Gordon Institute of Business Science
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An SMEs' perspective on the role of dynamic capabilities in bridging the gap for sustainability implementation

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Abstract

The circular economy is increasingly seen as essential to gaining a competitive advantage and reducing the effect of manufacturing on the environment. However, with mounting pressure on companies to adopt the three pillars of sustainability (economic, environmental, and social), many companies need help to convert the circular economy practices into a business model. The literature indicates that companies require dynamic capabilities to facilitate the transitions to implementing circular economy practices, but there needs to be more discussion on what capabilities are required and how to incorporate them. A qualitative research approach was taken to understand the dynamic capabilities that either help or hinder the development and implementation of sustainability initiatives in SMEs that have successfully transitioned. The findings indicate that a deeply embedded sustainability culture throughout these companies, driven by strategy and top management, is critical for incorporating sustainability.

Furthermore, companies with sustainability at the core are willing to adapt and change anything within the business to take advantage of new opportunities provided they contribute to the sustainability vision of the company and are financial viable. Stemming from the capabilities within these companies, these companies have successfully incorporated the three pillars of sustainability into their business model. The main barriers inhibiting sustainability implementation are lack of access to capital, insufficient guidelines, standards and regulations, education and an understanding of how to incorporate sustainability into practice. This study contributes to the literature by identifying four sensing, four seizing and six reconfiguring building blocks of microfoundations of dynamic capabilities found in SMEs that have successfully transitioned. These may guide SMEs to incorporate sustainability practices within these companies. The limitation of this study is that interviews were conducted with top-level managers and heavily weighted toward the textile manufacturing industry in KwaZulu Natal.

Keywords

Circular economy, sustainability, dynamic capabilities, microfoundation, innovation

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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CHAPTER 1: RESEARCH PROBLEM AND PURPOSE

1.1 Introduction

With mounting scientific evidence that environmental degradation has been exacerbated by resource use and emissions resulting from population and economic growth, organisations are increasingly pressured to deal with climate change and social and environmental degradation (UN, 2019).

The challenge is that companies face intensifying pressure to focus on becoming greener and creating sustainable value. However, at the same time, they are confronted with increasing competition due to globalisation and improved technology. In academic literature, it is contended that converting to a circular model is viable, scalable, and improves resource productivity to assist in reversing the current global sustainability challenges (Merl et al., 2018). However, according to Hermundsdottir and Aspelund (2021); Kabongo and Boiral (2017), the greatest challenge to companies is implementing sustainability measures to combat emissions, reduce waste and increase competitiveness. Furthermore, as Khan et al. (2021) pointed out, many businesses are unsuccessful in incorporating sustainability practices into their operations.

1.2 Background to the Research Problem

The problems many companies face are attributed to technical and non-technical barriers resulting from organisations' inability to integrate the notion of sustainability into their business strategies, models and operations. It is contended that to successfully adopt sustainabiltiy practices companies should develop dynamic capabilities. However, there needs to be more literature on how these capabilities can be developed to facilitate sustainability implementation (Khan et al., 2020). Kiefer et al. (2019) state that only a few studies have been conducted on the internal factors affecting sustainability transitioning in organisations, as most of the literature focused on the effect of external factors on organisations.

Manufacturers have not fully comprehended what sustainability means and remain under the misperception that it requires a high capital investment to start with and

there is a perceived long payback period, resulting in, they believe, minimal benefit to the environment or the organisation (Cai & Li, 2018). As emphasised by Kabongo and Boiral (2017), in some instances, managers believe that increased productivity through sustainability practices may be seen as a myth and does not always translate into action. However, Hermundsdottir and Aspelund (2021) highlighted that in many counties there is, in fact, a move to sustainability due to the positive relationship between sustainability innovation and a firm's competitiveness. Also, there is increasing evidence in many countries that the transition towards sustainability has resulted in increased profits, efficiency, and competitiveness.

Many companies cannot transform their current linear business model into a circular economy business model. It is postulated that this may be due to organisations' lack of dynamic capabilities to successfully incorporate sustainability into their business model (Khan et al., 2020). Kabongo and Boiral (2017, p.958), define an organisations sustainability activity as "strategic actions taken by managers to increase performance through the use of alternative resources", and requires collaboration and the use of non-standard practices and raw materials, thus the need for cross-functional capabilities – dynamic capabilities.

On Scanning the literature, there appears to be a gap on how organisations develop such capabilities, with a specific focus on skills, processes, and organisational activities (microfoundations of dynamic capabilities), also which capabilities can facilitate circular economy implementation (Khan et al., 2020). As stated by Teece et al. (1997); Teece (2007), for a company to integrate, build and reconfigure internal and external factors to maintain a competitive advantage, it needs dynamic capabilities. Dynamic capabilities comprise microfoundations of sensing, seizing, and reconfiguring (Khan et al., 2020).

In the literature, it is noted that Bocken and Geradts (2020) identified barriers and drivers on three levels of an organisation, notably the institutional, strategic, and operational levels. They contest that organisational design affects the dynamic capabilities needed for sustainability business model innovation and how the multi-level interconnected barriers and drivers obstruct or enable sustainability model innovation. However, according to Bocken and Geradts (2020), the degree to which barriers and drivers enable or hinder sustainable business model innovation still

needs to be assessed. This study was done on multinational corporations. Sharma et al. (2021) concurred that minimal qualitative research is available that highlights circular economy practices within SMEs which uncover the drivers and barriers, of sustainability implementation.

Additional studies were conducted on dynamic capabilities to help SMEs implement a circular economy; these studies took place in Spain and India, respectively (Khan et al., 2020; Khan et al., 2021; Prieto-Sandoval et al., 2019; Sharma et al., 2021), however, there were calls for similar research to be conducted in different countries, economic sectors, and other contexts to gain more insight.

As highlighted by Hermundsdottir and Aspelund (2021)**,** most studies (90%) on sustainability innovation used quantitative methods. Hence there is a call for future qualitative studies on sustainability innovation.

1.3 Purpose of Research

This study intends to identify the microfoundations of dynamic capabilities that either serve as enablers or barriers to sustainability implementation in SMEs. Understanding how these microfoundations are formed, interconnected and which dynamic capabilities need to be cultivated to facilitate the transition to a sustainable business model in SMEs.

Although many studies have been done on dynamic capabilities and the role of dynamic capabilities in transition from linear business models to sustainability business models. Most of this research was quantitative and based on large organisations; not enough research has been done on SMEs in emerging markets (Khan et al., 2020; Ntontela & Mkwanazi, 2022; Sharma et al., 2021). Also, there is a call in the literature to determine which barriers and drivers impede or enable sustainability business model innovation and transitioning to circular economy practices within SMEs (Bocken & Geradts, 2020; Sharma, 2021). It was suggested by Ferreira et al. (2020) that dynamic capabilities in SMEs should be explored as SMEs often operate in and need to react to turbulent environments.

This study aims to contribute to the existing literature on dynamic capabilities by identifying the capabilities and assessing the importance of each capability and the effect on barriers and drivers of sustainability development or implementation in SMEs in a South African context.

This study plans to enhance the understanding of how SMEs can practically use dynamic capabilities to adapt their manufacturing processes by adopting and incorporating sustainability into their business models.

1.4 Research Problem

The aim of this research is to gain a deeper understanding of the dynamic capabilities that influence the transitioning of SMEs to sustainability practices, as well as insight into the relationship between these capabilities. The scope of this research was restricted to understanding the dynamic capabilities of SMEs that have successfully transitioned to sustainability practices.

This research aims to:

1. Establish what dynamic capabilities are considered significant in helping SMEs development or implementation of sustainability initiatives.
2. This study intends to identify the microfoundations of dynamic capabilities that either serve as enablers or barriers to implementing sustainability in SMEs. Understanding how these microfoundations are formed, interconnected and which dynamic capabilities need to be cultivated to facilitate the transition to a sustainable business model in SMEs.

1.5 Conclusion

Many companies face technical and non-technical barriers to incorporating sustainability into their business strategies, models, and operations. Companies need to develop dynamic capabilities to successfully implement sustainability, but there is a gap in the literature on these capabilities can be developed to facilitate the transition to sustainability practices. Barriers and drivers to sustainability business practices exist at multiple levels within an organisation and in the external environment. While there have been some studies conducted on dynamic capabilities to help SMEs implement circular economy practices, there is a call for more qualitative research to be one in different countries and economic sectors.

The literature review in Chapter 2 presents a brief overview on the research done on dynamic capabilities, which serves as the basis of this research study. The literature review focused on dynamic capabilities which is made up of microfoundations, namely, sensing, seizing, and reconfiguring and how these capabilities serve to either enable or inhibit companies incorporating sustainability.

CHAPTER 2. THEORY AND LITERATURE REVIEW

2.1 Introduction

There is ever-mounting scientific evidence that climate change and social and environmental degradation have increased alarmingly and are exacerbated by the ever-increasing use of natural resources caused by increasing population and economic activities (UN, 2019). Concerns were raised (UN, 2019, p. 2) that the transformation to sustainability was moving too slowly and called for a much "deeper, faster and more ambitious response" to meet the social and economic transformation 2030 goals". Furthermore, as Macarthur and Heading (2019) highlighted, 45 % of the emissions generated globally arise from manufacturing, using products and food. By eliminating waste from the food industry, circulating, and reusing steel, and regenerating nature through better agricultural practices, an estimated annual reduction in emissions in the region of a combined 6.3 billion tons of equivalent CO_2e per year by 2050 can be achieved for this sector (Macarthur & Heading, 2019)(Macarthur & Heading, 2019).

Hence, unsurprisingly, there is significant pressure on companies globally to transition to more sustainability practices, particularly SMEs, who are responsible for very high levels of industrial pollution, especially in developing countries (Prieto-Sandoval et al., 2019). However, a misperception exists that climate mitigating practices are only about energy use but encompass all raw materials and land usage (Macarthur & Heading, 2019)(Macarthur & Heading, 2019). Furthermore, the literature contended that it is relatively simple and viable for companies to transition from the traditional linear economy practices of purchasing, manufacturing, and consuming to a circular business model incorporating sustainability practices (Merli et al., 2018). However, companies and, SMEs in particular face significant difficulties in implementing sustainability practices and incorporating them into business strategies and operations (Khan et al., 2020), also these practices are seen as something that should be done by large corporations, who have sufficient resources.

For SMEs, in developing countries in particular, there is limited research on factors that either help or hinder SMEs transitioning to sustainability practices, or the

dynamic capabilities required to do so (Ntontela & Mkwanazi, 2022; Sharma et al., 2021; Singh et al., 2021).

An extensive literature review was undertaken to understand the dynamic capabilities required and the barriers and drivers that facilitate the transitioning of SMEs to sustainability initiatives. The literature review was conducted to get more clarity on the areas addressed below:

2.2 SMEs and Sustainability

SMEs have a significant role to play in implementing sustainability practices; according to the World Bank, SMEs contribute up to 45% of total employment in developing countries. However, they are responsible for very high levels of industrial pollution (Prieto-Sandoval et al., 2019). Prieto-Sandoval et al. (2019), assert that the transition of manufacturing SMEs to sustainability practices is of the utmost urgency as they are responsible for the largest portion of the world's emissions, resource use and waste generators.

Eikelenboom and de Jong (2019 p.1360) argued that "despite environmental and social goals being identified as key objectives for small- and medium-sized enterprises (SMEs)", there is no indication in the literature on how these goals and a stable economic outcome can be achieved. Furthermore, on reviewing the literature it is noted that there is limited research on highlighting factors that are helpful for SMEs implementing circular economy (CE) (Sharma et al., 2021; Singh et al., 2021), or the dynamic capabilities required by SMEs to transition to sustainability as noted by Ntontela and Mkwanazi (2022), to date most of this type of research was done on large corporates.

Bassi and Dias (2020) state that it is relatively easy for large companies to transition from a linear to a circular economic business model as they have sufficient resources. However, it was posited by Sharma et al. (2021) that large companies could be used as benchmarks to encourage SMEs to work towards transitioning to sustainability implementation. The various obstacles identified by Sharma et al. (2021) that inhibit SMEs from implementing CE are awareness, recyclability issues, financial challenges, and weak management vision.

However, Singh et al. (2021) argued that stakeholder pressure indirectly compels SMEs to develop green dynamic capabilities and, subsequently, green innovation. Thus, SMEs are required to transition to sustainability practices and product manufacture. Also, Shu et al. (2016) indicated that stakeholders had become mindful and vocal about consuming environmentally friendly goods and services, thus applying further pressure on firms, pushing them to follow long-term sustainability manufacturing practices and remain relevant in the long run (Singh et al., 2021). Sharma et al. (2021) added that other prerequisites for CE implementation included a strong drive by management, appropriate guidelines, innovation, technology upgrades, and employee training.

2.3 Dynamic Capabilities

Due to global competition, scarcity of resources and technological improvement, businesses today are exposed to an ever-changing environment in which they operate. According to Teece (2018a), a company's purpose, dynamic capabilities, and strategy are interdependent. A company's purpose is tied up in its business model, which is a blueprint of how a firm creates and delivers value for its stakeholders. The business model includes the technology selected, assets, flow of costs and revenue and the way tangible and intangible assets are combined to generate a profit and is a link between a business's strategy and practice (Inigo et al., 2017; Saebi et al., 2017; Teece, 2018a). To remain sustainable and create a competitive advantage, companies must have unique dynamic capabilities that will retain and continuously renew the company's competitive advantage (Geissdoerfer et al., 2018). Geissdoerfer et al. (2018) further state that this includes the ability to adapt the company's business model rapidly and successfully to improve the sustainability performance of a company. With increasing pressure on companies to incorporate and adopt environmental and societal sustainability, Inigo et al. (2017) argue that many companies need help to align these concepts with the traditional linear profit-seeking approach. As Eikelenboom and de Jong (2019) highlight, companies require dynamic capabilities to integrate the three pillars of sustainability (economy, environmental and social) into their business models.

Dynamic capabilities are one of the most impactful theories in the field of management research and have been researched in areas such as

entrepreneurship, human resources, marketing management, and operations management, to name a few (Ferreira et al., 2020; Schilke et al., 2018). Dynamic capabilities are unlike any other theory in that it offers a way of gaining a competitive advantage under conditions of change and enables the repeated and reliable execution of activities focused on strategic change (Schilke et al., 2018). Ferreira et al. (2020), emphasised that dynamic capabilities are seen to be at the heart of a firm's strategy. Teece, (2018), asserted that the major component of the dynamic capabilities' framework is strategy, and the capabilities are about what to produce, where and how to distribute it to the market. In contrast, the strategy determines market entry timing and how to beat the competition.

Initially, dynamic capabilities were seen as only inward focusing and did not affect the organisation's external environment (Wilden et al., 2016). However, Schilke et al. (2018) argue that they are a subset of organisational capabilities focused on strategic change, including the external environment; this aligns with Teece's et al. (1997, p. 516) description of dynamic capabilities as a "firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments".

Literature states that a company's internal dynamic capabilities are essential for innovating its business model for sustainability, however how a company develops these dynamic capabilities has not been adequately addressed in the literature (Bocken & Geradts, 2020), and in particular SMEs, especially during turbulent times (Ferreira et al., 2020). Core to a business's success lies in the ability of a business to develop internal dynamic capabilities, not just complex and difficult-to-replicate manufacturing processes, and products (Teece, 2007).

Dynamic capabilities combine a company's abilities to rapidly rebuild, regroup and reconfigure its internal and external competencies to survive where change and disruption have become the norm (Santa-Maria et al., 2022; Teece et al., 1997). As stipulated by (Schilke et al., 2018), dynamic capabilities are context-specific; they are embedded in an organisation and developed over time at considerable organisational cost and commitment. These capabilities are the ability to timeously and systematically solve problems that have been identified, which includes sensing opportunities, threats, or changes in the environment, by adjusting the company's

strategy efficiently, thus ensuring that it can create a competitive advantage or ward off potential threats (Ferreira et al., 2020).

Dynamic capabilities and a resource-based view enable the alignment of technology, business opportunities, and the identification of latent customer needs. The resourced-based view encompasses the firm's internal resources, tangible and intangible assets, and operational capabilities to maintain competitive advantage (Kraaijenbrink et al., 2010; Schilke et al., 2018). Kraaijenbrink et al. (2010) explain that central to a company achieving a competitive advantage, “it must acquire and control valuable, rare, inimitable, and nonsubstitutable (VRIN) resources and capabilities". From a resource-based-view perspective, the optimal and continued organisation of dynamic capabilities, resources, and other competencies within an organisation result in the establishment of a sustained competitive advantage. Especially in highly competitive markets (Magistretti et al., 2021; Teece, 2007), from a dynamic capability’s perspective, the resource base and the firm's external environment are intentionally modified (Schilke et al., 2018).

Theory indicates there are two types of capabilities: ordinary and dynamic (Eisenhardt & Martin, 2000). Ordinary and dynamic (Eisenhardt & Martin, 2000). Ordinary capabilities are referred to as operational capabilities and are base-level capabilities and are described as best practices which are embedded in routine, standard operating processes, and governance; there is no variation in this from one company to the next (Bocken & Geradts, 2020; Ferreira et al., 2020). These capabilities are geared toward maintaining the status quo in the company’s activities, including operationally and the customer segments they target (Schilke et al., 2018). Ordinary capabilities do not include any form of creativity, innovation, imagination, or vision and are imitable (Magistretti et al., 2021; Teece, 2014). On the other hand, dynamic capabilities align innovation, theory, and business opportunities with market needs. When configuring and using various resources together with ordinary capabilities, when required, enables the delivery of the right product at the right time to the market (Teece, 2018a). As asserted by Eisenhardt and Martin (2000), and Teece (2014), dynamic capabilities help a company repeatedly innovate in a rapidly changing environment, thus creating an ongoing competitive advantage. However, Eisenhardt and Martin (2000) argued that dynamic capabilities are specific and identifiable capacities or routines within a company, which include product development, strategic decision making and forming alliances or collaborating with

outside parties. Whereas Teece et al. (1997); Kump et al. (2019) and Inigo et al.(2017) noted that companies that convert their ordinary capabilities into unique, difficult to acquire skills, processes, and behaviours that contributed to their competitive advantage, do so using their dynamic capabilities. In moderate dynamic markets, dynamic capabilities are seen as best practices which provide a company with a sustained competitive advantage. However, in highly dynamic environments, Kump et al. (2019) stated that dynamic capabilities become higher-order capabilities which enable continuous and rapid product innovation, which can effect change to organisational and governance structures, including its ecosystem, the external environment and the organisation's strategy (Schilke et al., 2018). A concise description of dynamic capabilities is the enhanced ability to optimally align, modify and reconfigure existing resources by making decisions and solving problems to address the opportunities and threats identified (Amui et al., 2017; Khan et al., 2020).

The deeper dynamic capabilities are embedded in an organisation, the greater they serve as a company's foundation for its competitive advantage; Ferreira et al. (2020) further reiterated that dynamic capabilities must not only reside with top management. Teece (2018) however, reiterated the importance of bottom-up innovation for knowledge or new product creation. Santa-Maria et al. (2022) state that dynamic capabilities provide a practical, theoretical framework for companies to investigate innovating in a dynamic environment.

Dynamic capabilities comprise basic sub-components or microfoundations within organisational structures and managerial processes supporting business strategy. These microfoundations are made up of diverse proficiencies, processes, procedures, cultures, and decision-making abilities that make up a company's sensing, seizing, and reconfiguring capabilities abilities; which are not just the adoption of best practices (Mousavi et al., 2019; Santa-Maria et al., 2022).

Teece (2007) contends that these microfoundations and other difficult-to-develop and deploy capabilities contribute to superior business performance in the long run. Therefore, companies must continuously manage their dynamic capabilities of sensing, seizing, and reconfiguring.

2.3.1 Microfoundations of Dynamic Capabilities

Felin et al. (2012) argue that when trying to understand a company's dynamic capabilities, consideration should be given to its microfoundations, which are the basic building blocks that shape a company's dynamic capabilities. Furthermore, Teece et al. (1997) submit how a company's strategy is supported by its structure and management practices, contributes to an understanding of its dynamic capabilities (Mousavi et al., 2019). Teece (2007, p. 1319) defined the microfoundations of dynamic capabilities as "distinct skills, processes, procedures, organisational structures, decision rules, and disciplines – which undergird enterprise-level sensing, seizing, and reconfiguring capacities."

In alignment with Teece's (2007) findings, Wilden et al. (2106, p. 27) proposed the "House of DCs" as a means of depicting how the interconnectedness and interactions between various internal dynamic capabilities, processes and microfoundations within a firm's operational capabilities, and the broader external ecosystem in which the firm operates, is essential for creating value (Wilden et al., 2016). The overarching requirement, the roof**,** is the organisational strategy supported by the three microfoundational pillars of sensing, seizing, and reconfiguring. Wilden et al. (2016), contends that the way dynamic capabilities align with the strategic orientation at all levels of the organisation, from the individual employees to the executive level, will develop the operational capabilities, and determine the long-term strategic success of the organisation. Wilden et al. (2016) assertion aligns with the microfoundation building blocks of dynamic capabilities as proposed by Felin and Hesterly (2007). Ferreira et al. (2020) reiterated that companies should understand why dynamic capabilities are essential and which organisational and strategic routines and mechanisms are needed to build them (Ferreira et al., 2020).

Based on Teece et al. (1997); Teece (2007), dynamic capabilities are allocated into three major categories of microfoundations: (i) Sensing, which assists firms in identifying new opportunities and threats in the internal and external environment; (ii) seizing is the ability to use structures and resources to provide reliable, innovative performance thus capturing value from the opportunities identified; and (iii) reconfiguring is the ability to continuously realign tangible and intangible resources

to meet the dynamic market requirements (Magistretti et al., 2021; Santa-Maria et al., 2022).

When looking at innovation within an organisation, people at various levels contribute to converting ideas and knowledge into real innovative success. These levels of interaction are called the microfoundation building blocks of dynamic capabilities. They can be put into three categories namely, (i) individuals including their personality, skills, and characteristics, (ii) processes and interactions, including formal and informal interactions; and (iii) structure, referring to the company structure (Felin & Hesterly, 2007; Magistretti et al., 2021; Teece, 2007).

2.3.1.1 Sensing Microfoundations

Sensing is the ability within an organisation to evaluate the external and internal environments for business opportunities; furthermore, it is making strategic decisions and positioning the organisation's future direction to develop these opportunities (Mousavi et al., 2019). Moreover, Teece (2018) states that the system must allow for the flow of information to relevant decentralised authorities within the organisation to access and effectively action the information; thus resulting in a collaborative culture with a shared vision. The data flow from internal and external sources can be used to monitor the organisation's environment for possible threats or new opportunities (Teece, 2018).

Khan et al. (2021) state that one of the most critical functions of the sensing microfoundation is research and development (R&D); this concurs with the findings of Santa-Maria et al. (2022) who state that R&D activities generate information from within an organisation that can be used to guide an organisations sustainability strategy and initiatives.

Furthermore, as contended by Santa-Maria et al. (2022), this includes the development of abilities to continuously scan the external environment, adopting a holistic view, and creating an internal knowledge base supported by sustainability-oriented instruments and company strategy.

2.3.1.2 Seizing Microfoundation

The degree to which an organisation can react to opportunities or threats in its environment is known as its seizing capabilities and includes investing in or designing technologies, business models, products, and processes in line with the changing needs of the customer or the external business environment (Teece, 2018). Furthermore, as Ferreira et al. (2020) noted, the ability of management to develop and adapt business models is vital to an organisation's dynamic capability for seizing new opportunities.

Santa-Maria et al. (2022) asserted that four actions are imperative for an organisation to use when seizing opportunities, threats or actions identified while sensing the internal and external environment in which the organisation operates. These actions set a clear and ambitious sustainability vision for the organisation's future, providing direction and inspiration for innovation initiatives, secondly, creating a specific sustainability strategy and facilitating the establishment of a culture oriented towards sustainability. Third, develop an innovative and continuous improvement culture, encouraging disruptive and continuous improvement. Moreover fourth, train and educate employees about sustainability and encourage bottom-up innovation.

Seizing, in short, is implementing the opportunities identified while sensing the environment and markets in which the organisation operates (Khan et al., 2021).

2.3.1.3 Reconfiguring Microfoundations

For a firm to retain its competitive advantage, Ferreira et al. (2020) reiterate that it continuously needs to reconfigure and adapt its dynamic capabilities, and the business to the changing environment in which it operates. Ferreira et al. (2020) state that this is an iterative process to facilitate the optimal functioning of the organisation in a volatile, unpredictable environment.

Teece (2018) argued that these capabilities keep the organisational systems aligned with the strategy; this is especially critical when a new business model involves significant change or clashes with the existing business model. Teece (2018), further

states that to accelerate transformation, it is critical to nurture an organisational culture that favours flexibility and experimentation.

Reconfiguring microfoundations, as identified by Santa-Maria et al. (2022), and concur with Teece (2018), consist of prioritising projects that fit existing organisational capabilities and developing or enhancing capabilities that add value. Furthermore, organisational flexibility is required to quickly adapt and change its business model, mainly regarding its ability to conduct experiments or prototypes to validate assumptions, mitigate risk, and scale up these ideas if viable. It is imperative to have trust-building communication with stakeholders and be fact-based, consistent, and transparent, especially during the innovation's implementation phase. Santa-Maria et al. (2022) expounded that commitment and support from top management, and the implementation of KPIs, was crucial to the success of the innovation process, transitioning and implementing sustainability within an organisation.

Thus, reconfiguring, as simplified by Khan et al. (2021), is the ability to reorganise and reconstruct an organisation existing or new resource base to make the most of an opportunity identified while sensing the environment or market (Khan et al., 2020).

2.4 Sustainability

As referred to in the literature, the triple bottom line of sustainability encompasses economic, environmental, or social focus (Khan et al., 2020; Merli et al., 2018). According to the Ellen MacArthur Foundation, the CE is a scalable and viable model to adopt and has the potential to significantly enhance resource productivity and reverse negative trends, thereby addressing global sustainability challenges (Macarthur & Heading, 2019). Contrary to this belief, it is well documented that organisations need to transform their current strategy, business model and operations to incorporate sustainability (Khan et al., 2020). This is mainly because the business models, operations and supply chains have strong ties to the conventional linear model of economic growth and due to technical, financial, and various non-technical barriers (Ormazabal et al., 2018; Sharma et al., 2021). Indigo et al. (2017) asserted that organisations would have to radically reconfigure their organisational and managerial capabilities to transition to sustainability practices.

According to Kabongo and Boiral (2017), the processes, particular skills and specific activities needed to facilitate the implementation of sustainability practices still need to be clarified. However, they expounded that such dynamic capabilities are developed strategy, cross-functional integration, and internal operationalisation (Kabongo & Boiral, 2017). Kahn et al. (2020) contends that dynamic capabilities are integrated into a company's organisational routines and procedures, rendering them challenging to identify through quantitative measures.

As stated by Sharma et al. (2021), the linear economy only focuses on the procurement of raw material, and converting the raw material into finished goods, thus, minimal attention is given to waste disposal and the negative effect manufacturing has on the environment. Conversely, as explained by Kirchherr et al. (2018), the circular economy focuses on minimising both resource use and waste generation. Also, products at the end of their life are used to create added value, contributing to economic growth and society (Kirchherr et al., 2018)(Kirchherr, et al., 2018). Sharma et al. (2021) indicated that there needed to be more research done on the barriers and drivers of circular economic practices of SMEs. However, they reiterated that there was sufficient evidence to indicate that the transition of SMEs to a circular economy was imperative. Moreover, Eikelenboom and de Jong (2019) highlighted that the transition by large companies to a circular economy was somewhat more accessible than for SMEs, as they had considerably more resources available to them, and the approach they took was not always suited to SMEs.

2.4.1 Sustainability Innovation

Hermundsdottir and Aspelund (2021) state that in the broader definition of sustainability innovation, environmental, social, and economic factors are considered during all the innovation process steps. The aim of sustainability innovation is to benefit society while reducing the effect on the environment, however, while still generating a profit for the business. According to Takalo and Tooranloo (2021), sustainability innovation is critical to environmental management and vitally important for organisations and communities to achieve environmental protection and economic growth. It is contended that sustainability innovation is mainly driven by external factors such as regulatory pressure, market and customer demand, and internal factors such as increased efficiencies and cost reduction of operational

expenses (Hermundsdottir & Aspelund, 2021)(Hermundsdottir & Aspelund, 2021). However, more government regulations and support may positively affect the urgency and competitiveness of sustainability implementations. Kluza et al. (2021) found that sustainability innovation's positive effect on an organisation's business model was unmistakable. However, as argued by Arfi, et al. (2018), the ability of an organisation to successfully innovate was dependent of its ability to assimilate knowledge, externally and internally, at every stage of the sustainability process, and transform it into internal skills.

Dangelico et al. (2017) suggested that a company requires dynamic capabilities to harness its resources and competencies to facilitate its transition to sustainability. By developing and harnessing these dynamic capabilities, with a specific focus on sustainability, companies are most likely to develop new technologies and products for environmental sustainability (Mousavi et al., 2019).

Strauss et al. (2017) proposed that microfoundations of sustainability dynamic capabilities are context-specific and consist of moderate dynamic capabilities associated with predictable change, and highly dynamic capabilities are linked to volatile, unpredictable changes. It is argued that depending on the context, different organisational approaches, practices, and different employee characteristics and behaviours are required for sustainability implementation (Strauss et al., 2017).

2.5 Barriers and Drivers of Sustainability Implementation

Understanding an organisation's dynamic abilities clarifies the success or failure of an organisation's ability to incorporate sustainability into its business model. A firm’s dynamic capabilities are critical to the design and implementation of an organisation's business model; thus, it is purported that a company’s business model, its dynamic capabilities and the organisational design are inextricably linked (Bocken & Geradts, 2020; Fjeldstad & Snow, 2018).

It is noted that management philosophy, culture, and leadership approach to decision-making are part of the organisational design and could reinforce or undermine dynamic capabilities (Teece, 2018a), specifically regarding deliberate strategy and investment in dynamic capabilities for sustainability (Bocken & Geradts,

2020). It was argued that sustainability business model implementation requires strong dynamic capabilities; however, the organisational design factor that either hindered or helped the transition to sustainability needed to be investigated (Brocken & Geradts, 2020).

2.5.1 Barriers

Barriers to sustainability business models are classified as either external or internal barriers. External barriers are hindrances from outside the organisation, including policy-related barriers, lack of trust within the entire supply chain, consumer misperceptions or other social, cultural, and environmental barriers (Hina et al., 2022). As Hina et al. (2022) elaborated, internal barriers include a lack of communication between the various internal stakeholders and employees, including unclear policies, strategies, and departmental responsibilities toward implementing sustainability into the business model.

In addition to the barriers mentioned above, Bocken and Geradts (2020) argued that barriers that negatively affect the adoption of sustainability business model innovation are situated at every level of an organisation, namely the institutional level, strategic level, and operational level. Rules, norms, and beliefs that form part of institutional behaviour are used to form company strategy, which intern is used to inform operational performance; this aligns with the findings of Fjeldstad and Snow (2018); Teece (2018a). These barriers typically drive the linear economic model of maximising shareholder value, uncertainty avoidance and short-termism, thus inhibiting the development of the dynamic capabilities of sensing, seizing, and reconfiguring that focus on companies embracing and transitioning to sustainability (Bocken & Geradts, 2020).

However, Sharma et al. (2021), noted that the most significant barriers encountered in several developing countries were a lack of financial sources. Public awareness in addition, Ferronato et al. (2019) stated that ambiguous policy frameworks, insufficient knowledge, the requirement for proven technology, as well as lack of education and training needed for the implementation of sustainability, were key barriers. Apart from the barriers mentioned above, large capital requirements, high initial outlays, uncertainty, perceived risks and lack of regulatory pressure as well as

the lack of know-how at the company level, resulted in significant barriers to the transitioning from a linear business model to a circular business model were identified by Sharma et al. (2021). It was further highlighted that internal barriers within SME that stifled the development of dynamic capabilities were lack of vision from leadership, financial challenges, lack of training for employees, as well as a lack of experience regarding sustainability.

Arfi et al. (2018) argued that culture was the leading factor that negatively affected knowledge sharing within the organisation and the willingness and commitment of employees to acquire new skills and adapt to the changing business environment, thus inhibiting the organisation's move to sustainability.

2.5.2 Drivers and Enablers

Identifying driving forces that facilitate the implementation of sustainability business models is imperative. Internal drivers include advanced managerial practices, and company shareholders invested in CE implementation, company culture, research and development and financial drivers (Hina et al., 2022). When focusing on company culture, Bocken and Geradts (2018) contended that leadership, employee commitment and know-how could facilitate an organisation's transition to a circular economy business model.

A study by Singh et al. (2021) found that indirect stakeholder pressure through green dynamic capabilities profoundly influenced green innovation in SMEs. Together with understanding and collaborating with their relevant stakeholders, by taking advantage of their competitive advantage, SMEs were able to enhance their sustainability performance. It was found that SMEs responded to stakeholders' demands for long-term business sustainability practices. Singh et al. (2021) further suggested that a firm’s sustainability innovation depended on its green dynamic capabilities of sensing, seizing and reconfiguring, which enabled the SMEs to exploit existing knowledge and resources in the ever-changing business environment (Teece, 2018a; Singh et al., 2021).

A firm's leadership and employees' level of commitment to sustainability positively affect the acceptance of responsibility within the organisation for the implementation

of sustainability solutions (Singh et al., 2021). In addition, Sharma et al. (2021) indicated that a strong drive from management, innovation and technology upgrades, training of employees and the appropriate guidelines were required to enable the transitions from a linear economic business model to a circular economy business model.

Similarly, as indicated previously under barriers, the purpose and objectives of institutions filter down from an institutional level into the strategic direction and operational functions of a company (Hina et al., 2022), so do the drivers of the dynamic capabilities to foster the development and implementation of sustainability (Bocken & Geradts, 2020). The institutional drivers for dynamic capabilities for sustainability transformation, according to Bocken and Geradts (2020, p.11) are "adopting a balanced approach towards shareholder and stakeholder value, embracing ambiguity, and valuing business sustainability, as institutional drivers for dynamic capabilities for SBMI."

2.6 Conclusion

Previously it was believed that sustainability was an issue that large organisations needed to deal with (Eikelenboom & de Jong, 2019)(Eikelenboom & de Jong, 2019). However, as highlighted by Prieto-Sandoval et al. (2019), according to the World Bank, even though SMEs contribute to the vast majority of jobs in developed countries and up to 45% of employment in developing countries, they are also responsible for very high levels of resource use, industrial emissions and waste generation globally. Thus, SMEs have a pivotal role to play in transitioning to sustainability, and it is noted that there is considerable urgency for manufacturing SMEs to transition from a linear business model to incorporating sustainability practices into their business models globally. Companies need to have unique dynamic capabilities to create a competitive advantage and incorporate the three pillars of sustainability. However, the literature does not clearly define how dynamic capabilities are developed or which dynamic capabilities are required.

Dynamic capabilities are made up of microfoundations, namely, sensing, seizing and reconfiguring, which companies use to establish what changes are taking place in their internal and external environments and decide how to modify their business

model to gain a competitive advantage for the benefit of the company, society and the environment. In many instances, companies face barriers that inhibit these companies from transitioning and implementing sustainability practices.

Bocken and Geradts (2020) attempted to represent how the development of the dynamic capabilities required for the implementation of a sustainable business model is inhibited by organisational design. This multi-level framework, Figure 1, presented shows a relatively intricate interrelationship between the three organisational levels, namely institutional, strategic and operational levels, of multinational corporations. Important to note in the framework is that both the barriers and drivers co-exist however do change. Brocken and Geradts's (2020) frameworks provide insight into overcoming the barriers that cause the inability of organisations to implement sustainability due to ineffective organisational design. According to Brocken and Geradts (2020), this framework is helpful for organisations striving to incorporate societal betterment with improved company performance.

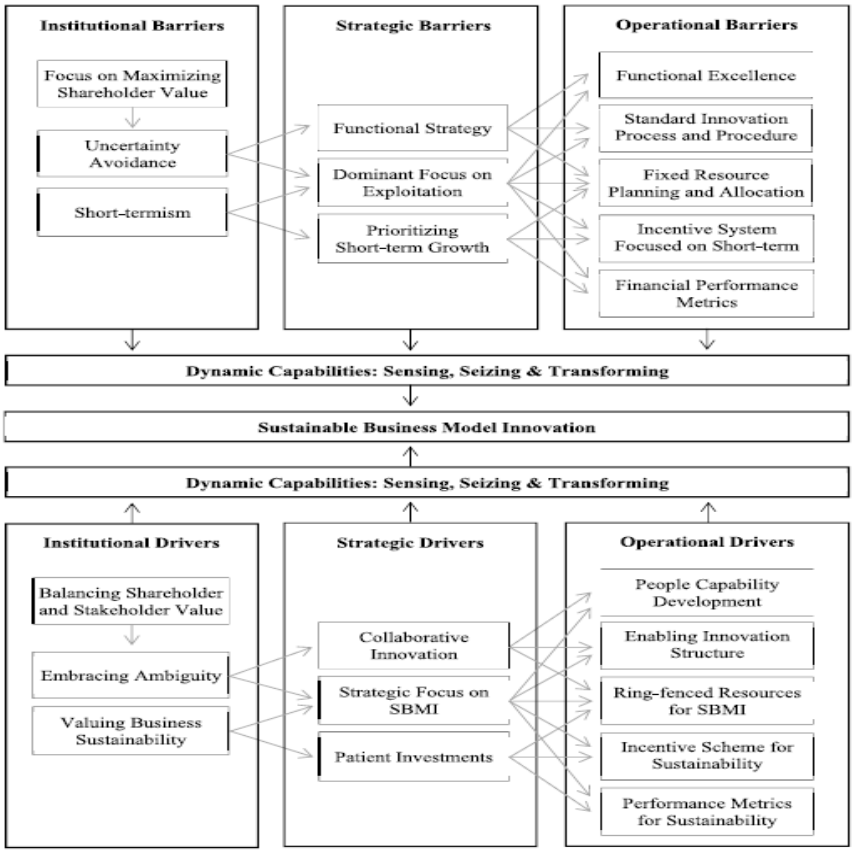

Figure 1: Barriers and drivers to sensing, seizing and transforming for SBMI (Bocken & Geradts, 2020)

This research aims to understand the factors that either help or hinder SMEs in South Africa from developing or implementing sustainability initiatives within these companies. An attempt will be made to use the framework illustrated in Figure 1 to determine the factors that inhibit or drive sustainability adoption by SMEs in the South African context.

CHAPTER 3: RESEARCH QUESTIONS

This research aims to answer the questions formulated from the literature reviewed. An extensive review was done of the literature, which served to highlight the gaps in the literature that still need to be researched. The research questions were formulated from the gaps identified in the literature, as indicated in Chapter 2.

According to Khan et al. (2020) the gaps indicated in the literature appear to be in how organisations develop dynamic capabilities with a specific focus on skills, processes, and organisational activities. Furthermore, there it is noted that there is limited research done in developing countries on factors that either help or hinder SMEs transitioning to sustainability practices or what dynamic capabilities are required to do so (Ntontela & Mkwanazi, 2022; Sharma et al., 2021; Singh et al., 2021).

3.1 Research questions

Research question 1: What dynamic capabilities within SMEs are considered major factors that help the development or implementation of sustainability initiatives?

This question seeks to confirm and establish new insights into dynamic capabilities microfoundations of sensing, seizing, and reconfiguring what influence they have on enabling sustainability innovation or implementation.
Research question 1, aims to identify the dynamic capabilities that influence sustainability implementation initiatives.

Research question 2: What factors hinder the development or implementation of sustainability initiatives of SMEs?

As stated in the literature barriers are attributed to technical and non-technical barriers that result in the inability of companies to translate sustainability into business strategies, models and operations. Furthermore, hinderances can be found outside or inside the organisation, thus either internal or external barriers impeding

the incorporation of sustainability practices (Bocken & Geradts, 2020; Hina et al., 2022; Khan et al., 2020).

Research question 2, aims to identify and understand the factor that negatively influence the ability of SMEs to adopt and implement sustainability initiatives.

CHAPTER 4: PROPOSED RESEARCH METHODOLOGY AND DESIGN

4.1 Introduction

This chapter aims to comprehensively explain the research methodology used to address the research questions introduced in Chapter 3. The research methodology was developed based on insights gained from the literature review with a specific focus on providing compressive answers to the research questions at the centre of this research project. This chapter outlines the research methodology employed for data gathering and analysis to address the research questions. The methodology, population size, unit of analysis and the other essential components required to enable data collection and analysis are outlined below.

4.2 Research Methodology and Design

Qualitative research methods are used for researching non-numerical data. According to McCraken (1988), it allows the researcher to take a glimpse into how individuals think about things and the way they see the world. As Saunders and Lewis (2018) highlighted, qualitative exploratory research provided sufficient flexibility for the researcher to narrow the focus as the research progressed, especially when dealing with information that was not clearly understood, as was the case for this research project.

Given the lack of research on what underlying practices either support or inhibit SMEs from transitioning to sustainability practices, a qualitative explorative approach was taken. This topic needed to be explored to gain a deeper understanding of the processes followed. The qualitative approach was best suited as there is minimal prior theory to focus the approach on; for this project, there was a requirement to gather non-numerical data and develop a theoretical framework from the data collected (Spector et al., 2014).

The main philosophy underpinning this study is interpretivism, which involves engaging with the subjective meanings attached to existing social phenomena, making sense of them without altering any of the acquired information, and utilising the insights gained to formulate theory(Goldkuhl, 2012) (Goldkuhl, 2012) The aim

was to develop an understanding by conducting a field study and interpreting the data obtained during the field study. Interpretivism was used to understand and interpret the unique and complex situations associated with individuals performing roles or tasks as part of the manufacturing SME community(Saunders & Lewis, 2018) (Saunders & Lewis, 2018).

Furthermore, the selection of research methodology was informed by the nature of this project, the information gathered during the literature review, the research questions, and the data accessibility. As the study's objective was to determine what dynamic capabilities are required within SMEs to facilitate the transition to sustainability practices, this research relied on a grounded theory approach to answer the research questions and uncover the participants' shared experiences (Creswell, 2007).

Inductive reasoning was used as the basis for theory formulation using the data collected (Alvesson & Karreman, 2007; Spector et al., 2014). The reason for using an inductive approach is that it is often used as the starting point for theory development and fits with an exploratory qualitative approach when there is no prior theory (Watts et al., 2017). An inductive qualitative approach was used during this project to identify the emergence of patterns in the data, to clearly support and make sense of the observations and then formulate a theory from these emerging patterns (Saunders & Lewis, 2018) (Saunders & Lewis, 2018)According to Thomas (2006), the inductive approach is a simple, direct way of extracting findings from the context of the focused research questions used during data gathering. It is used to condense raw textual data, establish a link between raw data and the research objectives and develop an underlying framework of the processes or experiences evident in the raw data (Thomas, 2006) (Thomas, 2006). The findings need to emerge, without any restraint, from frequent, dominant, or significant themes inherent in the raw data (Thomas, 2006) (Thomas, 2006). Following the inductive approach, the data collected gives rise to the concepts and allows the researcher to build a theory by analysing the data collected; it involves specific observation and measurements to build theories based on the observation (Yin, 2015; Saunders & Lewis, 2018). The induction approach focused on closely understanding the research context (Saunders & Lewis, 2018).

This study comprised one research methodology; in this case, the qualitative mono-method of data collection was conducted using face-to-face interviews, utilising Microsoft Team video call facilities. The mono-method was used due to the very short timelines for this research.

Qualitative research methodology, a non-numerical method, was used to capture the human experience and was done through direct interaction with the research subjects using inquiry through interviews. Data was collected by recording the participants' interviews. These interviews were transcribed to perform data analysis (Polkinghorne, 2005). The interviews were transcribed after each interview using Happy Scribe audio transcription software, and the data analysis was done using Atlas.ti software. The interviews are confidential; all data is stored and reported on without identifiers.

This research aimed to adopt an empathetic view, thereby building trust, and seeing from the respondent's point of view (Saunders & Lewis, 2018) (Saunders & Lewis, 2018). Due to the nature of this research, a qualitative explorative approach was best suited as the researcher sought to gain a deeper understanding of why great ideas for sustainability are not implemented. Thus, information that needs to be clearly understood is required to be uncovered; exploratory research provides flexibility and enables the researcher to start with a broader focus and narrow down as the research progresses (Saunders & Lewis, 2018). Exploratory research was appropriate to determine founders', CEOs', and managers' perceptions of how existing dynamic capabilities either help or hinder developing and implementing sustainability initiatives. The research questions were formulated from the literature on dynamic capabilities, sustainability transition, and implementation (Bocken & Geradts, 2020; Khan et al., 2020; Teece, 2007).

The data collection took place using exploratory, semi-structured one-on-one interviews. An interview guide, Appendix A, was used to facilitate the discussion. However, open-ended questions were asked to allow the respondent to describe in their own words the process they follow. A semi-structured interview allows the researcher to guide the conversation and adjust the questions where needed. Interviews via online conferencing facilities, such as Microsoft Teams, were conducted (Saunders & Lewis, 2018).

Due to the time constraint of this project, a cross-sectional approach was taken; Saunders & Lewis (2018) refer to this method as a "snapshot" that is taken at a particular time during a particular situation. Interviews were conducted after receiving ethical clearance.

4.3 Population

A population, as defined by Saunders and Lewis (2018), consists of all the members of the whole population targeted for research. Furthermore, it is essential for qualitative research to select an appropriate sample so that the study's focus can be adequately researched (Lopez & Whitehead, 2013) (Lopez & Whitehead, 2013).

For this study, it was impossible to interview everybody in the SME population in South Africa; hence a sample was selected. The sample used consists of a subset of SMEs with manufacturing facilities within South Africa.

For this study, the population researched consisted of senior individuals who have knowledge and expertise around innovating and implementing sustainability within the SME manufacturing business space within South Africa.

4.4 Unit of Analysis

The unit of analysis is the focal point of the study and the entity or object the study will be written about (DeCarlo, 2018; Kumar, 2018). The unit of analysis was clearly defined as it affects every aspect of the study. According to Chenail (2012), the exact outline of the unit of analysis must be made very clear in qualitative data analysis as the data "do not speak for themselves," and analysis can easily be applied inconsistently. Additionally, the unit of analysis is the focal point of the research and is what or whom the study intends as the focus for the study.

Careful consideration was given to ensure that the unit of analysis was appropriate for answering the research questions. As uniformity is essential, the target sample consisted of senior individuals within manufacturing SMEs with similar characteristics or interests and activities and had largely incorporated sustainability into their products or processes.

This research project was individual-based, and the intention was to talk with founders or co-founders about their experience in turning the business into becoming more sustainable. However, in many instances, the founders or co-founders referred the researcher to individuals within the company whom they felt had a better grasp of sustainability and the journey the company had taken to implement sustainability practices within those companies.

Thus, the sample unit comprised founders, directors, and senior managers within manufacturing SMEs in KwaZulu Natal, Gauteng and the Western Cape in South Africa.

4.5 Sampling Method and Size

The sample unit consisted of founders, directors, and senior managers within the manufacturing SME industry in South Africa. According to Eikan et al. (2016) and Saunders and Lewis (2018), purposive sampling depends on the type and nature of the research conducted. The researcher used judgment to actively decide who would best answer the questions in line with the research objective. It is imperative to ensure that the data collected from the target sample answered the research questions and objectives, that the target sample was readily accessible, and appropriate sample techniques were used to collect the data (Saunders & Lewis, 2018)(Saunders & Lewis, 2018).

A two-layered sample strategy was followed for this project, firstly non-probability judgement sampling followed by snowball sampling (Saunders & Lewis, 2018). This was deemed the most appropriate choice for this research project. Using snowball sampling proved critical in gaining access to additional respondents, with referrals from individuals interviewed. The referrals were to other manufacturing SMEs affiliated with the respondents. Judgement was required when selecting the subjects interviewed in the SME manufacturing space and purposefully selecting manufacturing SMEs who had fully or partially transitioned to include sustainability practices in the business.

Typically, as per the nature of qualitative research, the sample size was small and consisted of 10 samples that were taken across four different manufacturing

industries, thus tying in with the purpose of qualitative research, which is to measure the depth of the subject (Saunders & Lewis, 2018). These industries included textile, beverage manufacture, chemical and packaging manufacture. Due to the researcher using judgement, the industries were not represented equally. The individuals interviewed were deemed to have extensive knowledge and experience on the subject matter or were seen as experts in this field and would provide sufficient data required to answer the research questions. All of the individuals interviewed proved to be highly knowledgeable on the matter. They had transitioned to sustainability as defined by the unit of analysis. The number of respondents, the manufacturing industry represented, and the position helped by each respondent is represented in Table 1.

Table 1: Sample: Industry and Position Held

Respondent No.	Manufacturing industry	Position	Number Respondents
1	Textile	Quality Executive - Sustainability	1
2	Textile	Director/COO	1
3	Textile	Financial Manager	1
4	Textile	Marketing Director	1
5	BevAgri	SHEQ Manager	1
6	Chemical	Founder/CEO	1
7	Packaging	Marketing Director	1
8	Chemical	Technical Manager	1
9	Packaging	SHEQ Manager	1
10	Textile	Founder/CEO	1
	Total		**10**

4.7 Measurement Instrument

According to Saunders & Lewis (2018), the measurement instrument consists of a particular technique for collecting data and could be used for conducting interviews, observations, or specific questions. Qualitative data is primarily collected in spoken or written language, non-numerical form (Polkinghorne, 2005) (Polkinghorne, 2005). For this study, the measurement instrument used was the interview guide, as seen in Appendix A. According to McCracken (1988), it is essential to ensure that the interview guide is formalised prior to the interviews and to include a set of questions to ascertain simple details about the respondent before asking the key questions. The interview guide was a set of open-ended questions (Creswell, 2007)(Creswell,

Five Qualititative Apporaches to Inquiry, 2007) used to encourage the respondents to divulge more about the thought process they followed when transitioning to sustainability. The interview guide was used to guide the respondents, thus ensuring that as much information describing the processes was disclosed. Two trial interviews were conducted to determine if the interview guide was suitable. No adjustments were made prior to conducting the balance of the interviews. As the study was exploratory, semi-structured interviews were conducted to collect data and learn the respondents' perspective in this study (Jacob & Furgerson, 2012)(Jacob & Furgerson, 2012).

The interview guide had four introductory questions, and four segments, with relevant questions linked to each segment, with the flow of each section used to guide the research narrative. As the interviews conducted were semi-structured, the researcher could probe a specific point that arose during the interview to gain a deeper understanding and enhance the quality of the data collected.

The questions in the interview guide, refer to Appendix A, were focused on and made up of four separate sections. These separate sections were used to determine the SMEs' commitment to sustainability and sustainability innovation, the abilities of the SMEs to sense, seize and reconfigure opportunities and threats, and determine barriers that negatively affected the adoption of sustainability within these SMEs.

4.8 Data Gathering Process and Storage

Before starting with data collection, the proposed research methodology and interview guide were submitted to obtain ethical clearance from the University's Ethical Clearance Committee, depicted in Appendix C; this was to ensure the rights of the respondents were not compromised.

Once ethical clearance was granted, the respondents that met the unit of analysis criteria were contacted telephonically to request an interview. The nature of the research was explained together with the expected interview duration. Once the respondent agreed to a date and time for the interview, a video call meeting requested via Microsoft Teams video call. The informed consent letter was emailed to the respondent. Before any interviews were conducted, respondents were asked

to sign the informed consent form, an example of which can be found in Appendix D, once signed the respondents emailed it back to the researcher. Refer to Appendix A for the interview guide.

At the start of each interview, the respondents were thanked for agreeing to participate. They were assured that all the information discussed would be kept confidential throughout the study and that no information could be traced back to them. The respondents were also informed that they had the option to opt out of the interview at any stage if respondents felt it necessary to do so. The next step was to request permission to record and transcribe the interview to facilitate data collection and analysis.

The semi-structured interviews were conducted with founders, directors, CEOs, and managers of SMEs using Microsoft Teams. The respondents interviewed are described in Table 1, section 4.6. The length of the interviews averaging at 1 hour and 8 minutes.

The data collected was done via Microsoft Teams video call. When collecting data, it is essential to ensure that it answers the research questions and meets the research objective. The researcher also needed to ensure the suitability and quality of the data collected and that the data collection method was appropriate and facilitated data collection to answer the research question and objectives (Saunders & Lewis, 2018)(Saunders & Lewis, 2018).

Qualitative research aims to clarify the thought processes that founders, or co-founders go through when moving to sustainability implementation. The best method of collecting this data was through a distilled description of the process, and this was done primarily in the non-numerical form of the spoken (Polkinghorne, 2005)(Polkinghorne, 2005).

For this project, primary data collection took place using semi-structured interviews of founders, CEO, managers of manufacturing SMEs, from which definite learnings about the process could be gained. The researcher asked predetermined questions and varied or added to the questions, which were dependent on the interview and the response from the respondent. Two pilot interviews were conducted before the

primary interviews to determine if the procedure was followed if the questions asked were suitable, or if any adjustments were needed before conducting the primary research interviews (Saunders & Lewis, 2018). All interviews were recorded and transcribed verbatim with appropriate codes assigned to each respondent. After each interview, the data was transcribed using, Happy Scribe: Audio transcription software. To ensure the transcribed data was correct, the researcher re-listened to each interview and corrected the transcriptions if required. The data collected was evaluated only after the completion of all 10 interviews.

The list of prospective respondents was generated by engaging with known contacts in the industry and by asking a number of these contact for recommendations on additional respondents to include in the study (Polkinghorne, 2005)(Polkinghorne, 2005).The prospective respondents were contacted telephonically to schedule suitable dates for when the one-on-one interviews could be conducted. SMEs in the manufacturing space, residing in KZN, Gauteng, and the Western Cape, was interviewed via Microsoft Teams video call facilities. This process proved to be convenient for the respondent and the researcher.

This study aimed at interviewing 10 respondents or until saturation was reached. According to Vasileiou et al. (2018), saturation is considered the new 'gold standard in qualitative research. Saturation is reached when no new information or themes emerge during the interviews (Vasileiou et al., 2018). As evidence that saturation was reached, Francis et al. (2010) recommended that cumulative frequency graphs supporting that saturation has been reached are included in the research report.

Saturation was reached at the ninth interview, the new keywords generated per interview is depicted in Figure 2 below. It can be seen on the graph that no new codes were detected at interview nine. The researcher interviewed 10 respondents, and no new codes emerged, which was a clear indication that saturation was reached.

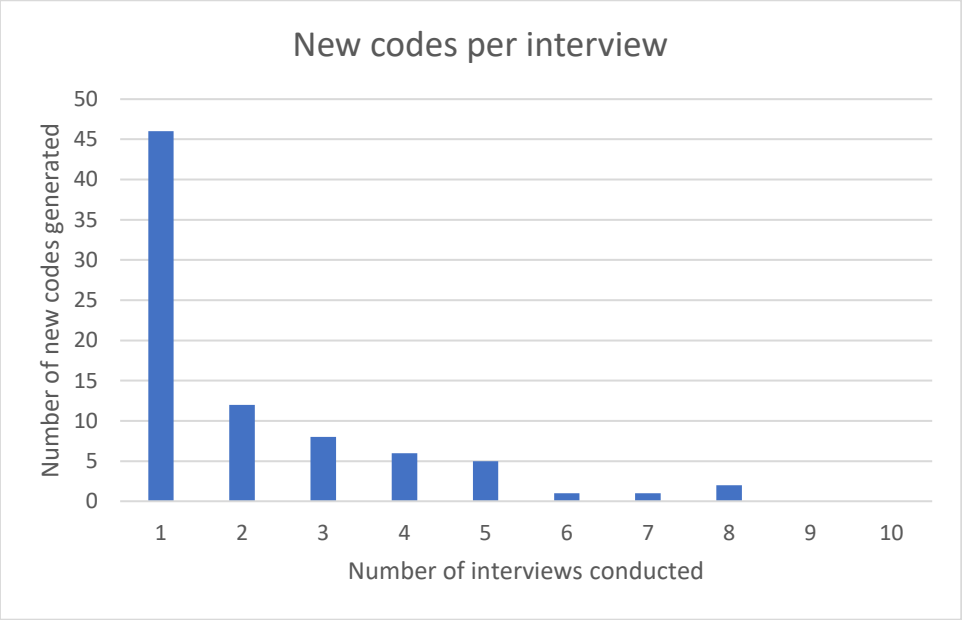

Figure 2: Summary of new keywords generated from the interviews

The digital data acquired for this research will be kept safe and secure for ten years and only retrieved if required. The data will be stored in a secure cloud-based data storage facility managed by the University of Pretoria, which can only be accessed by the researcher with Gordon Institute for Business Science/University of Pretoria credentials. The data will be stored and reported on to retain confidentiality without identifiers.

4.9 Analysis Approach

No data was analysed during the data collection process; all the data was analysed once all 10 interviews were completed.

The transcriptions obtained from the interviews were analysed using Atlas.ti software to facilitate coding and making sense of the data. An inductive approach to the data analysis was used, guided by the Gioia et al. (2013) method for adding structure to the data. Thematic analysis, commonly used in qualitative analysis, was performed on the data to gain a deeper insight into patterns and themes contained within the data Castleberry & Nolen (2018). Using Atlas.ti, the coding took place in five stages. In the initial phase, open coding was done by evaluating the raw data on a line-by-line bases and assigning codes to sentences or paragraphs of interest (Strauss & Corbin, 1998) (Strauss & Corbin, 1998) for all 10 transcribed interviews. The initial coding yielded 283 codes, and saturation was reached at the ninth transcript. In the

next phase, the researcher reviewed all the codes and merged similar and duplicate codes to yield a final code count of 113 codes.

In the third phase, the codes were collated into themes and put into groups (axial codes) that best suited the actions described by the respondents; this yielded a total of 21 axial codes. The themes were recognised as reoccurring constructs throughout the interviews(Saunders & Lewis, 2018) (Saunders & Lewis, 2018). During the first three phases of the coding process, no reference was made to the literature, as the aim of the study was to allow the themes to emerge during the analysis process and to avoid confirmation bias (Gioia et al., 2013).

The fourth phase of the analysis consisted of combining the axial codes into aggregated groups that matched the theory, namely the main groups of dynamic capabilities, sensing, seizing, and reconfiguring (Teece, 2007). The final stage of the data analysis was to separate the codes that had a negative effect on sustainability implementation and group them into separate axial code groups, linking the negative axial codes to the dynamic capability aggregated groups.

The code book was exported from Atlas.ti into Microsoft Excel, where all the codes were used to draw up the code structure as depicted in Figure 3.

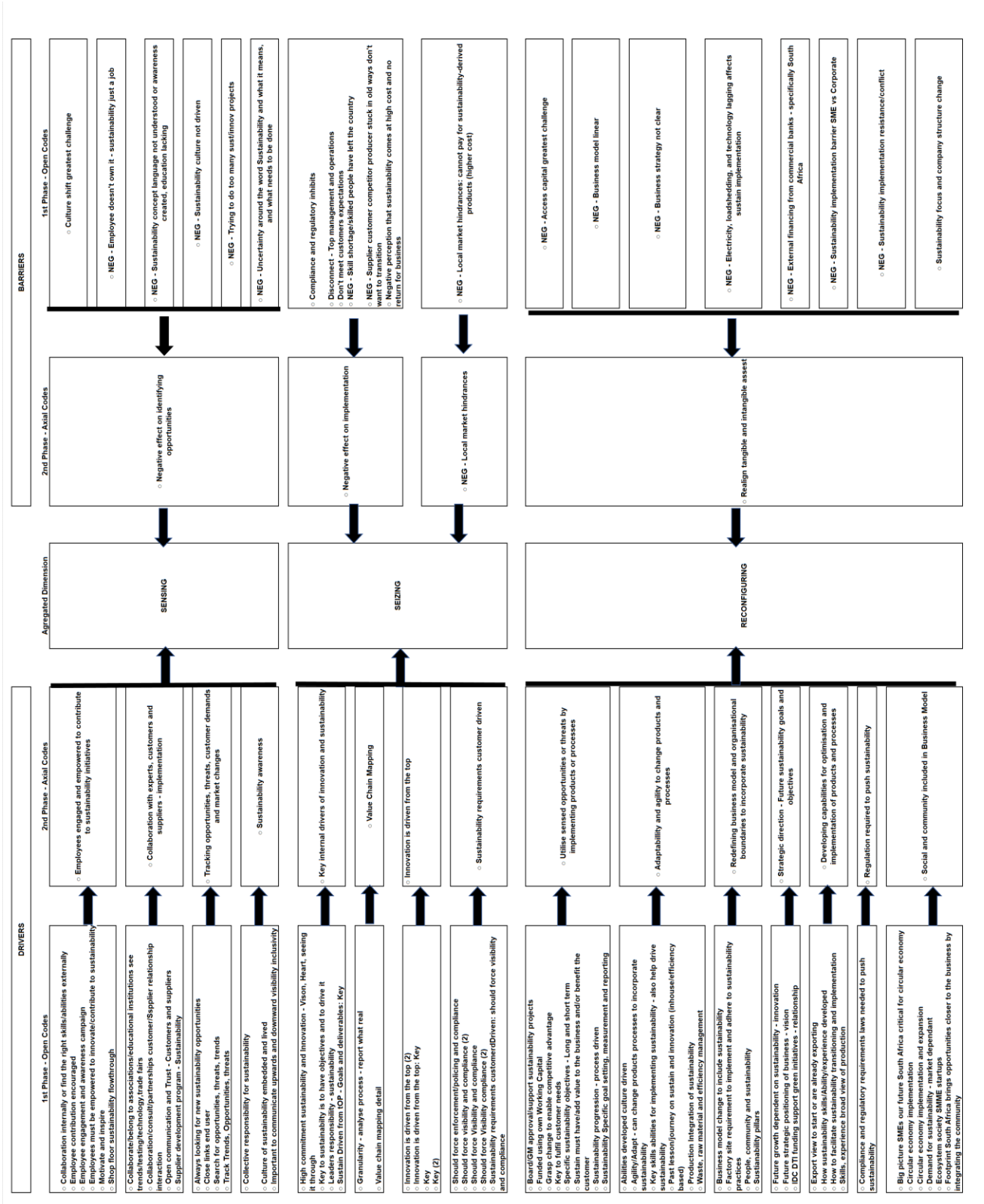

Figure 3: Code Structure

4.10 Quality Controls

The main concern around qualitative research revolves around data collection and the interpretation of the data collected. In particular, the interpretation and conclusion are not trusted (Stiles, 1993; Lester & O'Reilly, 2021). Leitch et al. (2010) argue that the quality criteria must be internalised rather than checked upon completion. Furthermore, as emphasised by Sauders and Lewis (2018), the data's reliability and validity are of paramount importance, where the validity of the data refers to the method of data collection and ensuring that the findings are what they say they are. Reliability ensures consistent findings are produced based on the data collection and analysis methods used. The semi-structured interview guide was standardised and used as a guideline for all interviews.

When conducting semi-structured interviews, the respondents were encouraged to talk without interruption. The researcher listened, remained neutral and gave minimal input, thus minimising any bias during the interview. Building trust during the interviews was also essential, allowing the respondents to relax and speak openly about the subject matter. To increase the validity and reliability, according to Golafshani (2003), the researcher must eliminate bias and increase the truthfulness of the research by using triangulation. Reliability is seen as the ability to reproduce the study using a similar methodology. If this is done, the research instrument is deemed reliable (Creswell & Miller, 2000).

According to Creswell and Miller (2000), triangulation is achieved by searching for convergence using numerous sources, including literature, theories, and even interviews, to form themes or categories. From the findings that emerged in Chapter 5, the themes that appeared compared with the literature and aligned well with theory. The findings compared with the framework as proposed by (Bocken and Geradts (2020), as represented in Chapter 2, Figure1, and the information that emerged from the interviews serves further to confirm the findings in the literature, thus triangulation of the findings did take place.

4.11 Limitations

The data collection approach used in this study, which was narrative in nature, may have limited the scope of this project. Moreover, this study was constrained as data

was collected from a small sample group within a very short timeframe. Additionally, the interviews were only conducted with top-level managers in the selected SMEs, thus providing a limited perspective. Furthermore, the study only included companies operating in four manufacturing sectors, namely textile, chemical, packaging, and beverage, located in the Western Cape, Gauteng and KwaZulu. However, a number of the interviews conducted were with companies in the textile industry based in KwaZulu Natal; potentially skewing the findings towards that sector.

Furthermore, in some cases, the researcher was familiar with the respondents, which could have introduced an unintentional bias in the interview process. The study focused on sustainability, but it is important to recognise that there is a connection between sustainability and the need for innovative solutions to promote sustainability. Subsequent studies could investigate the relationship between sustainability and sustainability innovation in SMEs.

CHAPTER 5: RESULTS

5.1 Introduction

This chapter provides the details of the interviews conducted and the results from the explorative semi-structured interviews in line with the research questions posed in Chapter 3. A consistency matrix, as shown in Appendix B, was used to match the literature review, research questions, data collection and results to maintain consistency throughout the study.

Before the commencement of the interviews, each respondent was contacted telephonically to explain the nature of the study and request an interview. Once the respondent agreed to the interview, the respondent signed and returned the informed consent letter, and the interview was conducted online via Microsoft Teams video call. Each interview was recorded with permission from the respondent, and the raw data were transcribed and coded using Altas.ti software. The data collected was in line with the methodology described in Chapter.

5.5.2 Description of Sample and Results Presentation

The sample consisted of 10 respondents, as summarised in Table 2. As indicated in Table 2, the respondents represented founders, CEOs' and senior managers focused on sustainability or generating new business opportunities with sustainability at the core. The SMEs represented four diverse industries in the manufacturing sector, broadly grouped into the textile, chemical, packaging, and agricultural beverage industry. All the respondents were from companies based in KwaZulu Natal, Western Cape and Gauteng, with the bulk of the interviews conducted with respondents in KwaZulu Natal.

The respondents were selected as they are part of SMEs that have successfully transitioned to include sustainability into the business and have extensive knowledge and experience in sustainability practices and implementation within these companies.

For the duration of this study, the respondents are referred to as Respondent 1 to Respondent 10.

Table 2: Respondent details

Respondent No.	Position held	Industry	Additional information	Province
1	Quality Executive – Sustainability	Textile	Quality executive and manages the sustainability portfolio and is responsible for the company's ESG reporting, positioning the business for the future and shock-proofing the business against future threats.	KZN
2	Director/COO	Textile	The Director of Operations has the overall responsibility for the long-term strategy of the business, capital, resourcing, systems, health and safety and people management.	KZN
3	Financial Manager	Textile	Financial Manager responsible for all financial aspects and environmental compliance, BBBEE compliance, employment equity, carbon tax, social issues, and governance.	KZN
4	Marketing Director	Textile	Marketing Director responsible for dealing with end users, partnerships with distributors for local and export markets, and forming partnerships with SMMEs to supply SOEs.	KZN
5	SHEQ Manager	BevAgri	SHEQ Manager responsible for all health and safety, the environment, food safety, quality, and ethical reporting.	Western Cape
6	Founder/CEO	Chemical	CEO is responsible for the entire business and is the main innovator for products and collaborates with external customers and manufacturers by providing technological solutions and products to meet the market needs.	Gauteng
7	Marketing Director	Packaging	Marketing Director responsible for some designs, sales and production advisory to meet new market demands.	Western Cape
8	Technical Manager	Chemical	Technical Manager is responsible for overseeing production quality and all technical aspects of the company and assists with any projects in a technical role.	KZN
9	SHEQ Manager	Packaging	Safety, Health, and Environmental Manager responsible for managing the health and safety management systems, which include sustainability. From an environmental perspective, from an environmental point of view is to ensure that anything the company produces does not harm the environment in any way.	KZN
10	Founder/CEO	Textile	Founder/owner and is responsible for managing the company from production, sales, and financial point of view. Oversee the entire company.	KZN

The results for the Research Questions detailed in Chapter 3 and the interview guide outlined in Appendix A are presented in this chapter. These results were obtained by assigning codes to facilitate the handling of raw data in the transcripts; the next stage consisted of making sense of the codes, which included the creation of a second layer of coded themes, referred to as axial coding. Finally, the axial codes were aggregated into themes referred to as selective coding (Gioia et al., 2013). The findings are presented per research question and the axial codes serve as the headings under the main themes, which are sensing, seizing, and reconfiguring. The entire code structure is presented in Figure 3. Table 3 below is an example of how the initial codes are grouped into axial codes, then aggregated into themes, and the reoccurring frequency associated with each code and axial code.

5.3 Results for Research Question1

Research Question 1: What dynamic capabilities within SMEs are considered major factors helping the development or implementation of sustainability initiatives?

The aim of Research Question 1 was to gain a deeper insight into the microfoundations of dynamic capabilities that influenced sustainability implementation initiatives. The questions formulated for the semi-structured interviews were specifically organised around the dynamic capabilities of sensing, seizing, and reconfiguring to gain insight from an individual's perspective of what facilitates or inhibits the adoption of sustainability by SMEs in South Africa. Furthermore, the questions sought to confirm if previously identified microfoundations in the literature were evident in the SMEs interviewed and to identify additional microfoundations not previously described in the literature.

The interview process yielded four microfoundation building blocks of sensing, four microfoundation building blocks of seizing and six microfoundation building blocks of reconfiguring. The results of each of these microfoundations are presented below.

5.3.1 Microfoundation building blocks – Sensing

Within the sensing aspect of dynamic capabilities, four microfoundation building blocks identified appeared to contribute positively to identifying sustainability opportunities within the SMEs interviewed.

Table 3 below summarises the four most notable microfoundation building blocks in the sensing aggregated group that emerged from the data evaluation, identified as employee engagement and empowerment, collaboration with customers and suppliers, tracking trends and evaluating opportunities, and sustainability awareness. The findings of this table are presented in the section below.

Table 3: **Research Question 1: Sensing - Microfoundation Building Blocks**

1st phase code	2nd phase - Axial codes	Code Groups	Frequency
			79
○ Collaboration Internally or find the right skills/abilities externally	○ Employees engaged and empowered	SENSING	21
○ Employee contribution encouraged			25
○ Employee engagement and awareness campaign			27
○ employees must be empowered to innovate/contribute to sustainability			10
○ Motivate and inspire			9
○ Shop floor sustainability flowthrough			10
			69
○ Collaborate encouraged /belong to associations/educational Institutions, trade fairs	○ Collaboration with customers and suppliers		20
○ Collaboration/consult/partnerships Customer/supplier/expert relationship interaction			35
○ Open communication and trust - customers and suppliers			31
○ Supplier Development Program - Sustainability			4
			43
○ Always looking for new sustainability opportunities	○ Tracking opportunities and threats		15
○ Close links end user			2
○ Search for Opportunities, threats, trends			9
○ Track trends, opportunities, threats			19
			34
○ Collective responsibility for sustainability	○ Sustainability awareness		7
○ Culture of sustainability embedded and lived			23
○ Important to communicate upwards and downward visibility, inclusivity			7

5.3.1.1 Employee engagement and empowerment

The respondents, SMEs who successfully incorporate sustainability practices into these businesses, are driven by initiatives that create greater awareness for opportunities, which contribute to improved products or processes within the business. These initiatives create a competitive advantage and reduce the company's environmental burden.

The respondents indicated that sensing new sustainability opportunities for a business can be challenging for some companies if a culture of sustainability awareness is not created.

> *“… managers really need to play a big role of leadership in encouraging sustainability throughout the whole company... by encouraging employees even at the lower levels to come up with ideas.” - Respondent 8*

A respondent noted that as part of their employee awareness campaign, they created awareness around domestic waste, where the employees benefited from sorting out their waste. However, it also created an awareness of process waste generated in the factory. The respondents believed that while working on employee engagement, they were influencing the culture as the employees became aware of the difference they could make. The respondents reiterated that engaging with the employees before they get to their point of work contributed significantly to employee awareness; it was also noted that these actions, together with senior management showing the value and effect of these actions on the business, was the most significant influence a company could have on an employee.

> *"We believe that if you show up aware of your waste if you show up aware of your effect on the environment, you are then going to worry about process waste and what's coming off the machine." – Respondent 1*

The other respondents elaborated that to achieve the sustainability objectives of a company, knowledge and awareness of sustainability should be prevalent throughout the organisation. To achieve this, the respondents stated that specific sustainability training for the employee could go a long way in creating opportunities for both the company and the employees.

> *“We even have a training segment for sustainability… these opportunities are afforded to our staff, but also makes sure that we meet the sustainability goals…” – Respondent 9*

To encourage these employees, the respondents indicated that they involved them across different groups and exposed them to the innovation and technical spaces, which are environments conducive to employees coming up with initiatives. Also, according to the respondents, having an open culture where other opinions are respected creates an environment where employees are not afraid to speak and offer suggestions.

One respondent added that they exposed their employees to other companies within their work cluster as part of a work immersion programme, hoping that those visits would stimulate the employees to look at their in-house process and develop suggestions.

Furthermore, the participants noted that over and above training employees, they felt it was essential to have an environment in which employees at all levels collaborate freely and where active participation from everