by 5 years in just 8 weeks, possibly out of need. Butt (2020) says this epidemic has emphasized digital transformation so much that some enterprises regret not adopting it sooner. During the pandemic, SMEs that adapted through digital responses outperformed peers (Fletcher and Griffiths, 2020; Klein and Todesco, 2021) and had a better probability of survival and expansion (Close et al., 2020).

Small and medium-sized enterprises (SMEs) that embraced digital technology had greater influence and responsiveness to change and were consequently more likely to be adaptable, cooperative, exploratory, and risk-taking (Klein and Todesco, 2021). In addition, by making the most of digital transformation opportunities, these swift answers are seen as evidence of the organisation's resilience (Klein and Todesco, 2021). Given that previous research has shown that small and medium-sized enterprises (SMEs) who have modified their business models to take use of digital tools, technology, and information fared better during the epidemic (Close et al., 2020). The question that emerges, therefore, is to what extent SME' digital maturity contribute to SMEs' ability to demonstrate resilience? Additionally, Donohar (2009) states that the gap between the SME's leader or owner and the SME itself is narrower (Anderson, Mansi, & Reed, 2010; Block, 2004). In general, the smaller the business, the greater the sway of its founder or head executive (Boone, Brabander, & Witteloostuijn, 1996). If the SME's founder or leaders is still present, they have considerable say in the company's management and policies (Donohar, 2009). With this research concentrating on small and medium-sized enterprises (SMEs), many of which are run by a single self-employed individual, the question arises as to what impact the entrepreneurial aspirations of SMEs' top executives have on the relationship between digital maturity and organisational resilience.

Regardless of the economic value of SMEs, there is a lack of information regarding the causes, effects, and barriers to SMEs' digitalization, despite their economic importance (Eller, Alford, Kallmünzer, & Peters, 2020). There is a dearth of literature on the relationship between digital maturity and organizational resilience in small and medium-sized enterprises (SMEs), despite the fact that many previous studies have examined the effects of technology orientation, IT skills, or specific digital capabilities on firm performance. The influence of digital maturity has been studied to a limited extent, and the results have been mixed. For example, Wroblewski (2018) claims that digitally mature firms' performance is not better than their counterparts'. Thus, the fundamental objective of this research is to expose the impact of digital maturity on the organizational resilience of SMEs. It is widely held that, especially in technologically immature businesses, it is crucial to provide insight and expertise to managers. Given that past research have shown contradictory results, we also want to explore how the entrepreneurial aspirations of SMEs' top executives mediate the relationship between digital maturity and organizational resilience.

1.5 RESEARCH QUESTIONS AND AIM OF THE STUDY

Despite the fact that new digital technologies are available to all firms, studies have shown that small and medium-sized businesses face more challenging obstacles when attempting to undertake digital transformation owing to a lack of digital maturity. According to Zouari et al (2021) the obstacles that prohibit small and medium-sized enterprises (SMEs) from gaining digital expertise or maturation are neither hidden nor many. It is possible, in point of fact, to categorize the factors that contributed to the issue (Valdez-de-Leon, 2016). According to Westerman et al's (2012) findings, businesses that struggle to go digital typically lack both the digital capabilities to function in new ways and the leadership qualities essential to implement the adjustments necessary to make the transition (Westerman et al., 2012). Companies that possess both the digital and leadership capabilities necessary to dominate their sector are referred to as Digital Masters (Westerman et al., 2012). While the importance of digital maturity is recognised for SMEs (Zouari et al., 2021). The majority of research has focused on large companies, it is common knowledge that small and medium-sized businesses stand to gain from digital maturity (Kane et al., 2017; Von Solms et al., 2021). As a result of this conversation, the following concerns and aims have become clear:

1.5.1 Research questions

Given this context, the key question that will be investigated in this study is the following: to what extent does the level of digital maturity of SME retailers relate to their potential to demonstrate resilience? The following are the supplementary questions:

- How does digital capability influence organizational resilience?
- How does digital leadership influence organizational resilience?
- How does entrepreneurial orientation influences the relationship between digital maturity and organization resilience of SMEs?

1.5.2 Research objectives

This study aims to determine the extent to which SME retailers' digital maturity contributes to SME retailers' ability to demonstrate resilience, as well as whether or whether or not organisational resilience differs among SMEs based on their digital maturity. Additionally, the

research will explore the role that an entrepreneurial orientation has as a mediator in the relationship between the digital maturity of SME and the organization resilience of SME.

1.5.2.1 Main objective

- To understand the relationship between SMEs' digital maturity and organizational resilience.
- To analyse the mediating role of entrepreneurial orientation on the relationship between SME retailers' digital maturity and SMEs retailers' organization resilience.

1.5.2.2 Sub-objectives

This study also examines the role that demographic characteristics play as a mediator in the relationship between the digital maturity of SME and the organization resilience of SME retailers. This is done for two reasons: the first is to determine whether or not the age of a business has an effect on the digital maturity of small and medium-sized businesses (SMEs); the second is to gain a better understanding of the demographic of SMEs retailers that are most likely to be more digitally mature or more resilient.

1.6 CONCEPTUAL DEFINITION OF TERMS

- **Entrepreneurial orientation:** though used in the context the individual, the study adopts Lumpkin and Dess' (1996) definition, according to the authors (Lumpkin and Dess, 1996) an entrepreneurial orientation is a firm-level strategic orientation that captures an organization's strategy-making procedures, management philosophies, and company behaviours that are entrepreneurial in character. Entrepreneurial orientation may also be thought of as an entrepreneurial mindset.
- **Resilience:** According to Hedner et al (2011), resilience refers to a person's capacity to recover or a person who adjusts emphatically in an unfavorable or uncertain situation. The term used in this study was adapted from Hedner et al. (2011). (Tengeh, 2016).

- **Organisational resilience:** When used to the setting of an organization, the term "organizational resilience" refers to a complicated and extensive collection of adaptive traits that enable an organization to effectively cope with unforeseen occurrences and to gain insight from such experiences (Williams et al., 2017)
- **Digital maturity:** The definition of digital maturity offered by Westerman et al. (2014b) is used throughout this investigation. The authors define "digitally Mature organization" as an organization's capacity to swiftly adjust to the evolving technological trends and advancements. The primary objective is to create value as quickly as possible through the utilization of these newly acquired competencies and areas of interest among consumers.
- **Digital capability:** The research utilized the definition provided by Carcary, Doherty, and Conway (2016) for the purpose of defining digital capability. "Digital competence" is defined by the authors (Carcary et al., 2016) as "a company's skill, aptitude, and competency to manage digital technologies for the production of new products."
- **Digital leadership:** This study makes use of Petry's notion of digital leadership; he is the source of the information (2018). The definition of digital leadership provided by the researcher (Petry, 2018) is "Doing the right things for the strategic success of digitalization for the firm and its business environment."

1.7 CONTRIBUTION OF THE STUDY

To restate an earlier claim, according to the research conducted by Donohue (2009), entrepreneurial founding teams (EFTs), which can range from a single founder to a whole family, are more common and predominate in small and medium-sized enterprises (SMEs). There is a wealth of evidence supporting both potentially adverse and beneficial consequences, which are frequently collectively referred to as the founder's syndrome (Block, 2004). If they are still in operation, EFTs have a significant impact on the governance and decision-making processes of their respective SMEs (Meckling & Jensen, 1976). This study contributes to the literature on entrepreneurship by studying the impact that the entrepreneurial orientation of a SME leader plays in the link between digital maturity and the organisational resilience of SMEs in an African context. This is due to the fact that research (Fletcher and Griffiths, 2020; Klein and Todesco, 2021) indicates that small and medium-sized enterprises (SMEs) who during the adversity brought about by the pandemic were able to adapt through digital responses were frequently able to outperform peers and had a greater chance of survival and growth (Close et al., 2020) than those who continued to adhere to traditional business approaches. Thus understanding the role played by SMEs' leader entrepreneurial orientation in the relationship between digital maturity and organisational resilience understand how SMEs sustained their business during economical adversity.

In addition, while the utilization of digital tools and working practices has led many businesses down the path of digitalization, the pandemic has made it abundantly clear that businesses need to get ready to operate in an environment that is becoming increasingly uncertain and volatile in order to increase their level of sustainability [1,2]. In addition, the study contributes to the existing body of information about digital transformation by studying the relationship between digital maturity and the organizational resilience of SMEs within an African environment.

2 LITERATURE REVIEW

2.1 INTRODUCTION

Research (Fletcher and Griffiths, 2020; Klein and Todesco, 2021) indicates that small and medium-sized enterprises (SMEs) who during the adversity brought about by the pandemic were able to adapt through digital responses were frequently able to outperform peers and had a greater chance of survival and growth (Close et al., 2020) than those who continued to adhere to traditional business approaches. The extensive adoption and implementation of digital technologies warrants major attention, particularly in light of the fact that these technologies were crucial in assisting a large number of organizations in successfully navigating the challenges posed by the epidemic. The investigation of this phenomenon is of the utmost significance. The purpose of this section is to provide a comprehensive literature overview on the subject under investigation. In this chapter, we talk about the entrepreneurial aspirations of the leader who is responsible for operating the SMEs, as well as digital maturity and organizational resilience. In the latter part of this chapter, a review is given of previous research on the connection between digital maturity and organizational resilience, using entrepreneurial orientation and other characteristics as mediators.

2.2 ENTREPRENEURIAL ORIENTATION

Miller (1983) developed the notion of entrepreneurial orientation (EO), which he posited consists of three components: creativeness, initiative, and a willingness to take risks. After then, Covin and Slevin's (1989) notion of entrepreneurial strategic posture (ESP) helped spread its popularity even further. Later researchers Lumpkin and Dess (1996) elaborated on EO by proposing a five-dimension model that encompasses independence, creativity, bravery, initiative, and aggression in the face of competition. Researchers (Grande et al. 2011; Hafeez et al. 2011; Chandrakumara, De Zoysa, and Manawaduge, 2011; Gupta and Gupta, 2015) have come to acknowledge EO as a firm-level concept that influences company performance over time. For example, Koe (2013) used a five-dimension EO model and discovered that innovativeness, proactivity, risk-taking, competitive aggressiveness, and autonomy all had a favorable effect on the success of government-linked enterprises (GLCs). Franchise systems'

financial and non-financial results were also shown to be favourably correlated with EO, as previously established by Dada and Watson (2013), who saw it as a holistic concept. Additionally, EO was proven to improve the brand performance and market performance of SMEs in Hungary (Reijonen et al. 2015).

In the recent years, scholars have indicated that EO might also be understood as a construct that operates at the level of the person (Robinson and Stubberud, 2014). Researchers have been offered fresh opportunities to explore EO on new levels and from new vantage points as a result of such a suggestion (Robinson and Stubberud, 2014). Existing research that looked at individual entrepreneurial orientation (IEO) came to the conclusion that it is a multi-dimensional construct and that it has features that are comparable to those found in firm-level EO. For instance, it was shown that the IEO of Taiwanese franchisees was favorably associated to the performance of their businesses (Chien, 2014). Bolton's (2012) research has demonstrated a connection between IEO and the successful operation of businesses. The research that have come before have, without a doubt, shed fresh light on IEO in its capacity as an individual-level element of EO. However, the majority of them are concentrating on the relationship between IEO and SMEs performance. IEO exists at the individual level; hence, its orientation with a person's attitude or conduct is also something that ought to be researched.

2.3 INDIVIDUAL ENTREPRENEUR

According to the research conducted by Donohue (2009), entrepreneurial founding teams (SME leader or owner), which can range from a single founder to a whole family, are more common and predominate among SMEs. It is widely established that there is a possibility of adverse repercussions, which are often even referred to as the founder's syndrome (Block, 2004). However, it is also possible to make a case for the beneficial effect of lower agency costs (Meckling & Jensen, 1976) in the presence of a SME leader or leaders, due to the fact that the gap between ownership and control is narrower (Anderson, Mansi, & Reed, 2003). There is no plan to contribute anything further to this discussion. In point of fact, it makes no difference to our line of reasoning whether the impacts are good or negative. What is important for our line of thinking, however, and what appears to be widely acknowledged, is the idea that leaders of SMEs, if they are still in their positions, have a significant impact on the governance and decision-making of their organizations. In a broader sense, it is recognized that the individual who serves as the company's entrepreneurial leader is believed to be (much) more influential

when the organization in question is smaller (Boone, Brabander, & Witteloostuijn, 1996). In this study, which focuses on small and medium-sized enterprises (SMEs), of which many are extremely small and frequently even consist of a single self-employed person, we developed an additional hypothesis that takes into account the impact of the SMEs leader's entrepreneurial orientation (who may or may not be the founder) – that is, of the single leader who is in charge of running the enterprise.

2.4 DIGITAL TECHNOLOGY

The issue with Covid-19 generated changes in customer behavior, market balance, and supply chains, which has opened a window of opportunity for innovation. Opportunities can arise from disruption (Carvalho, Bonzo, & Zenaide, 2020;). According to the findings of a number of studies (Ceylan, Ozkan, & Mulazimogullari, 2020), digital technology has been able to assist in making the most of this window of opportunity. There is a lot of interest among businesses all around the world in the application of digital technology to significantly boost performance (Robinson and Johnson, 2021). Changes in customer relationships, internal processes, and value propositions are being brought about by executives working in all sectors through the implementation of digital innovations such as analytics, mobility, social media, and smart embedded devices, as well as the improvement of their use of traditional technologies such as enterprise resource planning (ERP). Other CEOs, having witnessed how rapidly digital technology has disrupted the media industries over the course of the previous decade, are now aware that they must pay attention to developments occurring in their respective sectors (Robinson and Johnson, 2021). The most successful businesses are those that successfully combine great leadership with digital activities to convert technology into change. This phenomenon is referred to as "digital maturity." Different companies have different levels of digital maturity; those that are more advanced have a competitive advantage over those that are not (Rader, 2019).

2.5 DIGITAL MATURITY

In the past two decades, there has been a surge in the need placed on businesses to undergo digital transformations, or even merely to digitize their business models. As a result, there has been an increase in the requirement to evaluate the technical capabilities of individual

companies. According to Rader (2019), digital maturity provides a transparent lens through which an organization may track the progression of its digital transformation. Following that, authors have sought to establish a method for defining and quantifying this concept (Colli et al., 2019; Zouari et al., 2021). Kane et al. (2017) define digital maturity as "a systematic means of assuring the preparation essential to continuously adapt to constant digital transformation" (Kane et al., 2017). This makes it possible for an organization to undergo structural changes throughout the course of time. According to Bonnet and Westerman (2021), at its heart, digital maturity focuses on better servicing consumers and the market by employing digital technology to increase efficiency and innovation. (Bonnet and Westerman, 2021) (Rader, 2019). Maturity in the digital realm is essential for digital transformation strategies due to the fact that procedural effort regulates the creation, execution, and growth of these strategies (Chanias et al., 2019; Matt et al., 2015).

Although other definitions and methods of measuring digital maturity exist (see Kane, 2019; Zouari et al., 2021), the concept of "digital maturity" is given special consideration in the research carried out by Westerman et al (2014). The authors' seminal study (Westerman et al., 2014a) is the most often referenced and is generally recognized as accurate. According to the viewpoint of the authors (Westerman et al., 2014a), a company's digital maturity is a measurement of both its digital capabilities, or its potential to derive business value from digital technologies (Westerman et al., 2014a), and its digital leadership (Westerman et al., 2014a), or the leadership culture within an organization for supporting and initiating digital change and transformation (Hagberg et al., 2016; O'Hea, 2011). (Rossmann, 2019). The former is concerned with a company's digital capabilities and technical infrastructure, whereas the latter is concerned with the digital strategy, leadership, and vision of a company. Westerman et al. (2014b) show evidence that companies with higher levels of digital maturity gain higher levels of overall corporate performance. Organizations that have developed digital capabilities but inadequate leadership capabilities are referred to as Fashionistas by the authors (Westerman et al., 2014). On the other hand, firms that have mature leadership capabilities but weak digital capabilities are referred to as Conservatives. According to Westerman and his colleagues, in order for businesses to acquire digital mastery, they need to build both capacity dimensions.

In addition, Westerman et al. (2014b) contend that developing capacities for digital leadership is even more important than developing digital capabilities. This sentiment was mirrored by Zouari et al. (2021), who proposed that leadership and governance are the primary factors

contributing to an organization's digital maturity. However, there are other points of view about these topics. According to Rader (2019), for instance, the capacity of an organization to make use of technology to its advantage in a setting that is both dynamic and ever-shifting is regarded as the most important factor, and the author suggests that digital maturity is one indicator of the aforementioned characteristics.

2.5.1 Digital capability

With regards to competence, Moorman and Slotegraaf (1999) define technical capability as an organization's potential to conceptualize and create novel products and associated processes based on its existing technological resources. When discussing digital technology, "digital capability" refers to "a company's expertise, aptitude, and competency to handle digital technology for new product creation" (Carcary, Doherty, and Conway, 2016). For an organization to undertake digital transformation effectively, research by Carcary, et al. (2016) suggests it has to strengthen its skills in a wide range of areas. The specifics of an organization's needs and the nature of the sector in which it operates might affect the extent to which it prioritizes certain competencies. The firm's view is that its key source of sustained competitive advantage is the flexibility with which it can adapt its dynamic capabilities to the altering competitive scene (Teece and Pisano, 1994; Teece et al., 1997). For the purposes of this definition, digital capabilities are "the subset of competence/capabilities, which allow the company to develop new items and processes, and adapt to changing market scenarios" (Teece et al., 1997).

2.5.2 Digital leadership

The definition of digital leadership used in this research comes from Petry (2018). According to the researcher (Petry, 2018), digital leadership is defined as "Doing the appropriate things for the strategic success of digitalization for the firm and its business environment." According to leadership expert Warren Bennis, "leadership is about doing the right thing for the success of the company, whereas management is about doing the thing right." This description captures the essence of this distinction between leadership and management (Warren Bennis, 1989). The term "business ecosystem" was incorporated into the definition because in today's

interconnected world, no organization can be successful without interacting with other businesses (Warren Bennis, 1989; Petry, 2018).

According to Petry (2018) people have a tendency to place themselves in one of two camps when they are asked to describe the new digital reality for companies. Some people believe that the future will be quite similar to the past. They believe this because they agree with the saying that "Those who cannot recall the past are destined to repeat it" (Petry, 2018). Some people believe that the future will have more unexpected occurrences because "no one can possibly anticipate what is about to happen; it is happening, each time, for the first time, for the only time" (Petry, 2018). No matter how one chooses to look at it, the fact remains that in order for businesses to find their footing in a volatile business climate, they need capable leaders to steer the ship. Not only are senior leaders need to define a vision that people can rally around, but they also need to create the conditions that enable digital maturity, which includes recruiting the finest talent and bringing out the best in the talent that they attract (Benitez, Arenas, Castillo, and Esteves, 2022).

2.6 ORGANISATIONAL RESILIENCE

In addition to digital maturity, organizational resilience has been highlighted as a vital component in the process of adapting to a corporate environment that is characterized by fast change, disruption, complexity, and unpredictability (Corbaz-Kurth, Juvet, Benzakour, Cereghetti, Fournier, Moullec & Roos, 2022). As was said earlier, resilience is defined as the capacity to recover (Hedner et al., 2011) or make major adjustments in the face of adversity or uncertainty in the surrounding environment (Corbaz-Kurth et al., 2022). A dynamic process that includes positive transformation within the setting of large-scale adversity or tragedy (Tedeschi and Calhoun, 2004), as well as the capacity of an individual to adjust or continue with one's everyday activities following adversity or suffering (Luthar et al., 2000, Tedeschi and Calhoun, 2004).

In the context of an organization, the concept of organizational resilience refers to an intricate and comprehensive collection of adaptive qualities that allow an organization to successfully deal with unexpected occurrences and to learn from those experiences (Williams et al., 2017; Yao and Fabbe-Costes, 2018). These adaptive capacities serve as a catalyst for a learning

process that enables an organization to grow stronger and more resourceful as a result of its exposure to adversity (Lee et al., 2013; Vogus and Sutcliffe, 2007). Adapting business models and dynamically recreating organizations are two examples of the kinds of shifts that fall under this category (Bustinza et al., 2019; Linnenluecke, 2017). The concept of organizational resilience can be broken down into two main categories: (a) planned or first-order capacity, which entails pre-emptive planning, engineering resilience into systems and resources to respond to disruption; and (b) adaptive capacity or second-order resilience, which is enacted when organizations respond dynamically to situations. Both of these categories can be broken down further into their respective subcategories (Burnard and Bhamra, 2019; Lee et al., 2013). These dynamic and adaptable capacities are becoming increasingly relevant in circumstances that are changing fast and are characterized by the presence of several unforeseen occurrences (Pettit et al., 2010).

2.7 HYPOTHESIS

2.7.1 Digital maturity and organisational resilience

There may be a theoretical relationship between digital maturity and organizational resilience, as shown by evidence from previous studies and current industry practices. For instance, earlier research on risk management (Kachali et al., 2012) demonstrated that the information and communication sector of the service industry was less affected by and recovered faster against external risks. This was the case despite the fact that the sector was exposed to these risks (e.g. natural disasters). In addition, it was discovered that businesses that were equipped with information technology had a greater capacity for resilience in the face of the COVID-19 pandemic than those that were not (Lin, 2020; Wakabayashi et al., 2020). On the basis of these pieces of data, our hypothesis is that digital maturity positive relationship with organisational resilience.

This study proposes that increasing digital maturity, as explained by FIC theory, can potentially improve organization resilience by fostering a radical way out in an attempt to close the aspiration gap during times of crisis. The reasoning behind this study's hypothesis is presented

in the form of a research hypothesis. Increasing their investments in digital technologies enables service organizations to more easily and flexibly coordinate their internal resources (such as labor, information, and knowledge, among other things) in order to manage keystone vulnerabilities and continue business operations in the face of adversity. This became abundantly clear during the course of the COVID-19 epidemic. Companies that had invested in digital technology were able to continue operations by engaging clients in inventive ways despite the fact that many service businesses were forced to close as a result of rules connected to quarantine (McCartney and McCartney, 2020). These days, a great number of hotels (like the Marriott and the Hilton) and dining establishments (like the FOODOM Tianjiang Food Kingdom) make use of software applications to facilitate the delivery of services and minimize the need for human interaction (Shin and Kang, 2020). In addition, because of advancements in digital information technology, many service providers were able to provide alternate service plans while a large number of their clients and staff were required to remain at home during the quarantine (Lund et al., 2020). For example, TCJ Management Company, a company that organizes corporate and private events, is now offering virtual and hybrid event coordinating services to its clients (TCJ Events, 2021).

Service businesses may utilize external resources and seize new chances to assist business operations if they make strategic investments in digitization. Previous studies have shown that digital technologies can assist organizations in establishing networks that connect with other businesses (such as partners in the supply chain), thereby providing organizations with the helpful information and resources necessary to maintain business operations and build resilience in the face of disruptive circumstances (Chowdhury et al., 2019). Since the COVID-19 pandemic, many service firms' supply networks have been unexpectedly disrupted (Veselovska, 2020). However, several Chinese enterprises have implemented the Emergency Resources Information Platform in order to maintain their supply chains operational (Bourdinier, 2020). This type of platform makes use of cloud computing and data storage technologies, which enables businesses to centralize supply information from their suppliers and then seek available resources in order to support supply chains (Bourdinier, 2020). Given that this study measured based on Westerman et al. (2014a), based on this the study propose:

H₁: There is a positive relationship between digital capability and organisation resilience

H₂: There is a positive relationship between digital leadership and organisation resilience

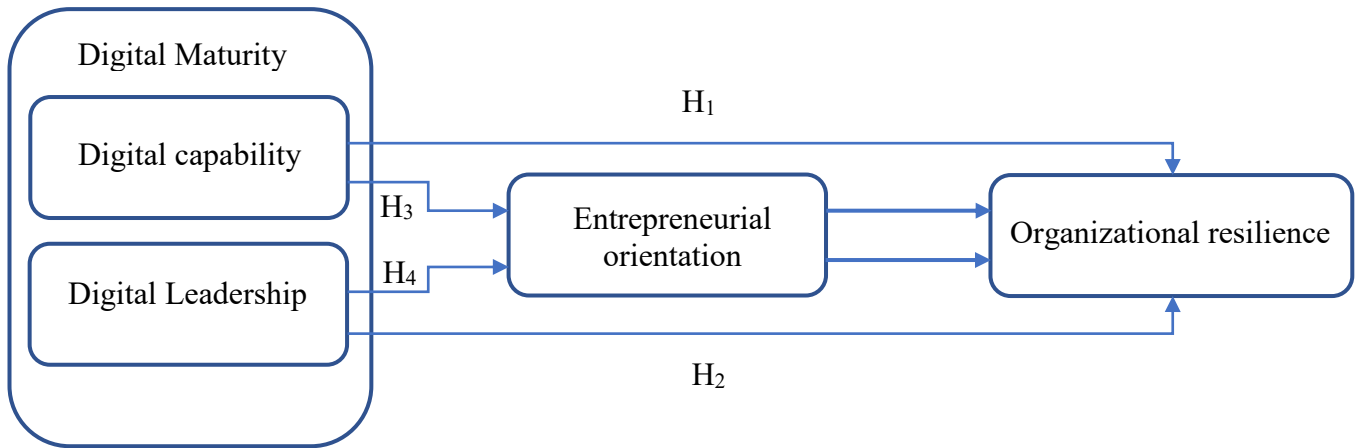
2.7.2 The mediating role of leader's entrepreneurial orientation

We hypothesize that the entrepreneurial orientation of the leader of a small and medium-sized enterprise (SME) mediates the relationship between digital maturity and organization resilience. This is based on the documented effects of the entrepreneurial leader's influence on governance and decision-making, as well as BAS/BIS in entrepreneurial settings. High BIS scores for the entrepreneurial leader will, on the one hand, result in inaction and TRR, regardless of the level of digital maturity the firm would otherwise demonstrate. The digital maturity and the FIC behavioral response pattern of the organization are less important than the BIS/BAS score of the entrepreneurial leader. If, on the other hand, the entrepreneurial leader possesses a high BAS score, this will have a favorable impact on the behavior and mentality of the entire firm and will cause FIC to be triggered. The intervention will be understood as providing opportunities, and unconventional forms of creativity will not be rejected. However, simply having a high BAS score is not going to be enough to ensure one's survival and success on its own. It is still anticipated that a high DMI will prove to be the most important factor in determining performance in this scenario, with success (and, consequently, failure) being defined in accordance with H₁ (i.e., chance of survival, profitability, and growth). Based on the discussion the study proposed that:

H₃: Entrepreneurial orientation positively mediate the relationship between digital capability and organisational resilience

H₄: Entrepreneurial orientation positively mediate the relationship between digital leadership and organisational resilience

2.8 CONCEPTUAL DIAGRAM



With:

H₁: There is a positive relationship between digital capability and organisation resilience

H₂: There is a positive relationship between digital leadership and organisation resilience

H₃: Entrepreneurial orientation positively mediate the relationship between digital capability and organisational resilience

H₄: Entrepreneurial orientation positively mediate the relationship between digital leadership and organisational resilience

3 RESEARCH METHODOLOGY

3.1 INTRODUCTION

The research paradigm, design, instrument, and all of the required statistical processes that this study included in order to arrive at the results are described in this chapter. It is outlined the method of collecting data as well as the sampling processes that is used to guarantee that the data that was obtained is accurate and representative of the population that will be the focus of the study. It is important to determine, based on the methodology of this study, how one acquired data and analysed it in order to achieve results that are meaningful and applicable to the study that will be done. In addition, it is essential to have a solid understanding of the researchers' point of view in the study, since this influences both the agenda and the design of the research. In order to guarantee that the information that is produced is correct and free from bias, it is necessary to have an understanding of the processes that are utilized in order to derive the desired outcomes from the data.

3.2 RESEARCH PARADIGM

The mental models or frames of reference that a researcher employs in order to organize their reasoning and observations have a significant role in both the development and execution of a research project. These ways of thinking, also known as frames or belief systems, are referred to as paradigms. Thomas Kuhn (1962) popularized the word "paradigm" in his book *The Structure of Scientific Revolutions*. In this book, Kuhn looked into the history of the natural sciences to uncover patterns of activities that define the progression of knowledge. Kuhn is credited with popularizing the word "paradigm." A research paradigm is a collection of beliefs and understandings that are held in common by researchers and academics regarding the manner in which issues should be comprehended and treated, as stated by academics (Kuhn, 1970; Olasky, 1989). According to academics, a research paradigm is the collection of beliefs and understandings that are held in common by researchers and academics. This necessitates a period of introspection on the part of the researcher, during which they will strive to find a middle ground between their own subjective opinions and the three fundamental tenets of management research, which are positivism, pragmatism, and interpretivism (Saunders et al., 2015).

This investigation is based on a theoretical framework known as the positivist approach (Kumar, 2011). Up until about the middle of the 20th century, the predominant scientific paradigm was positivism, which was derived from the writings of the French philosopher Auguste Comte (1798–1857). It maintains that the generation of new scientific knowledge or information in general should be limited to only that which can be observed and quantified. It is typical for positivism to only depend on hypotheses that are capable of being empirically examined (Kuhn, 1970). A quantitative strategy is used throughout this study to argue and ultimately come to a conclusion on the research topic. The positivist approach is often predicated on the notion that facts and feelings can be differentiated from one another, and that the universe exists as a single reality that is constituted of facts that can be discovered by observation or measurement (Mertler, 2017). The study assumes a cross-sectional methodology because the participants answered questions on their own digital development, entrepreneurial aspirations, and organizational resilience at a specific moment in time.

3.3 RESEARCH METHODS

The research uses a quantitative approach in order to generalize the findings regarding SMEs and develop conclusions based on the sample population that would have been acquired using various survey instruments (Bartlett, 2001). According to Johnson and Onwuegbuzie (2004), the traditional approach to quantitative research is characterized by the use of standardized data collection processes and statistical analysis. Additionally, this approach is characterized by the fact that it has been around for quite some time. In addition, this research approach is distinct from others in that it places an emphasis on numerical data. In addition to this, the utilization of numerical information is essential in order to appropriately detect, classify, and discover solutions to a wide variety of problems (Curwin & Slater, 2008). After that, Curwin and Slater (2008) said that numbers may be utilized to assist researchers in addressing difficulties on three different levels. To begin, one may use numbers to accurately depict a diverse range of situations, which is particularly useful when dealing with massive volumes of data. Second, the application of theory can be made possible by the use of numbers. Third, the use of numerical data might be beneficial for developing models of the real world. And finally, the use of numerical data to these models might help uncover more effective solutions (Bhattacharjee, 2012).

Nevertheless, the quantitative approach has some drawbacks that can be encountered during the phase of survey data collection. These drawbacks include the possibility of the survey questions being misinterpreted and the absence of an opportunity to ask follow-up questions for the purpose of gaining clarity (Bartlett, 2001). Nevertheless, one of the benefits of using the quantitative technique is that it enables researchers to draw conclusions about a wider population based on the findings of a study with a smaller sample of participants (Bartlett, 2001). The quantitative technique is appropriate for putting assumptions that have been developed in advance to the test and producing results that can be generalized about the connection between digital maturity and the organizational resilience of SMEs. This methodology is suitable for the purpose of this study, which seeks to understand the connection between the digital maturity of SMEs and the organizational resilience of those businesses, as well as the role that the entrepreneurial orientation of those businesses' leaders plays as a moderating factor in that connection (Bhattacharjee, 2012).

3.4 RESEARCH APPROACH

Bhattacharjee (2012) states that when conducting scientific research, one must frequently switch gears between theorizing and collecting empirical data (Benitez-Correa et al., 2019). Research in the scientific field relies heavily on both theoretical speculation and empirical observation. There are two distinct approaches that may be utilized in scientific investigation: induction and deduction (Perry and Jensen, 2001). Which approach is utilized is determined on the researcher's background and areas of interest. In inductive research, the focus is on drawing conclusions about theoretical frameworks and patterns based on the evidence that has been collected (Benitez-Correa et al., 2019). According to Perry and Jensen (2001) when doing deductive research, the investigator's primary objective is to validate hypotheses and hypotheses about relationships using fresh empirical evidence. Research that is conducted inductively is sometimes referred to as theory-building research, whereas research that is conducted deductively is known as theory-testing research (Abdukarimova & Zubaydova, 2021). The purpose of testing a hypothesis is not only to verify its plausibility but also, if possible, to strengthen, advance, and broaden it. It is essential to keep in mind that inductive research and deductive research are the two half of the research cycle that continually iterates between theory and observations (Abdukarimova & Zubaydova, 2021). This research adopts

a deductive approach as it was based on well-defined theories (FIC and TRR theory and BAS/BIS theory), and it is employee SEM (structural equation modelling) to try to establish and comprehend the relationship between digital maturity and organisational resilience of SMEs (Perry and Jensen, 2001). In this write-up, we used employee a positivist and deductive strategy, and as a consequence, the study examines previously published literature and papers that were peer reviewed to gain a deeper understanding of digital maturity, entrepreneurial orientation, organisational resilience, and the ideas that surrounds it.

3.5 RESEARCH DESIGN

There is no one agreed-upon definition of "research design, however Blumberg et al. (2014) provide this one: a framework for examining a study from its inception (with the formulation of a hypothesis) to its conclusion (with the analysis of data). Therefore, it may be viewed as a framework for defining relationships between variables and a guide for selecting appropriate information sources (Bhattacharjee, 2012). An explanatory design is used for this investigation. Van Wyk (2012) states that the major goal of an explanatory study is to provide a line of reasoning linking the various elements of the research topic with each other. Explanatory research, as defined by Bhattacharjee (2012), seeks to provide light on the causes of phenomena. Distinct from descriptive research which seeks to answer questions of the "what," "where," and "when," explanatory research, focuses on the "why" and "how" of an event, a method used in research to identify the causes and effects of a phenomenon of interest, or to "connect the dots" (Bhattacharjee, 2012; Van Wyk, 2012). Since identifying the causes and effects of the events of interest is the major goal of this study, an explanatory research design is employed. As the study seeks to understand the relationship between digital maturity and organisational design. The research employed self-administered questionnaires on small and medium-sized enterprises (SMEs) about their level of digital maturity, entrepreneurial aspirations, and organizational resilience at a particular moment in time. As a result, the research adopta a cross-sectional research technique. Studies that take a cross-sectional approach have the benefit of being both time and resource efficient. Studies that take a "cross-sectional" approach are the most common kind utilized to establish prevalence. According to Mann's (2003) theory, prevalence in this investigation refers to the number of SMEs that are present in a population at a specific instant in time. Assuming a cross-sectional methodology for the research project makes the use of a survey instrument the most appropriate method for

data collection. The results of the survey, which are presented in a quantitative or numerical format, are compiled in order to fulfil the objective of the survey, which is to provide statistics (Fowler, 2014).

3.6 POPULATION AND SAMPLING METHOD

3.6.1 Population

The entire group of individuals that the researcher has decided to concentrate their attention on is referred to as the "population." This study focused on small and medium-sized businesses (SMEs) in the city of Johannesburg in South Africa. It is difficult to get a clear picture of the size of the small, medium, and micro enterprises (SMMEs) sector (both the formal and the informal sector), but this is more the case for informal businesses than it is for formal businesses. According to the Centre for Development and Enterprise (CDE), "South Africa does not have a baseline study of SMMEs. As a result, estimates throughout the course of the last decade have ranged from 670,000 to an implausible six million." Not only is there a dearth of a standard set of facts regarding SMMEs, but also there is little knowledge regarding what causes them to succeed or fail, in which industries they thrive, and where possibilities lie (SEDA, 2020). 2.6 million micro, small, and medium (SMEs) firms make up the sector, according to OECD (2022). In South Africa, it is estimated that there are 2.6 million SMEs, although only roughly 37% of them are official. Micro-businesses make about 54% of the overall number of businesses. South Africa is home to 1,196,00 small and medium-sized businesses (SMEs), excluding the country's 54% micro-businesses. In addition, the Small Enterprise Development Agency (SEDA) (2020) reported that Gauteng had the highest percentage of SMEs (28.6 percent). As a consequence, it is estimated that 342 056 SMEs are located in Gauteng. Furthermore, of the 853 944 SMEs located in Gauteng, 60% are located in Johannesburg. As a result, Johannesburg is home to 205 234 small and medium-sized businesses. The population of the research consists of 205 234 different SMEs.

3.6.2 Determining the sample size

One of the most important aspects of designing a research study is deciding how large a sample to use, because too small or too large of a sample might affect the reliability and precision of the findings (Bartlett, 2001). Using Yamane's (1967) technique, which involved providing

margins of error for individual items, the sample size was calculated. The calculation takes into consideration two different factors: the marginal error, which refers to the amount of risk that a researcher is prepared to tolerate at a specific alpha level, and the standard deviation. The formula for calculating the sample is as follows:

$$N = 205\,234$$

$$e_2 = 0.05$$

$$n = N / \{1 + N (e^2)\}$$

Therefore

$$n = 205\,234 / \{1 + 205\,234 (0.05^2)\} = 399$$

This study uses a sample size of roughly 399 small and medium-sized enterprises (SMEs) from both the informal and formal sectors (n=399). As was said before, the majority of small and medium-sized businesses (SMEs) are owned by a single person. The gap in ownership and control between the leader or owner of a small to medium-sized business and the enterprise itself is narrower (Anderson, Mansi, & Reed, 2003). According to Donohue (2009), the leader or owner of a SME, if they are still present, has a significant impact on the governance and decision-making of their SME; therefore, if we follow this line of reasoning, we can also say that the study consists of approximately 399 SMEs, SMEs' leaders, SMEs' Managers, or entrepreneurs who have SME. In addition, because there will be no predetermined sampling frame, a non-probability sampling method will be used (Zikmund et al., 2013). Quota sampling is utilized to broaden the applicability of the findings (Malhotra, 2010). In this study, two quotas are utilized to guarantee that either senior managers or the owner of the SME participated in the survey

3.6.3 Sampling method

The process of selecting a group from a population that is representative of the whole population is referred to as sampling methods or procedures (Bartlett, 2001). There are two distinct approaches to sampling, which are known respectively as probability sampling and non-probability sampling (Bhattacharjee, 2012). In the context of this study, the term "non-probability sampling" refers to a sampling method in which the chances of picking an

individual from the population have an uneven chance and cannot be estimated (Bhattacharjee, 2012). This definition captures the essence of the method. The method of sampling that is used in this research is known as convenience sampling. This is a type of sampling method that relies on the collection of data from individuals who are easily accessible and conveniently available to participate in the study (Bhattacharjee, 2012). For example, fellow students at the university could be recruited for this study using this method. Therefore, in order to pick a subset of the population that is representative of the whole, this study will use a sampling procedure that does not rely on probability (Bhattacharjee, 2012).

In addition, because there is no predetermined sampling frame, a non-probability sampling method is used (Zikmund et al., 2013). Quota sampling is utilized in order to broaden the applicability of the findings (Malhotra, 2010). In this particular study, two quotas are utilized to guarantee that either senior managers or the owner of the SME participated in the survey, as well as to ensure that the companies in question were in fact able to be categorized as SMEs. In order to meet the requirements set forth by Erasmus et al. (2017) for qualifying as a small and medium-sized enterprise, business have to demonstrate compliance with at least one of the SME criteria. These criteria included having a workforce of fewer than 200 employees, having an annual turnover of less than ZAR 64 million (the equivalent of approximately \$4 million in US dollars), having capital assets of less than ZAR 10 million (the equivalent of approximately \$660,000 in US dollars), and having direct managerial involvement by owners.

3.7 DATA COLLECTION

According to Bhattacharjee (2012), the process of acquiring and measuring information on various characteristics of the phenomena that is being studied is what is referred to as data collection. This procedure was carried either at the lunch break period, or at the conclusion of the working hours, by the leaders of the SMEs. While maintaining a methodical approach, questionnaires will be sent out to leaders of SMEs and collected after they have been filled out. In order to ensure the safety of respondents, consent forms are employed, and once respondents have had the opportunity to review an informed consent form, they are required to sign the form. It is also requested of respondents that they do not sign their names anywhere on the survey in order to maintain their anonymity and confidentiality (Bhattacharjee, 2012). The survey instrument included cover letters and consent forms attached to it, but these were deleted

once the survey was complete so that respondents could maintain their anonymity (Bhattacharjee, 2012).

3.7.1 Primary and secondary data

Researchers utilize a wide number of methods to gather data, and this selection is based on the design of their research project as well as the quantitative or qualitative nature of the study being conducted (Bhattacharjee, 2012). For the purposes of this investigation, primary data is gathered by means of surveys that make use of structured questionnaires as the method for data collection. According to Hox and Boeije (2005), primary data is gathered when a researcher is interested in gathering information regarding a particular phenomenon at a particular point in time. In addition, they indicated that surveys may be used to obtain information about the behaviors, feelings, experiences, or values of the participants. Primary data are hence data that are acquired at hand for a particular research derived from a sample that is typical of the community as a whole (Hox and Boeije, 2005).

In certain kinds of research, it could be appropriate to make use of material or data that has already been put into the public domain, such as official statistics or administrative records that have been produced. The collecting of this kind of information is referred to as secondary data. For the sake of this investigation, previously compiled reliability tests, or, more precisely, previous Cronbach's Alpha values for the various scales of the questionnaire, have been utilized. This information was acquired from articles published in journals (Westerman et al(2014a)) .s that were related to the creation of the digital maturity scale, organizational resilience, and entrepreneurial orientation. In addition to this, the population size of the research was derived from sources such as SEDA(2020), OECD (2022).

3.7.2 Primary research instrument (Questionnaire)

The research instrument that is used to conduct this study takes the form of a questionnaire that consists of 33 items that are measured on a 7-point Likert scale that has been developed from existing scales. The scale ranges from 1 (strongly disagree) to 4 (neutral) to 7 (strongly agree), with 1 representing strong disagreement and 4 representing neutrality. There have been a significant number of measures produced during the course of previous research in order to quantify digital maturity, entrepreneurial orientation, and organizational resilience.

The first section of the questionnaire consists of demographic questions, such as the participant's age, which is presented in a range of options, and their gender, which is presented as a criterion for which they are not required to submit an answer. Westerman et al. (2014b) developed the first 20 items of the questionnaire (questions 1-20), which measures digital capability and digital leadership. Bolton (2012) developed the middle 10 items of the questionnaire (questions 1-10), which measures entrepreneurial orientation. Melián-Alzola, Fernández-Monroy, and Hidalgo-Peate developed the last 3 items (questions 1-3), which measures organizational resilience (2020).

3.7.3 Structure of the questionnaire

This particular questionnaire is organized in the form of five basic sections, each of which requires the respondent to provide a response. The following is how each of the five basic sections was laid out in their respective order:

Section A: Demographic characteristic of the leader and SMEs

The first section of the questionnaire includes close-ended demographic questions for the participants. The three demographics recorded in this study were gender, age, position in the SME and education in which both criteria's had a "prefer not to say" option, it also had question regarding the SMS's detail. The main purpose of this was to identify the biographical sample in which the results were based on. This information was to indicate whether there were more males or females in the sample and obtain an idea of the overall age range of the sample. This demographical information was also used to establish if any relationship exists between the biographical information and the dependent variables. Thus, this information is used for the interpretation of the descriptive statistics of the statistical analysis.

Section B and C : Digital capability and digital leadership

The scale developed by Westerman et al. (2014a) is used in order to determine a country's level of digital maturity. Their methodology conceptualizes digital maturity as the combination of an organization's digital capabilities and its talents in digital leadership (Westerman et al., 2014b). Westerman et al.'s (2014a) explicit focus on leadership, its acceptance within the broader digital transformation literature, and the simplicity of the scale led to its use in this study. Other, often more complex, measures of digital maturity have been suggested (e.g. Colli

et al., 2019; Zouari et al., 2021). However, the use of Westerman et al.'s (2014a) scale was chosen because of its explicit focus on leadership. This metric had an alpha of 0.90 according to Cronbach. The level of digital maturity might be measured on this scale using a seven-point scale, with 1 representing a strong disagreement and 7 representing a strong agreement.

Section C: Entrepreneurial orientation

The entrepreneurial orientation was evaluated using Bolton's (2012) ten-item scale, which was developed before. This scale was selected because it is well recognized and put to widespread use. Furthermore, it is applicable to a diverse variety of fields while putting more of an emphasis on the individual level. On this scale, organizational resilience is measured using a seven-point scale, with 1 representing significant disagreement and 7 representing strong agreement. Each component on the metering device had a statement that was worded in the positive.

Section D: organisation resilience

The organisational resilience was measured using the three-item scale created by Melián-Alzola, Fernández-Monroy and Hidalgo-Peñate (2020). This scale was chosen because it is well-known and extensively used, and since, unlike sector-specific scales in subjects like as supply chain management, it applies to a wide range of sectors and focuses more on the individual level. This scale will measure organizational resilience on a seven-point scale (range from 1 = strongly disagree to 7 = strongly agree). Each item on the measuring instrument was phrased in the affirmative.

3.8 DATA ANALYSIS

The data was structured and converted from the spreadsheet tool MS Excel to the statistical analysis program SPSS. The first thing that needs to be done is to make sure that the instrument and the models that are going to be used to evaluate the data are reliable and valid. The following will be included in the data analysis:

3.8.1 Data screening

The data that was collected for the study is captured and analysed after they have been obtained. The researcher begins by conducting a test to assess the normality of the data acquired in order

to establish whether or not the data was accurately modelled and displays a normal distribution. After that, the researcher carried out a reliability test, the results of which demonstrate that all of the items utilized are dependable, as shown by their Cronbach's alpha values being greater than (> 0.7) (Nassaji, 2015). Before moving on to any kind of inferential analysis, the researcher will first carry out a factor analysis in order to group variables in accordance with the correlation that exists between the variables (Nassaji, 2015). In regards to model fits indices, the study will follow 1) Hooper's (2008) conclusion, which found that the most commonly reported model fit indices are Chi-Square; 2) According to Hooper (2008), Bentler's measurement for fit model must be 0.90 or above to be considered an acceptable model.

3.8.2 Descriptive statistic

Means, standard deviations, and the correlation between variables was used in the process of doing descriptive statistics on the demographics.

3.8.3 Inferential statistic

The study will make use of SEM to analyse the construct. As indicated by Kelloway (1998), one essential justification behind utilizing SEM is its capacity to plan and address complex information issues. SEM can likewise will be utilized by the analyst to indicate primary connections between digital maturity and organisational resilience (Kelloway, 1998). SEM's essential weakness when contrasted with other multivariate procedures is its intricacy. Besides, it can't decide the directionality of relationship (Anderson and Gerbing, 1988; Kelloway, 1998). In light of the previously drawbacks of linear regression versus the advantages of SEM, the utilisation of SEM was legitimate for this research. SEM will be performed utilising AMOS, which is overseen by SPSS.

3.8.4 Statistical tool

Both the Statistical Package for the Social Sciences (SPSS) and the Advanced Multivariate Statistical Analysis System (AMOS) was used throughout the entirety of the data analysis procedure (correlation analysis, regression analysis and SEM etc.) (Nassaji, 2015). In addition, the researcher makes use of process analysis (version 3.2), which was developed by Andrew F. Hayes, in order to evaluate the impacts of the moderator factors on the link between the independent variable and the dependent variable that was the focus of the study. This evaluation was done in order to determine how the moderator factors affect the relationship between the independent variable and the dependent variable.

3.9 RELIABILITY AND VALIDITY

Reliability

Alpha was developed by Lee Cronbach (1951) as a measurement of internal consistency of a scale. Internal consistency can be defined as the extent to which all the items in a specific scale or test measures the same construct or principle (Tavakol & Dennick, 2011). Therefore, it is the relation of the interdependence or interconnectedness of the items within a scale. Cronbach's Alpha values ranges between 0 and 1, where values close to 1 indicate a higher level of reliability of the scale and values closer to 0 indicate lower reliability of the scale. Prior researchers have documented various suggestions on acceptable alpha values, which range from 0.6 to 0.95 (Bland & Altman, 1997). This study is aimed at achieving alpha scores greater than 0.6 for each item on the scales. This measurement should be estimated before a scale can be tested or implemented in a research study to ensure that the results obtained are valid and reliable, therefore, this estimate also indicates the degree of measurement error within a scale. This entails that Cronbach's alpha is significant when one needs to ensure the reliability of the data drawn from the scales of a questionnaire.

Validity

Besides determining the reliability of the scales, it is also important to determine the validity, which is how effective the scales measures what it's initially set out to measure. Therefore, the statistical analysis used in this study to ensure validity is principal component analysis, also known as PCA, which is essentially the basis of multivariate analysis. PCA is a method used

to identify and establish patterns within a data set (Wold & Esbensen, 1987). This is expressed by highlighting the similarities and differences between the data components. Furthermore, Wold and Esbensen (1987) suggested that the main purpose of PCA is to focus on establishing relationships between items.

3.10 ETHICAL CONSIDERATION

In academic research, complying with ethical norms is absolutely necessary since upholding integrity serves as the compass by which the study is carried out. It is essential for the success of this research that the participants in the study not be subjected to any dangers or put at risk in any way, and that the highest ethical standards be adhered to at all times. By submitting all of the necessary papers and documentation that will be utilized in this study at least two months before the process of data collection, we will be able to get ethical clearance from the SEBS ethics committee. This clearance was used in this study. After the appropriate clearance certificate has been granted to carry out this research, only then can data collection begin. As a consequence of this, the ethical principles shall be adhered to in order to guarantee the respondents' right to privacy, anonymity, and secrecy.

3.11 CONCLUSION

This chapter includes discussions on the research technique as well as the study design. Throughout the entirety of this chapter, both the techniques of data collection and the statistical processes that were utilized in order to collect and analyse the data were dissected and analysed. It detailed the study design, the sampling methods that were utilized, the processes for data collecting, the statistical data analysis methods that were employed, and the necessary tests for reliability and validity were also covered in this section. From this chapter, the research used a positivist world view, apply a quantitative technique, and in addition, it adopts an explanatory research design. In order to acquire the necessary information for the study, a sampling strategy that does not rely on probability is utilized.

4 PRESENTATION OF RESULTS

INTRODUCTION

This section of the report analyses and summarizes the data collected via the quantitative research questionnaires. Seven different parts make up this chapter. Each hypothesis was tested using inferential statistics, including descriptive analysis (6), bivariate analysis (7), and multivariate analysis (8). Section 1 describes the response rate, Section 2 examines data screening, Section 3 discusses validity, Section 4 discusses reliability of the research instrument, Section 5 discusses data normality for each construct, Section 6 examines data screening, Section 7 examines descriptive analysis, and Section 8 examines bivariate and multivariate analysis.

4.1 RESPONSE RATE

In most cases, it is difficult to gather data since people are wary of providing personal information to strangers and academics, and the response rate is a key indicator of the sample size. However, out of 399 questionnaires distributed, 200 were responded to for a response rate of 50.1%, despite the fact that previous research had struggled to elicit replies from entrepreneurs using online surveys (Chaganti and Greene 2002). Only surveys with 100% response rates were included in the study. A total of 129 questionnaires were thrown out because either the participant did not sign their agreement or they did not meet the criteria for a sample participant. Furthermore some were discarded due to many missing data

4.2 DATA SCREENING

When there are missing values, statistical analyses typically fail. Making ensuring the data is high quality and has been examined for anything that might put the researcher at danger of examining faulty data is a crucial step in getting reliable results.

4.3 CONSENT

The researcher said unequivocally, "Your participation in this study is fully voluntary, and you may withdraw from the study at any moment, for any reason, and without penalties. The questionnaire will collect no personal information, only study-related information. Throughout

the study process, confidentiality will be respected, and only academic goals will be pursued with the results. Your replies will be kept strictly confidential. Thank you so much for participating in this study. In addition, the research instrument demanded participants' consent to engage in the study. Therefore, any individual who did not consent to participate in the research voluntarily or involuntarily, his or her research questionnaire was discarded for that reason.

4.3.1 Dealing with missing values

People were free to stop taking part in the study at any time, for any reason, and there were promised that there will be no negative consequences for doing so. And despite researchers' and analysts' best efforts, gaps in information still crop up often. In a lengthy survey, members may lose track of where they are in the questions, and in sensitive research, members may refuse to answer any questions they deem inappropriate (for example, Gender identification, current job position, feeling about a question). Seven surveys had missing data that could not be accounted for during analysis. Unfortunately, due to time constraints and other factors, not as many replies were gathered as would have been desirable. For this reason, further statistical tests were conducted to establish whether or not the missing values were missing at random or not at random. The MCAR test developed by Little was used to establish whether or not the missing information was absent at random (Little, 1988). Little's MCAR test was not significant (Chi-square=77.992; DF=60; Sig=.059) because the expectation-maximization (E-M) value was 0.059 higher than 0.05. Therefore, we did not find sufficient evidence to reject the null hypothesis, which held that the missing data occurred at random. Unavailable data were replaced with the series mean.

4.4 VALIDITY

Utilizing exploratory factor analysis, we checked the reliability of the survey. Exploratory factor analysis was used to determine which items were most strongly associated with the construct of interest. With factor analysis, you may determine how few building blocks are needed to reconstruct the original data (Gorsuch, 1997). The objective is to find a suitable loading scheme that accounts for all the variables that need to be measured (Cooper and Schindler 2009). To be clear, the fact that several things cluster together under a given factor does not prove that the instrument is accurately measuring the concept in question. The construct being measured is not shown by EFA; only which elements are loaded together under

a certain factor is shown. Cooper and Schindler are among the world's most recognizable figures (Cooper and Schindler, 2009). Adequacy of the sample is seen in table 4.1.

Table 4.1:KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.835
Bartlett's Test of Sphericity	Approx. Chi-Square	1433.292
	df	210
	Sig.	.000

An indicator that assesses whether or not a correlation matrix is appropriate for EFA testing is called the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy. If the KMO value is 0.50 or above, then the data can be utilized for EFA analysis, as stated by Kaiser and Rice (1974). According to Kaiser and Rice's argument (1974), a number that is higher than .65 is better. As can be seen in table 4.1, the P-value (sig) is .000, which is lower than .05, and the KMO is .863, which places it within the safe zone established by Kaiser and Rice (1974) schools of thought and indicates that the data can be used for EFA analysis. Both of these facts point to the fact that the data can be used. According to the data in table 4.2, which can be seen below, there were four factors that explained 75.6% of the variance in the dataset's data.

Table 4.2:Total variance explain

Total Variance Explained							
Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	9.196	43.789	43.789	8.927	42.509	42.509	7.365
2	2.897	13.796	57.585	2.637	12.557	55.066	6.563

3	2.448	11.658	69.243	2.099	9.994	65.061	4.967
4	1.344	6.398	75.641	.974	4.636	69.696	2.427
5	.974	4.638	80.279				
6	.766	3.647	83.926				
7	.519	2.470	86.397				
Extraction Method: Principal Axis Factoring.							
a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.							

The table 4.2 above is a reduced version of the table 36 in the appendix, and it contains only a fraction of the Eigenvalues. The factor extraction procedure in SPSS was predicated on a criterion that needed eigenvalues to be larger than 1, and this section will only provide the factors that are able to fulfil this condition. The values for the first, second, third and fourth components are all shown in Table 4.2. The first factor has a value of $9.196 > 1$, the second factor has a value of $2.897 > 1$, the third factor has a value of $2.448 > 1$, and the fourth factor has a value $1.344 > 1$. Using the eigenvalues to be larger than 1 criteria, SPSS was able to determine a total of four factors. In addition, the middle set of columns is almost exactly the same as the first set of columns, with the exception that it only displays the factors that account for a significant amount of variation (Eigenvalues greater than 1) in the data. This is because the middle set of columns is nearly an exact duplicate of the first set of columns. The total variance explained by a factor is represented by eigenvalues. Factors 1 to 4 explain 75.64 percent of variance of data.

Table 4.3: Rotated Component Matrix

Pattern Matrix ^a				
	Factor			
	1	2	3	4
DL3	.924			
DL2	.897			
DL5	.868			
DL4	.862			
DL1	.852			
DL7	.829			
DL6	.801			

DC4		.923		
DC1		.917		
DC3		.902		
DC2		.895		
DC6		.602		
DC7		.570		
DC5				
EO4			.797	
EO3			.718	
EO2			.710	
EO1			.683	
OR2				.693
OR1				.691
OR3				.597
Extraction Method: Principal Axis Factoring.				
Rotation Method: Promax with Kaiser Normalization.				
a. Rotation converged in 6 iterations.				

In addition, some items were excluded from the research as they were classified under factor different than the one they were supposed to be under. As was pointed out before, the loading pattern is presumed to accurately depict all of the high stacking of items that are meant to assess a construct or factor that is comparable. Since each collection of items loads in one different component or factor, and the number of components was determined using SPSS (Cooper and Schindler 2009), table 4.3 reveals each item's loadings. As a result, this research instrument is considered to be legitimate.

4.5 RELIABILITY

Cronbach's alpha coefficient was utilized in this study to determine the reliability of scales used. To classify an item as trustworthy or reliable for the purpose of assessing a certain construct, a Cronbach's alpha of 0.6 or above is necessary (Hair et al., 2009).

4.5.1 Digital leadership

Table 4.4: Reliability of digital leadership construct

Reliability Statistics	
Cronbach's Alpha	N of Items
.956	7

For digital leadership, Cronbach's alpha was found to be high, with a value of 0.956, as can be seen in Table 4.4: Reliability of digital leadership construct. Table 4.5 also provides a representation of the inter-item correlation matrix (the maximum correlation is 0.952, and the lowest is 0.633). It is plausible to draw the conclusion that all these items are measuring the same thing, which is digital leadership, given that there is some degree of connection between them all.

Table 4.5: Inter-Item Correlation Matrix of digital leadership construct

Inter-Item Correlation Matrix							
	DL1	DL2	DL3	DL4	DL5	DL6	DL7
DL1	1.000	.902	.898	.676	.697	.655	.665
DL2	.902	1.000	.952	.748	.697	.656	.704
DL3	.898	.952	1.000	.752	.716	.633	.705
DL4	.676	.748	.752	1.000	.816	.726	.779
DL5	.697	.697	.716	.816	1.000	.837	.853
DL6	.655	.656	.633	.726	.837	1.000	.877
DL7	.665	.704	.705	.779	.853	.877	1.000

4.5.2 Digital capability

Table 4.6: Reliability of digital capability construct

Reliability Statistics	
Cronbach's Alpha	N of Items
.925	7

According to Table 4.6, the digital capability scale has a high level of reliability (Cronbach's alpha = 0.925). Table 4.7 shows the inter-item correlations (as low as 0.433 and as high as 0.939). Considering their association, it is safe to assume that all of these elements contribute to a comprehensive evaluation of digital capability.

Table 4.7: Inter-Item Correlation Matrix of digital capability construct

Inter-Item Correlation Matrix							
	DC1	DC2	DC3	DC4	DC5	DC6	DC7
DC1	1.000	.749	.744	.770	.534	.642	.575
DC2	.749	1.000	.939	.809	.433	.656	.545
DC3	.744	.939	1.000	.850	.445	.620	.493
DC4	.770	.809	.850	1.000	.572	.656	.585
DC5	.534	.433	.445	.572	1.000	.697	.559
DC6	.642	.656	.620	.656	.697	1.000	.690
DC7	.575	.545	.493	.585	.559	.690	1.000

4.5.3 Entrepreneurial orientation

Table 4.8: Reliability of entrepreneurial orientation construct

Reliability Statistics

Cronbach's Alpha	N of Items
.850	4

For entrepreneurial orientation, Cronbach's alpha was found to be high, with a value of 0.853, as can be seen in Table 4.8. Table 4.9 also provides a representation of the inter-item correlation matrix (the maximum correlation is 0.693, and the lowest is 0.481). It is plausible to draw the conclusion that all these items are measuring the same thing, which is entrepreneurial orientation, given that there is some degree of connection between them all.

Table 4.9: Inter-Item Correlation Matrix of entrepreneurial orientation construct

Inter-Item Correlation Matrix				
	EO1	EO2	EO3	EO4
EO1	1.000	.522	.639	.564
EO2	.522	1.000	.481	.631
EO3	.639	.481	1.000	.693
EO4	.564	.631	.693	1.000

4.5.4 Organisation resilience

Table 4.10: Reliability of organization resilience construct

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.790	.791	3

For organisational resilience, Cronbach's alpha was found to be high, with a value of 0.853, as can be seen in Table 4.10. Table 4.11 also provides a representation of the inter-item correlation matrix (the maximum correlation is 0.651, and the lowest is 0.482). It is plausible to draw the conclusion that all these items are measuring the same thing, which is organisational resilience, given that there is some degree of connection between them all.

Table 4.11: Inter-Item Correlation Matrix of organization resilience construct

Inter-Item Correlation Matrix			
	OR1	OR2	OR3
OR1	1.000	.541	.482
OR2	.541	1.000	.651
OR3	.482	.651	1.000

4.6 NORMALITY AND OUTLIERS

To test the normality of data in this study, the researcher made log transformation and made use of the Kolmogorov-Smirnov Test and the Shapiro-Wilk Test.

4.6.1 Digital leadership

The normalcy test for digital leadership is shown in Table 4.12, the p-value (.072) for Kolmogorov is greater than 0.05, this indicates that the data is normally distributed. The digital leadership construct was measured using seven items. Figure 4.1's histogram indicates that the data is normally distributed as there is one mode. The skewness and kurtosis values in table 4.13, were all within West et al. (1995) recommended limits, and the box plot in Figure 4.2 similarly revealed no probable outliers.

Table 4.12: Tests of normality of digital leadership

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Digital leadership	.101	71	.072	.956	71	.014
a. Lilliefors Significance Correction						

Table 4.13: Descriptive statistic of Digital leadership

Descriptive				
			Statistic	Std. Error
Digital leadership	Mean		1.4657	.02674
	95% Confidence Interval for Mean	Lower Bound	1.4124	
		Upper Bound	1.5190	
	5% Trimmed Mean		1.4727	
	Median		1.4771	
	Variance		.051	
	Std. Deviation		.22531	
	Minimum		1.00	
	Maximum		1.82	
	Range		.82	
	Interquartile Range		.36	
	Skewness		-.294	.285
	Kurtosis		-.850	.563

Table 4.15: Descriptive statistic of Digital capability

Descriptives				
			Statistic	Std. Error
Digital capability	Mean		1.3924	.02272
	95% Confidence Interval for Mean	Lower Bound	1.3470	
		Upper Bound	1.4377	
	5% Trimmed Mean		1.3943	
	Median		1.4102	
	Variance		.037	
	Std. Deviation		.19144	
	Minimum		1.00	
	Maximum		1.79	
	Range		.79	
	Interquartile Range		.22	
	Skewness		-.150	.285
	Kurtosis		-.349	.563

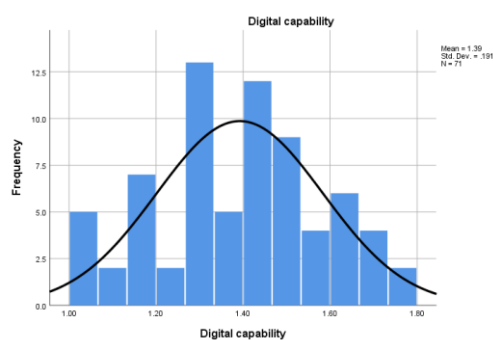


Figure 4.3: Digital capability Histogram

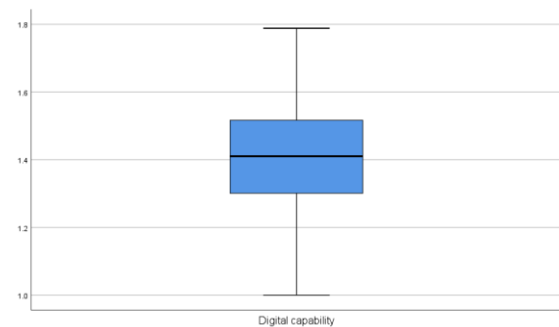


Figure 4.4: Digital capability boxplot

4.6.3 Entrepreneurial orientation

The normalcy test for entrepreneurial orientation is shown in Table 4.16, the p-value (.200) for Kolmogorov is greater than 0.05, this indicates that the data is normally distributed. The entrepreneurial orientation construct was measured using seven items. Figure 4.5's histogram indicates that the data is normally distributed as there is one mode. The skewness and kurtosis values in table 4.17, were all within West et al. (1995) recommended limits, and the box plot in Figure 4.6 similarly revealed one outlier, however the outlier is no sever enough to cause problem during the analysis (West et al.,1995).

Table 4.16: Tests of normality of entrepreneurial orientation

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Entrepreneurial orientation	.117	71	.017	.970	71	.086
a. Lilliefors Significance Correction						

Table 4.17: descriptive of entrepreneurial orientation

Descriptive				
			Statistic	Std. Error
Entrepreneurial orientation	Mean		1.3881	.02029
	95% Confidence Interval for Mean	Lower Bound	1.3476	
		Upper Bound	1.4285	
	5% Trimmed Mean		1.3894	
	Median		1.3979	
	Variance		.029	

	Std. Deviation	.17099	
	Minimum	1.00	
	Maximum	1.85	
	Range	.85	
	Interquartile Range	.21	
	Skewness	.033	.285
	Kurtosis	.136	.563

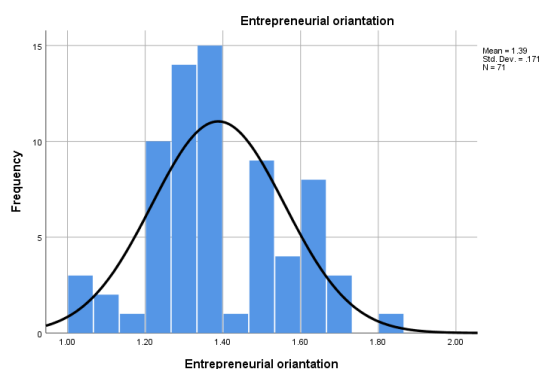


Figure 4.5: Entrepreneurial orientation histogram

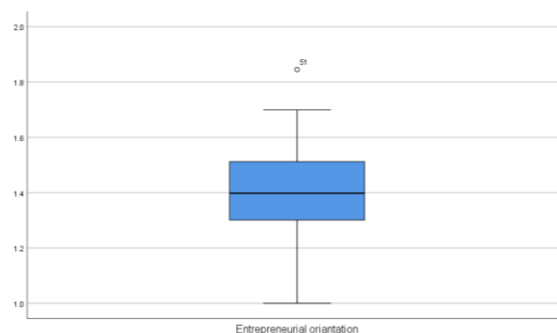


Figure 4.6: Entrepreneurial orientation boxplot

4.6.4 Organisation resilience

The organisation resilience construct was measured using seven items. A brief check of the means in the table 4.18 reveals that there was a high level of agreement among respondents. Figure 4.1's histogram indicates that the data can be seen as normally distributed as there is only one mode. The skewness and kurtosis values were all within West et al. (1995) recommended limits, and the box plot in Figure 4.2 similarly revealed no probable outliers.

Table 4.18: Descriptive of organisation resilience construct

Statistics
Organization resilience

N	Valid	71
	Missing	0
Mean		2.2606
Std. Deviation		.97233
Variance		.945
Skewness		1.051
Std. Error of Skewness		.285
Kurtosis		1.005
Std. Error of Kurtosis		.563

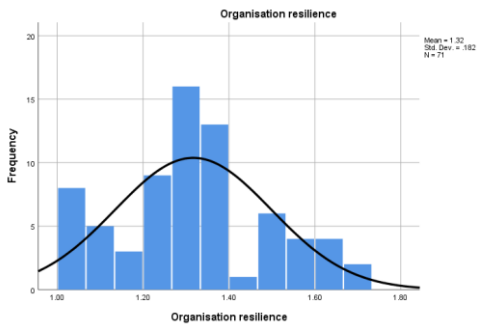
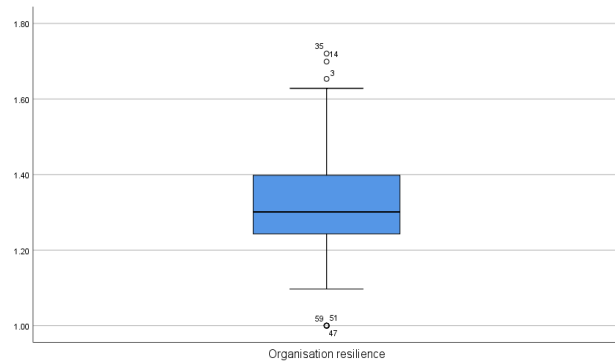


Figure 4.8: Organization resilience Box plot

Figure 4.7: Organization resilience histogram

4.7 PERSONAL DEMOGRAPHICS

Age, gender, degree of education, present occupation, and industry were among the personal demographic factors for which data was gathered. The personal demographics of the respondent samples are presented in the form of tables and figures below.

4.7.1 Gender

Table 4.17 show the gender distribution of the respondents of the study. A total of 50.7% of the respondents were male and 43.7 per cent were female and 5.6% were non binary.

Table 4.19: Gender

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	31	43.7	43.7	43.7
	Male	36	50.7	50.7	94.4
	Non-binary	4	5.6	5.6	100.0
	Total	71	100.0	100.0	

Figure 4.3 shows a bar chart of the above distribution. As can be clearly seen on the bar chart, male respondents constituted most of the respondents when compared to female and non-binary respondents.

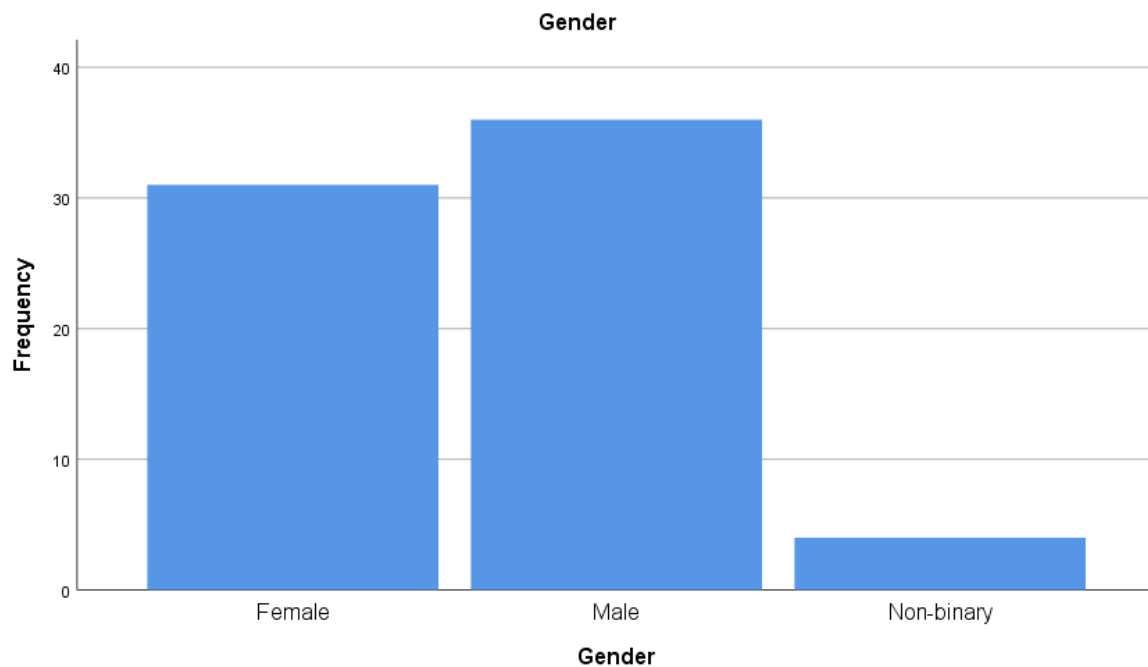


Figure 4.9: Gender distribution

4.7.2 Age

Table 4.18 show the Age distribution of the sample. 1.4% of the respondents were between 18 – 24 years of age, 26.8 per cent were between 25 – 34 years of age, 52.1 per cent were between 35 – 44 years of age, 18.3 per cent were between 45 – 54 years of age, 1.4 per cent were between 65 – 74 years of age.

Table 4.20: Age of respondents

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 - 24 years	1	1.4	1.4	1.4
	25 - 34 years	19	26.8	26.8	28.2
	35 - 44 years	37	52.1	52.1	80.3
	45 - 54 years	13	18.3	18.3	98.6
	55 years or plus	1	1.4	1.4	100.0
	Total	71	100.0	100.0	

Figure 4.4 shows a bar chart of the above distribution. As can be clearly seen on the bar chart, respondents between 35 – 44 years of age constituted most of the respondents followed by respondents between 25 -34 and 45 – 54 years of age respectively.

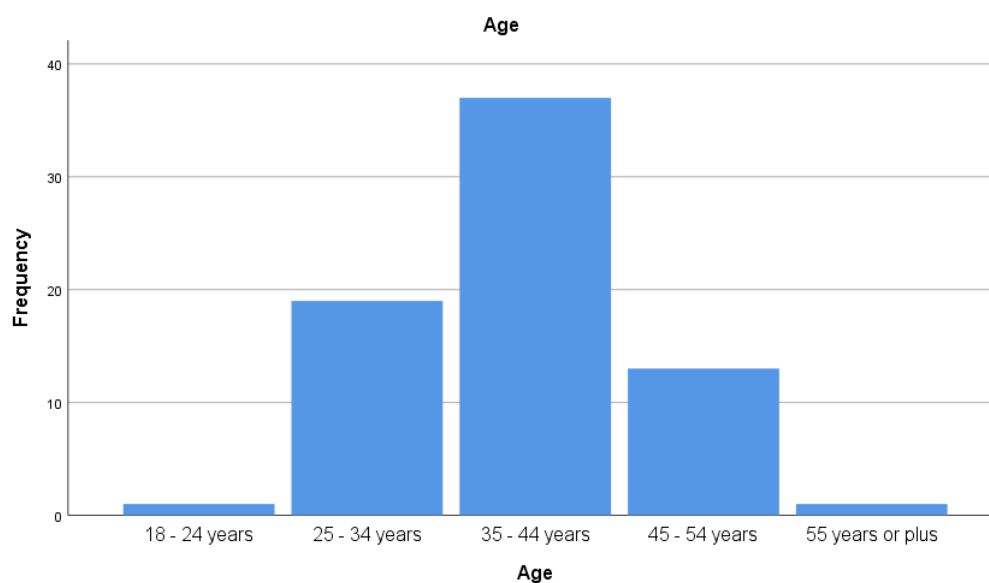


Figure 4.10: Age distribution

4.7.3 Level of education

Table 4.19 show the level of education distribution of the sample. 2.8 per cent of the respondents had completed grade 12, 15.5 per cent of the respondents had a diploma, 16.9 per cent of the respondents had bachelor's degree, 33.3 per cent of the respondents had honours' degree, 26.8 per cent of the respondents had masters' degree, only 4.2 per cent of the respondents had a PhD.

Table 4.21: Level of education

Education					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Grade 12 or Matric	2	2.8	2.8	2.8
	Diploma	11	15.5	15.5	18.3
	Bachelor's degree	12	16.9	16.9	35.2
	Honours	24	33.8	33.8	69.0
	Masters	19	26.8	26.8	95.8
	PhD	3	4.2	4.2	100.0
	Total	71	100.0	100.0	

Figure 4.5 shows a bar chart of the above distribution. As can be clearly seen on the bar chart, respondents with honour's degree constituted most of the respondents followed by respondents with master's degree.

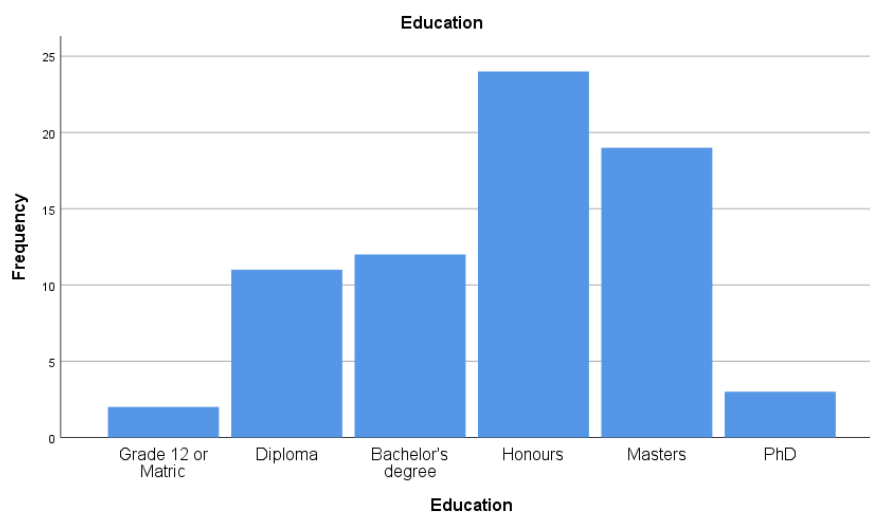


Figure 4.11: Level of education distribution

4.7.4 Industry

Table 4.20 1show the sector where the study's participants operates. 57.7 per cent of the respondents were operating in the retailer, 12.7 per cent of the respondents were operating in wholesale, 21.1 per cent of the respondents were operating in the IT, 5.6 per cent of the respondents were operating in construction, while 2.8 per cent of the respondents were operating in industries or sector other than what was specified in the study.

Table 4.22: Industry

Sector					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Retailer	41	57.7	57.7	57.7
	Wholesale	9	12.7	12.7	70.4
	IT service	15	21.1	21.1	91.5
	Construction	4	5.6	5.6	97.2
	Other	2	2.8	2.8	100.0
	Total	71	100.0	100.0	

Figure 4.6 shows a bar chart of the above distribution. As can be clearly seen on the bar chart, retailer and constituted most of the respondents followed by IT.

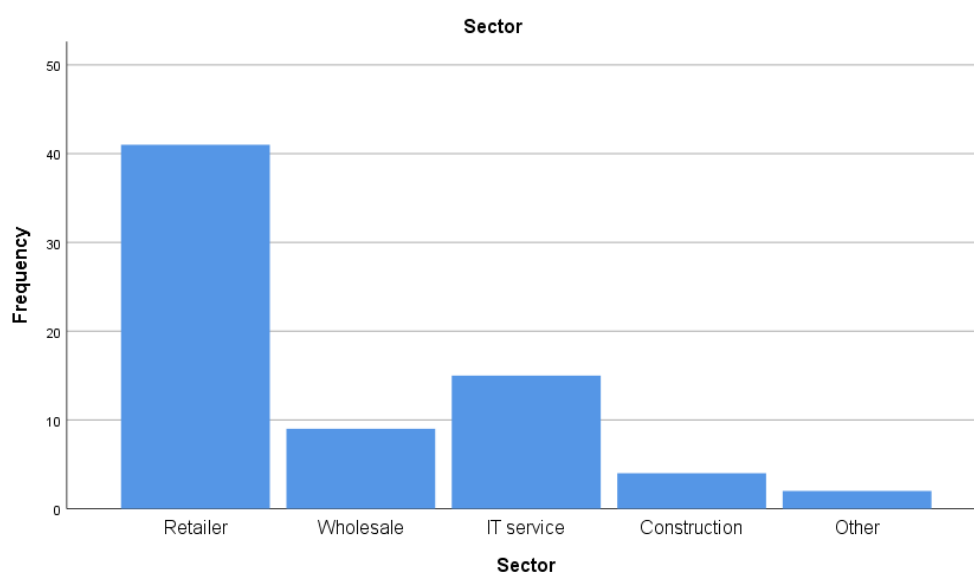


Figure 4.12: Industry distribution

4.7.5 Business inception

Table 4.21 show the current occupation distribution of the sample. From the respondents 70.4 per cent of the respondents said to have started the organisation from scratch meaning they were the founder if the organisation, 18.3 per cent of the respondents said to have bought the company from a previous owner or acquired it by acquisition, 11.3 per cent of the respondents inherited the busy from someone this include family member as well as friends or acquaintance

Table 4.23: Business inception

Business inception					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Started from scratch	50	70.4	70.4	70.4
	Bought / Acquired	13	18.3	18.3	88.7
	Inherited	8	11.3	11.3	100.0
	Total	71	100.0	100.0	

Figure 4.7 shows a bar chart of the above distribution. As can be clearly seen on the bar chart, managers constituted most of the respondents followed by senior managers and IT professionals.

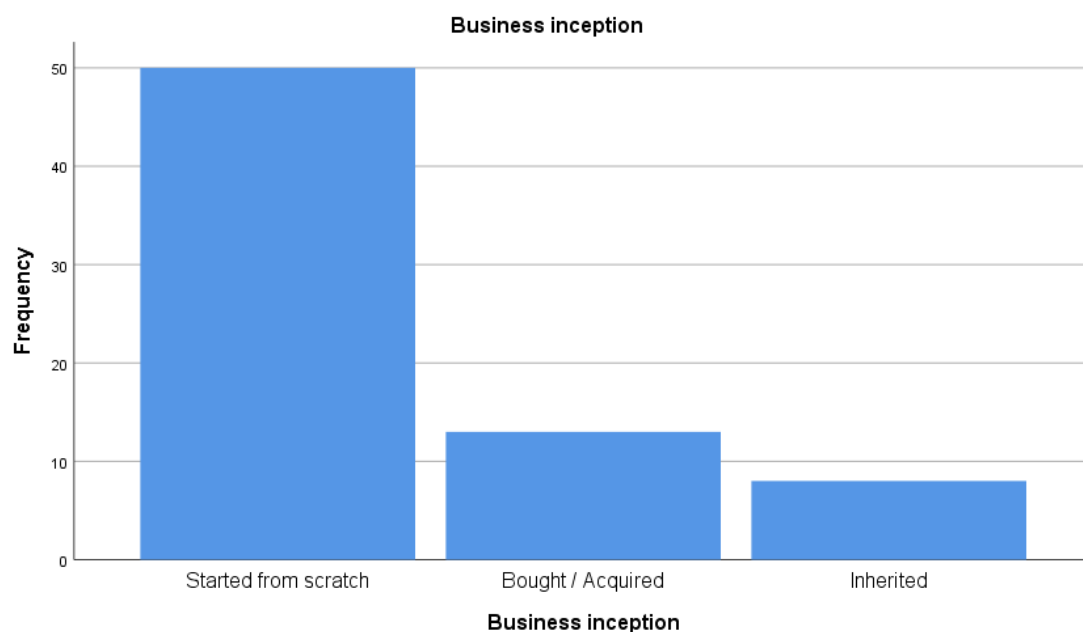


Figure 4.13: Business inception

4.8 STRUCTURAL EQUATION MODELLING

The model built in the second chapter of the study proposed connections between the two independent variable namely digital leadership, digital capability, the moderating variable entrepreneurial orientation and the dependent variable organization resilience. Although regression analysis might have helped and done the job, it has some drawbacks when compared to SEM. Furthermore, Kelloway (1998) claims that the ability to pose and answer challenging data questions especially those with the use of mediating and moderating variable, is a key reason for using SEM in inferential statistics analysis. The intricacy of SEM when compared to other multivariate techniques is its main disadvantage (Anderson & Gerbing, 1988; Kelloway, 1998).

4.8.1 Confirmatory factor analysis

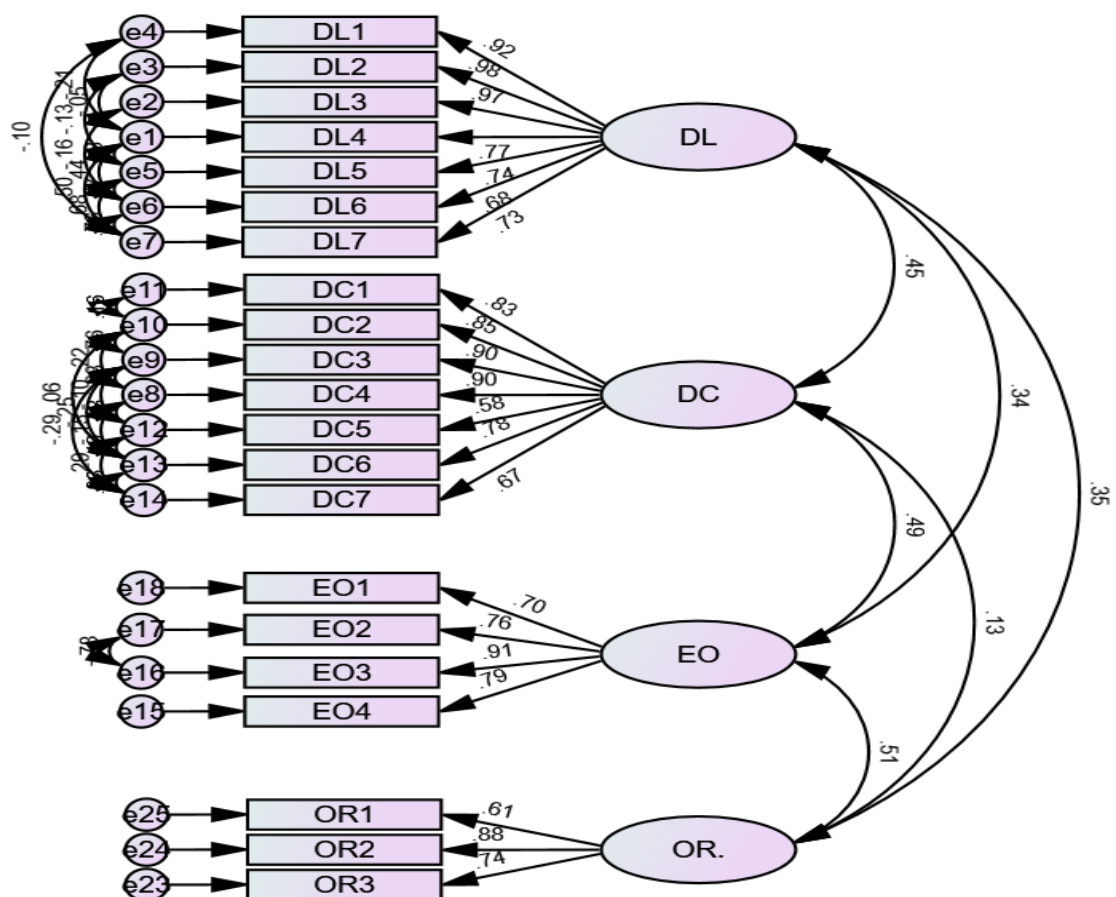


Figure 4.14: Confirmatory factor analysis

Figure 4.8 and table 4.22 shows the results of the model fit. Except for the chi-square's p-value and the GFI, which Sharif and Nia (2018) contend are unimportant, this is a considerably good model fit, with all fit indices indicating an excellent fit see table 4.22. The Chi-square value is 338.754, the DF are 251, the GFI is .776, the CFI is .917, the NFI is .841, the SRMR is 0.08, the TLI is .908, the IFI is .919, and the RMSEA is .089. the P value is .000.

Table 4.24: Summary of the fit indices

Fit indices	Value	Recommended value	Author(s)
X²	000	p-value > 0.05	Meyers et al, 2005
X²/DF	1.617	<3.0 good; <5.0 sometimes permissible	Hair et al., 2009
GFI	.776	>.90	Chau, 1997
CFI	.917	>.90	Hatcher, 1993
RMSEA	.089	<.08: good fit; .08 to .1: moderate fit; >.1: poor fit	Meyers et al, 2005
SRMR	.08	<0.09	Hair et al., 2009
NFI	.841	>.90	Bentler and bonett, 1980
IFI	.919	>.90	Meyers et al, 2005
TLI	.908	>.90	Meyers et al, 2005

After the assessing the fitness of the model, the next step is to perform the aforementioned analysis and test the different relationships between the independent variables, mediating variable and the dependent variable. The structural equation model is designed to test the

model's hypotheses when a measurement that suggests a satisfactory match between the model and the data is created. Figure 4.9 depicts the structural equation model that was used to analyse the assumptions.

4.8.2 Research model

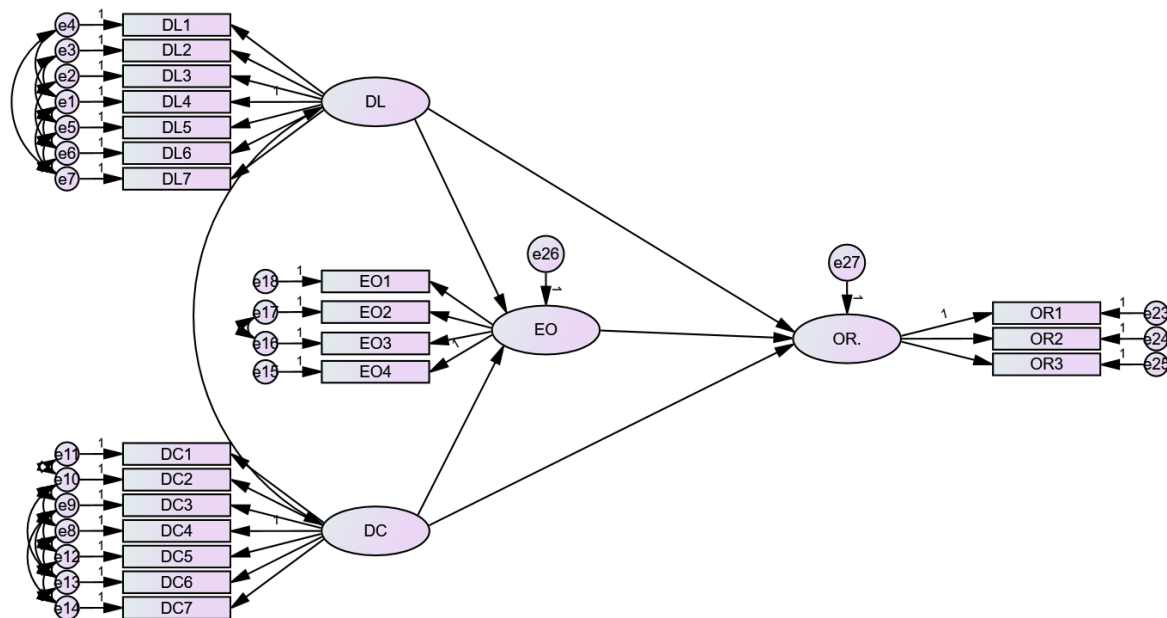


Figure 4.15: Structural model

Figure 4.9 and table 4.23 illustrate the results of the course examination as well as the fit indices for the major structural model that was utilized in this research. Since all of the fit records are within Sharif and Nia's (2018) appropriate cut-off points in table 4.23, the records indicate that there is a decent match between them. Following the completion of the confirmatory factor analysis, the newly developed structural mode possessed the following fit indices:

Table 4.25: fit indices of the structural model

Fit indices	Value	Recommended value	Author(s)
χ^2	000	p-value > 0.05	Meyers et al, 2005

X²/DF	1.555	<3.0 good; <5.0 sometimes permissible	Hair et al., 2009
GFI	.773	>.90	Chau, 1997
CFI	.938	>.90	Hatcher, 1993
RMSEA	.089	<.08: good fit; .08 to .1: moderate fit; >.1: poor fit	Meyers et al, 2005
SRMR	.89	<0.09	Hair et al., 2009
NFI	.848	>.90	Bentler and bonett, 1980
IFI	.940	>.90	Meyers et al, 2005
TLI	.917	>.90	Meyers et al, 2005

After determining whether or not the primary model is a good match for the data, the next stage is to assess the validity of the numerous relationship hypotheses derived from the research literature and the conceptual framework in the previous chapters.

4.8.2.1 Total effect

It is clear from looking at table 4.24 that both entrepreneurial orientation (EO) and digital leadership (DL) have a significant relationship with the independent variable organization resilience (OR). Only digital capacity (DC) and organization resilience (OR) exhibited a link that was not statistically significant.

Table 4.26: Total Effects - Two Tailed Significance

	Digital capability	Digital leadership	Entrepreneurial orientation	Organisation resilience
Entrepreneurial orientation	.047	.241	...	...
Organisation resilience	.741	.033	.028	...

Table 4.25 displays the unstandardized parameter estimates of the variables. This is done after determining which relationships are significant and which are not significant. In the case of digital capability, there is no reason to take into consideration the parameter of said capability given that the relationship in question is not significant.

Table 4.27: Total Effects (Group number 1 - Default model)

	Digital capability	Digital leadership	Entrepreneurial orientation	Organisation resilience
Entrepreneurial orientation	.345	.115	.000	.000
Organisation resilience	-.028	.236	.463	.000

4.8.2.2 Indirect effect

When looking at the model in figure 4.26, one can see that only digital leadership (DL) and digital capacity (DC) have an indirect relationship to organizational resilience; as a result, only the cells linking these variables are filled with numbers. This is because only these variables have an indirect relationship to organizational resilience. From table 4.26, it can be seen that only digital capability has an significance indirect effect on organisation resilience, whereas, digital leadership has a non-significant indirect effect on organisation resilience

Table 4.28: Indirect Effects - Two Tailed Significance

	Digital capability	Digital leadership	Entrepreneurial orientation	Organisation resilience
Entrepreneurial orientation	...	...	...	...
Organisation resilience	.035	.152	...	...

Table 4.27 displays the unstandardized parameter estimates of the variables in the indirect effects. This is done after determining which relationships are significant and which are not significant in the indirect effects. In the case of digital leadership, there is no reason to take into consideration the parameter of said leadership given that the relationship in question is not significant.

Table 4.29: Indirect Effects (Group number 1 - Default model)

	Digital capability	Digital leadership	Entrepreneurial orientation	Organisation resilience
Entrepreneurial orientation	.000	.000	.000	.000
Organisation resilience	.160	.053	.000	.000

4.8.2.3 Direct effect

From table 4.28, it can be seen that only digital leadership has an significance indirect effect on organisation resilience, whereas, digital capability has a non-significant indirect effect on organisation resilience.

Table 4.30: Direct Effects - Two Tailed Significance

	Digital capability	Digital leadership	Entrepreneurial orientation	Organisation resilience
Entrepreneurial orientation	.047	.241	...	...
Organisation resilience	.225	.040	.028	...

Table 4.29 displays the unstandardized parameter estimates of the variables in the direct effects relationship. This is done after determining which relationships are significant and which are

not significant in the indirect effects. In the case of digital leadership, there is no reason to take into consideration the parameter of said leadership given that the relationship in question is not significant.

Table 4.31: Direct Effects (Group number 1 - Default model)

	Digital capability	Digital leadership	Entrepreneurial orientation	Organisation resilience
Entrepreneurial orientation	.345	.115	.000	.000
Organisation resilience	-.187	.183	.463	.000

Table 4.32: Mediation table

Relationship	Total effect		Indirect effect		Direct effect		Result of the mediation
	<i>P-value</i>	Estimate	<i>P-value</i>	Estimate	<i>P-value</i>	Estimate	
DL → OR	H ₁ : +sig	.236	H ₃ : non-sig	.053	H ₃ : +sig	.183	Direct relationship
DC → OR	H ₂ : non-sig	-.028	H ₄ : +sig	.160	H ₄ : non-sig	-.187	Indirect relationship

4.9 SUMMARY OF THE CHAPTER

Despite the fact that prior study had difficulty eliciting responses from business owners through the use of online surveys, a total of 399 questionnaires were handed out, and only 200 of them were filled out and returned for a response rate of 50.1%. (Chaganti and Greene 2002). Only questionnaires in which every question was answered were considered for inclusion in the research. A total of 129 questionnaires were discarded for one of two reasons: the participant did not sign their consent, or they did not fulfil the requirements to be considered a participant in the sample. In addition, several of them were thrown out since there were numerous data points missing. As a direct consequence of this, the study's sample was comprised of 71 business owners. The validity of the scale item was examined using EFA, and from the data that was collected, four factors—digital leadership, digital competence, entrepreneurial orientation, and organization resilience—were constructed. The reliability test demonstrated a satisfactory degree of consistency, with Cronbach's alpha ranging between 0.6 and 0.89. The results of these tests demonstrated that the variables (normality, correlation, validity, and reliability) were of a high enough quality to be utilized in structural equation modeling (SEM) and hypothesis testing (Hair, Gabriel, & Patel, 2014). In terms of the hypothesis, the first one identified a link that was statistically significant between digital leadership and organizational resilience, whereas the second one discovered a relationship that was statistically insignificant between digital competence and organizational resilience. Concerning the role of mediation, the third hypothesis concluded that entrepreneurial orientation did not play that role in the connection between digital leadership and organization resilience. On the other hand, the fourth hypothesis concluded that entrepreneurial orientation did play that role in the connection between digital capability and organization resilience.

4.9.1 Summary of the hypothesis

The research investigated four hypotheses: two of them measured the relationship between the independent variables digital leadership, digital capability and the dependent variable organisation resilience; the other two measured the mediating role of entrepreneurial orientation in the relationship between, first, digital leadership and organization resilience, and second, digital capability and organization resilience. Two of the hypotheses measured the relationship between the independent variables digital leadership and digital capability and the dependent variable. The results of the previously indicated hypotheses are presented in tabular form in table 4.33.

Table 4.33: Summary of hypothesis

Hypothesis	Result
H ₁ : There is a positive relationship between digitally capability and organisation resilience	Accepted
H ₂ : There is a positive relationship between digitally leadership and organisation resilience	Rejected
H ₃ : Entrepreneurial orientation positively mediate the relationship between digital capability and organisational resilience	Direct effect
H ₄ : Entrepreneurial orientation positively mediate the relationship between digital leadership and organisational resilience	Indirect effect

5 DISCUSSION

5.1 INTRODUCTION

This chapter covers the findings that were presented in the previous chapter (Chapter 4) of the study. The quantitative analysis is discussed in connection to the findings of previous research that is relevant to the literature. The testing of theory and model creation carried out in Chapter One is intended to be represented by both the descriptive and inferential quantitative testing that is carried out. In this chapter, the findings from the demographics section are reviewed first, followed by the findings pertaining to the study's objectives, which are discussed in relation to each hypothesis that was tested. The descriptive findings with regard to demography are elaborated upon below. The findings of the hypothesis testing that were conducted in relation to the model constructed in Chapter One are reported below. These findings concern the objectives of the study. It starts off with a discussion on the demographic profile, and then it moves on to discussions on the hypotheses that were investigated in this study.

5.2 DEMOGRAPHICS

The purpose of this study was to investigate the influence of digital maturity of small and medium-sized enterprises (SMEs) on the resilience of SME organizations. We started by analysing the demographics of the business owners based on their age, level of education, when they started their companies, and the industries they operate in.

5.2.1 gender

Table 4.17 provides a breakdown of the sample in terms of the genders represented. Overall, there were 50.7% of male respondents, 43.7% of female respondents, and 5.6% of respondents who classified as non-binary. With 50.7% male responses and 43.7% female respondents, the gender composition of the industry shows that there is a gender imbalance between males and females. This is comparable to most studies on entrepreneurship that were emphasized in the GEM reports (2010, 2019). The consensus is that this variation may very well be attributable to the various cultural norms and conventions that exist. Moreover, in the past, entrepreneurship was considered to be a male-dominated sector (Brush, 1992; Berg, 1997). Women entrepreneurship was traditionally neglected both in society in general and in the social sciences, considering that mainstream research, policies and programs tend to be 'men streamed' (Baker et al., 1997; OECD, 2004). According to Baker et al. (1997), women's

entrepreneurship was ‘invisible’ to the media, as well as management entrepreneurship scholars. But, today, it is different.

However, given the uncertain global environment, policymakers in developing countries have been increasingly turning to inclusive entrepreneurship to stimulate growth with job creation (OECD, 2017a; World Bank, 2012; Global Entrepreneurship Monitor (GEM), 2017). This renewed interest in entrepreneurship generated a rise in studies on female business owners as a source of women economic empowerment in developing countries (Hallward-Driemeier, 2013; De Vita et al., 2014; Dutta and Mallick, 2018). A key driver of this surge is the idea that entrepreneurship in developing countries is an essential component of structural transformation and sustained growth (Gries and Naudé, 2010; Brixiová et al, 2015). Against this background, recent governmental policies focus on supporting entrepreneurship, particularly among women and youth.

5.2.2 Age

Table 11 presents a breakdown, by age group, of the respondents included in the sample. 1.4% of those who responded were between the ages of 18 and 24 years old, 26.8% of those who responded were between the ages of 25 and 34 years old, 52.1% of those who responded were between the ages of 35 and 44 years old, 18.3% of those who responded were between the ages of 45 and 54 years old, and 1.4% of those who responded were older than 54 years old. According to the GEM reports (2010, 2019), the prevalence of early-stage entrepreneurial activity in South Africa tends to be relatively low in the age categories of 18-24 years old, peaks in the age category of 27-49 years old, and then declines with increase in age, with the steepest decrease occurring after the age of 54. This observation was not necessarily borne out by this study as the highest number of respondents came from the age category of 35 to 44 (26%) this could be partially explained by the fact that convenience sampling was employed additionally, there is a mismatch of the gender balance as well with 50.7% male and 43.7% female respondents in this study. It should not come as a surprise that more people at this age are involved in business, as many people are still productive and active at this age as well. However, it is important to note that in a study by Weber and Schaper (2004), there was an observation that 31% of small businesses were started by those who were over the age of 50. Because of this, it should not be surprising that more people at this age are involved in business.

5.2.3 Level education

Moreover, the level of education held by participants are broken down in Table 12. Only 4.2 percent of the respondents held a doctorate degree, whereas 26.8 % of the respondents held a master's degree, 33.8 % of the respondents held an honours degree, 16.9 % of the respondents held a bachelor's degree, 5.5 % held diploma, and only 2.8 % held a matric. This is an indication that the participants surveyed have a high level of educational attainment. The relevant literature suggests important links between education, venture creation and entrepreneurial performance, as well as between entrepreneurial education and entrepreneurial activity. According to Sánchez (2010) education seems important for stimulating entrepreneurship because several reasons (Reynolds, Hay, & Camp, 1999; Sánchez, 2010). The author (Sánchez, 2010) states that, first, education provides individuals with a sense of autonomy independence and self-confidence. Second, education makes people aware of alternative career choices. Third, education broader the horizons of individuals, thereby making people better equipped to perceive opportunities, and finally, education provides knowledge that can be used by individuals to develop new entrepreneurial opportunities (Reynolds, Hay, & Camp, 1999; Sánchez, 2010).

5.2.4 Sector

The table 4.20 outlines the industries in which the participants' businesses are active. 57.7% of the respondents were employed in the retail industry, 12.7% of the respondents were employed in the wholesale industry, 21.1% of the respondents were employed in the information technology industry, 5.6% of the respondents were employed in the construction industry, and 2.8% of the respondents were employed in industries or sectors other than what was specified in the study.

5.2.5 Business inception

The distribution of the sample's current occupations is displayed in Table 4.21. According to the table, 70.4% of the respondents stated that they had started the organization from scratch, which means that they were the founder of the organization. 18.3% of the respondents stated that they had bought the company from a previous owner or acquired it by acquisition, and 11.3% of the respondents stated that they had inherited the busy from someone, which includes family members as well as friends or acquaintance. According to the findings, a combined total of 78.7% of the businesses fit under the categories of Sole Proprietorship (which refers to the

process of beginning an organization from scratch) and Purchased / Acquired. As this is a study on small firms, the finding should not come as a surprise because it is simpler to establish a sole proprietorship than other business formats.

5.3 DISCUSSION REGARDING RESEARCH QUESTIONS

In order to test the hypotheses, we turned to the structural equation modeling capabilities of AMOS version 26. In addition, we examined the mediating effect, along with the other two hypotheses, using a resampling technique called bootstrapping (Shrout and Bolger, 2002). In the past, this method has been favored more than Baron and Kenny's (1986) method, which was subjected to significant levels of criticism (MacKinnon, & Luecken, 2008). A total of one thousand bootstrap samples with confidence intervals corrected for bias to a level of 95 percent were selected (Hayes, & Preacher, 2013). The lower and upper confidence interval bounds are used to determine whether or not to accept the premise that there is an indirect impact. The alternative hypothesis in which the indirect influence is zero can be rejected with a confidence level of 95% if the number zero is contained inside the two borders of the alternative hypothesis. If there is no zero point in between the lower and upper ranges, then the indirect influence alternative hypothesis is selected as the most likely explanation.

5.3.1 Recapitulating on the research's question and objectives

According to Vide, Hunjet, and Kozina (2021), businesses experienced unprecedented challenges as a result of the worldwide coronavirus (Covid-19) epidemic. Numerous academics assert that the Covid-19 crisis was much more severe than the Great Depression (Kraus et al., 2021; Vide et al., 2021). Covid-19 was most disruptive to small and medium-sized retail companies (Becker and Schmid, 2020). From March 2020 on, customers spent significantly less money at traditional retailers and more money online (Donthu and Gustafsson, 2020; Pantano, 2021; Roggeveen and Sethuraman, 2020). Some companies acted swiftly, accelerating their adoption of digital technologies (Guthrie et al., 2021; Klein and Todesco, 2021). Merchants gained access to more sales and distribution channels as a result of embracing digital business strategies (Priyono et al., 2020). Recent research on the impact of the Covid-19 pandemic on the spread of digital technologies claim that this shock has accelerated the use of digital collaboration platforms and remote working, despite the fact that the pandemic is still reshaping the world (McKinsey, McKinsey, Hampson, and Enriquez, 2020; Ferrigno and Cucino 2021). Recent research reveals that small and medium-sized firms (SMEs) who were

able to adapt through digital responses frequently outperformed their colleagues (Klein and Todesco, 2021) and had a larger chance of survival and growth than those that adhered to traditional business techniques (Close et al., 2020).

There is the potential that two distinct conceptual frameworks can explain this phenomenon. According to Westerman et al. (2012) and Westerman et al. (2014), digital maturity is "the capability that enables an organization to align its people, culture, structure, and tasks to compete effectively by using opportunities afforded by technological infrastructure" (Kane et al., 2017, p. 29). The second notion, organizational resilience, refers to an organization's ability to build and employ "its capability endowments to engage with the environment in a manner that positively adjusts and sustains functioning before to, through, and after adversity" (Williams et al., 2017, p. 742). Digitally mature firms are more likely to be agile, collaborative, experimental, and risk-tolerant because they can more effectively affect and respond to change (Rader, 2019). Given aforementioned context, the key question that was investigated in this study was the following: to what extent does the levels of digital maturity (digital leadership and digital capability) of SME retailers relate to their potential to demonstrate resilience? The following were the supplementary questions:

- 1st How does digital capability influence organizational resilience?
- 2nd How does digital leadership influence organizational resilience?
- 3rd How does entrepreneurial orientation influences the relationship between digital maturity and organization resilience of SMEs?

This study aimed to determine the extent to which south SMEs' digital maturity influence to SMEs' ability to demonstrate resilience. Additionally, the research also explored the role that an entrepreneurial orientation has as a mediator in the relationship between the digital maturity of SME and the organization resilience of SME.

- To understand the relationship between SMEs' digital maturity and organizational resilience.
- To analyse the mediating role of entrepreneurial orientation on the relationship between SME retailers' digital maturity and SMEs retailers' organization resilience.

5.3.2 Discussion pertaining to the 1st research question

We conducted the above analysis to accomplish the goals of our study. As is known, leaders are the influencers of organizational resilience. Therefore, we examined the total effect of digital leadership on organizational resilience (Figure 4.15). The first question relates to the first objective which relates to the first hypothesis, the first hypothesis stated that H₁: There is a positive influence of digital leadership on organisational resilience. Our analysis showed that digital leadership has a positive total effect on organizational resilience ($\beta = 0.236$, $p < 0.001$). In other words, after analysis it was found that digital leadership positively influenced SMEs organisational resilience. According to this research's findings 0.236 being the value of the coefficient for the digital leadership variable, therefore, a 0.236-unit decrease in the SME's organisational resilience is predicted for every 1-unit (or 1-point, given that this is the measurement by which the tests are estimated) increase in the SME's leadership capability, provided that all other variables remain unchanged (*ceteris paribus*). These findings resonate with that of Robertson, Botha, Walker, Wordsworth, and Balzarova (2022), in their study the authors (Robertson et al., 2022) found that SME retailers who had higher digital leadership skills exhibited higher levels of organisational resilience than those who displayed lower levels of digital leadership.

In this day and age of digital technology and the present state of the corporate world, adopting new technology can be a challenging endeavor; however, digital leaders can assist in achieving organizational sustainability in a smooth manner. The findings of this research have the potential to improve our theoretical understanding of the connection between digital leadership and organizational performance, which will, in turn, have an effect on the degree to which organizations are resilient in light of the current environment in South Africa. As is common knowledge, digital leadership is a factor in the development of digital culture and the transformation of organizational environments. This is because digital leaders have the knowledge and expertise, as well as the dynamic capability, to reorganize organizational environments and ensure resilient sustainability. Employees are given the authority to make use of digital technology in environments that have an exceptional digital culture, and digital culture can operate as a mediator in the relationship between digital leadership and organizational resilience. In addition, according to Hambrick and Mason's upper echelons hypothesis (Hambrick & Mason, 1984), digital leadership is essential in distributing resources in order to keep a corporation afloat in the foreseeable future (Wasono, & Furinto, 2018).

Managers that are proficient in digital technologies inspire their employees to embrace creative tactics, which in turn boosts motivation and productivity. In addition to the leadership style they employ, business owners and managers are expected to be able to adapt to rapidly changing technological landscapes in order to motivate their employees to adopt contemporary fashions (Erhan, Uzunbacak, & Aydin, 2022). The findings of this research shed light on the significance of digital leadership for organizational resilience in a country that is technologically advanced like South Africa.

5.3.3 Discussion pertaining to the 2nd research question

We conducted the above analysis to accomplish the goals of our study. The second question relates to the first objective which relates to the second hypothesis, the second hypothesis stated that H₂: There is a positive influence of digitally capability on organisation resilience. Therefore, we examined the total effect of digital capability on organizational resilience (Figure 4.15). Our analysis showed that digital capability has influence on organisation resilience. In other words, after analysis it was found that digital leadership could not influence SMEs organisation resilience. The findings of this study does not resonate with previous study on the topic of digital capability and business resilience or sustainability. For instance, in their study titled “seeking the resilience of service firms: a strategic learning process based on digital platform capability” Liu, Long, and Liu (2022) found that digital platform capability was positively related to the adaptive capacity and planning capacity of service firms. This suggests that it is a very desirable measure to improve digital platform capability to gain organizational resilience (OR) in the crisis (Liu et al., 2022).

In addition, a study that was carried out by Westerman and colleagues (2012) demonstrates that digital capabilities are a vital building block with which firms may revolutionize the customer experience, operational procedures, and business models. This is just one example. According to the findings of the authors (Westerman et al., 2012), seventy-seven percent of respondents cited a lack of skills as a barrier to digital transformation. They suggest that digital skills need to go beyond basic IT and encompass specialized technologies such as social media or mobile, in addition to the analytical abilities that are needed to derive value from big data (Westerman et al., 2012). It's possible that the lack of a significant influence of digital capacity on organisational resilience found in this study is due to the fact that, as described in the demographics part of this study, the majority of the SMEs in this study began with the person starting from scratch. The lack of significance of digital capabilities in this study's context can

be explained by the fact that single proprietorship enterprises tend to lack various resources, including financial, prior expertise, and training at the initial stage of the business life cycle. Taking into consideration the significance of digital capability as well as the fact that it does not significantly affect the resilience of an organization, business owners and managers of small and medium-sized enterprises (SMEs) should focus their efforts on developing their inborn skills through participation in educational programs.

5.3.4 Discussion pertaining to the 3rd research question

The third question is in relation to the second aim, which is in turn related to the third and fourth hypotheses. The third hypothesis stated that H3: Entrepreneurial orientation positively mediates the relationship between digital leadership and organisational resilience. In light of the findings presented above, we investigated the potential significance of entrepreneurial orientation as a moderating factor in the connection between digital leadership and organizational resilience (H3). According to the findings of our research, the only effect that digital leadership has on organizational resilience is a direct one ($\beta = .183$, $p < 0.001$ for both hypotheses). In other words, the findings of the investigation showed that digital leadership has a direct relationship with the resilience of organizations. This conclusion is consistent with the findings of H1 presented in the previous sections. In addition, the fourth hypothesis suggested that H4: Entrepreneurial attitude positively mediates the association between digital competence and organizational resilience. According to the findings of our research, the only effect that digital leadership has on organizational resilience is a direct one ($\beta = .160$, $p < 0.001$ for both hypotheses). In other words, the research revealed that digital competence has a connection, although an indirect one, with the organizational resilience of an organization.

6 CHAPTER 6 CONCLUSIONS& RECOMMENDATIONS

6.1 INTRODUCTION

This final chapter contains insights from past chapters and contains the conclusion to the study. The chapter focuses on conclusions and recommendations, and provides future researchers with the suggestion of areas for future research.

6.2 CONCLUSIONS OF THE STUDY

The base on which the study was built is related to the nexus between digital maturity, entrepreneurial orientation, and SMEs' organisation resilience. The research objectives are to understand the relationship between SMEs' digital maturity and organisational resilience and to analyse the mediating role of entrepreneurial orientation on the relationship between SME retailers digital maturity and SMEs retailers' organisation resilience. Literature review identified and discussed these organisational factors, such as entrepreneurial orientation, digital maturity, organisation resilience, digital technology, leadership and capability and hypotheses were formulated.

The study found that there is a positive relationship between digital capability and organisation resilience. Furthermore, there is a positive relationship between digital leadership and organisation resilience. Entrepreneurial orientation positively mediate the relationship between digital capability and organisational resilience and entrepreneurial orientation positively mediate the relationship between digital leadership and organisational resilience.

6.3 IMPLICATIONS AND RECOMMENDATIONS

Implications

The findings of the research have a potential in improving our theoretical understanding of the link between digital leadership and organisational performance, which has an effect on the level to which firms are resilient in light of the current environment in South Africa. The findings of this research gave a light on the significance of digital leadership for organisational resilience in a country which is technologically advanced.

The lack of significance of digital capabilities in this study's context could be explained by the fact that single proprietorship enterprises lack financial resources and training in the initial stage of the business life cycle. Business owners and managers of SMEs must focus on developing inborn skills by participating in educational programs.

The research showed us that digital competence has a connection, indirect one, with organisational resilience of the organisation.

6.4 LIMITATIONS

The study was limited in terms of generalising the research findings across South Africa, since the study focused on enterprises from Johannesburg. Future researchers can expand this study to the rest of the provinces of South Africa and can conduct a study to view whether results are general amongst SMEs in South Africa. The study was limited to test the nexus between digital maturity, entrepreneurial orientation and SMEs organisation resilience in Johannesburg in the post-lockdown era.

6.5 SUGGESTIONS FOR FURTHER RESEARCH

Researchers who want to expand this research in the future can consider a qualitative study on this topic. Another suggestion for future researchers would be to expand the study across South Africa. A comparative study between provinces could be done by future researchers.

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8 APPENDIX

8.1 APPENDIX A: CONSISTENCY MATRIX

Research question stated here: To what extent SME’ digital maturity contributes to SMEs’ ability to demonstrate resilience?					
Aims of research	Literature Review	Hypotheses or Propositions or Research questions	Source of data	Type of data	Analysis
To understand the relationship between digital maturity and organisational resilience.	Rader (2019), Westerman et al (2014a), Westerman et al (2014b) (Teece and Pisano, 1994) (Teece et al., 1997), (Carcary, Doherty, and Conway (2016)	H ₁ : There is a positive relationship between digitally capability and organisation resilience	ID: DC (1 to 10) DV: OR (1 to 3)	Scale	Path analysis (SEM) using AMOS

<p>Research question stated here:</p> <p>To what extent SME’ digital maturity contributes to SMEs’ ability to demonstrate resilience?</p>					
Aims of research	Literature Review	Hypotheses or Propositions or Research questions	Source of data	Type of data	Analysis
To understand the relationship between digital maturity and organisational resilience.	Rader (2019), Westerman et al (2014a), Westerman et al (2014b), (Petry, 2018), (Warren Bennis, 1989) (Benitez, Arenas, Castillo, and Esteves, 2022)	H2: There is a positive relationship between digitally leadership and organisation resilience	ID: DL (1 to 10) DV: OR (1 to 3)	Scale	Path analysis (SEM) using AMOS
To analyse the mediating role of entrepreneurial orientation on the relationship between SME retailers’ digital maturity and SMEs retailers’ organization resilience.	Donoher (2009) (Anderson, Mansi, & Reed, 2003) Miller (1983) , Covin and Slevin's (1989 Lumpkin and Dess (1996)	H3: ntrepreneurial orientation positively mediate the relationship between digital capability and organisational resilience	IV: DC (1 to 10) MV: EO (1 to 10) DV: DI (1 to 6)	Scale	Path analysis (SEM) using AMOS

Research question stated here:

To what extent SME’ digital maturity contributes to SMEs’ ability to demonstrate resilience?

Aims of research	Literature Review	Hypotheses or Propositions or Research questions	Source of data	Type of data	Analysis
To analyse the mediating role of entrepreneurial orientation on the relationship between SME retailers’ digital maturity and SMEs retailers’ organization resilience.	Donoher (2009) (Anderson, Mansi, & Reed, 2003) Miller (1983) , Covin and Slevin's (1989 Lumpkin and Dess (1996)	H4:Entrepreneurial orientation positively mediate the relationship between digital leadership and organisational resilience	IV: DL (1 to 10) MV: EO (1 to 10) DV: DI (1 to 6)	Scale	Path analysis (SEM) using AMOS

8.2 APPENDIX A: RESEARCH INSTRUMENT

Good Day

My name is IRSHAD MITHA and I am student doing Master of Management in Entrepreneurship and New Venture Creation program at the University of the Witwatersrand's Faculty of Commerce, Law and Management. I am conducting research on Exploring the nexus between digital maturity, entrepreneurial orientation, and SMEs' organization resilience in Johannesburg in the post-lockdown era. As we are all aware, most businesses faced a bid adversity in the recent years, so this study is timely as it looks to investigate and understand what was the influence digital maturity and entrepreneurial orientation on the business resilience.

As individual who is one of a kind, you are cordially asked to take part in this survey. This survey's objective is to determine the degree to which entrepreneurial orientation and digital maturity both contribute to the resiliency of organizations. Your response is very significant, and there is no one correct or incorrect answer to this question. This poll does not reveal any personal information and is completely anonymous. The fact that you are not required to submit your name on the questionnaire ensures that your responses will be kept anonymous and confidential. Whether you choose to participate or not, there is absolutely no obligation on your behalf and you will not be put at risk or lose any advantages as a result of your decision. You have the option to stop participating in the survey at any time.

The first section of the questionnaire is dedicated to collecting some demographic data. If any of the following boxes apply to you, please check them. The remaining 33 statements may be found in the second section of the poll. By placing a checkmark in the box that corresponds to your level of agreement with each statement, please let us know how much you agree with them. It is estimated that finishing the whole survey will take between 10 and 15 minutes. The questionnaire was given the green light by the SEBS Ethics Committee (Non-Medical).

I want to express my gratitude for your consideration of taking part. If you have any questions or if you would like a copy of the survey's results, please do not hesitate to get in touch with me at the following information: irchadmitha@hotmail.com
My contact details: **+258 841597128/ 0661150061**

Cell-number: 0661150061

My supervisor's name: Mc Edward Murimbika

My supervisor's email are:

Kind

regards

Irshad

Survey consent

☐ I consent to begin the study (1)

☐ I do not consent to begin the study (3)

Section A: DEMOGRAPHIC DATA

Q2.1 Please indicate your gender?

- ☐ Female (2)
- ☐ Male (1)
- ☐ Nonbinary (3)
- ☐ Others (4)
- ☐ Prefer not to say (5)

Q2.2 Please indicate your age range?

- ☐ 18 - 24 (1)
- ☐ 25 - 34 (2)
- ☐ 35 - 44 (3)
- ☐ 45 - 54 (4)
- ☐ 55 or plus (5)

Q2.3 Please indicate your highest level of education?

- ☐ High school graduate (1)
- ☐ Certificate (2)

- ☐ Diploma (3)
- ☐ Bachelor's degree (4)
- ☐ Professional degree (5)
- ☐ Doctorate (6)

Q2.4 Please indicate How the Business Was Started?

- ☐ Started from scratch (1)
- ☐ Acquisition(2)
- ☐ Inheritance (3)
- ☐ Franchise (4)
- ☐ other (5)

Q2.5 Please indicate what industry is your business in?

- ☐ Retailing (1)
- ☐ Wholesaling (2)
- ☐ Service (3)
- ☐ Manufacturing (4)
- ☐ Construction (5)

Section B: Digital capability

The objective of the following survey is to determine the level of digital capability that exists within the SMEs. The Likert scales with 7 points are being used in the following collection of questions. A score of 1 denotes significant disagreement, while a score of 7 indicates strong agreement. We would appreciate it if you could indicate the degree to which you agree or disagree with each of the following statements.

DC 1	We are using digital technologies (such as analytics, social media, mobile, and embedded devices) to understand our customers better.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DC 2	We use digital channels (such as online, social media, and mobile) to market our products and services.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DC 3	We sell our products and services through digital channels.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DC 4	We use digital channels to provide customer service.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DC 5	Technology is allowing us to link customer-facing and operational processes in new ways.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DC 6	Our core processes are automated.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DC 7	We have an integrated view of key operational and customer information.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DC 8	We use analytics to make better operational decisions.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DC 9	We use digital technologies to increase the performance or added-value of our existing products and services.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DC 10	We have launched new business models based on digital technologies.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree

Section C: Digital leadership

The objective of the following survey is to determine the level of digital leadership that exists within the SMEs. The Likert scales with 7 points are being used in the following collection of questions. A score of 1 denotes significant disagreement, while a score of 7 indicates strong agreement. We would appreciate it if you could indicate the degree to which you agree or disagree with each of the following statements.

DL1	Senior executives have a transformative vision of the digital future of our company.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DL 2	Senior executives and middle managers share a common vision of digital transformation.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DL 3	There are possibilities for everyone in the company to take part in the conversation around digital transformation.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DL 4	The company is promoting the necessary culture changes for digital transformation.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DL 5	The company is investing in the necessary digital skills.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DL 6	Digital initiatives are coordinated across silos such as functions or regions	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DL 7	Roles and responsibilities for governing digital initiatives are clearly defined.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DL 8	Digital initiatives are assessed through a common set of key performance indicators.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
DL 9	IT and business leaders work together as partners.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree

DL 10	The IT unit's performance meets the needs of the company.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
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Section D: Entrepreneurial orientation

The objective of the following survey is to determine the level of entrepreneurial orientation that exists within the SMEs. The Likert scales with 7 points are being used in the following collection of questions. A score of 1 denotes significant disagreement, while a score of 7 indicates strong agreement. We would appreciate it if you could indicate the degree to which you agree or disagree with each of the following statements.

EO 1	I like to take bold action by venturing into the unknown.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
EO 2	I am willing to invest a lot of time and/or money on something that might yield a high return.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
EO 3	I often like to try new and unusual activities that are not typical but not necessarily risky.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
EO 4	In general, I prefer a strong emphasis in projects on unique, one-of-a kind approaches, rather than revisiting tried and true approaches used before.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
EO 5	I prefer to try my own unique way when learning new things rather than doing it like everyone else does.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
EO 6	I tend to act "boldly" in situations where risk is involved.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
EO 7	I favour experimentation and original approaches to problem solving rather than using methods others generally use for solving their problems.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree

EO 8	I usually act in anticipation of future problems, needs or changes.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
EO 9	I tend to plan ahead on projects.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
EO 10	I prefer to 'step-up' and get things going on projects rather than sit and wait for someone else to do it.	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree

Section E: Organisational resilience

The objective of the following survey is to determine the level of organisational resilience that SMEs has. The Likert scales with 7 points are being used in the following collection of questions. A score of 1 denotes significant disagreement, while a score of 7 indicates strong agreement. We would appreciate it if you could indicate the degree to which you agree or disagree with each of the following statements.

In the face of change, my business				
OR 1	Achieves a new organisational equilibrium by adapting to changes in the environment (offering new products or services, incorporating new technologies, negotiating with tour operators...)	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
OR 2	Recovers and strengthens at a strategic and operational level (recovering the hotel occupancy rate, improving its competitive position...)	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree
OR 3	Adapts strategically and operationally to new environmental conditions	Strongly Disagree	1---2---3---4---5---6---7	Strongly Agree

Wits Business School Ethics Committee

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

Ethics Clearance Certificate

Ethics protocol number: WBS/EN2492829/400

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

Project title	Digital maturity, entrepreneurial orientation, and organisational resilience of SMEs in Johannesburg
Investigator / Researcher	Mr Irshad Mitha
Nature of Project	MM in Entrepr & New Venture Creation
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed anonymity and confidentiality.
Issue Date of Certificate	2022-12-15
Expiry date	Date of submission of the project / research report
Chairperson	Prof Anthony Stacey  +27 11 717 3587  +27 82 880 4531  anthony.stacey@wits.ac.za



Declaration by Researcher

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

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



Signature



Date:

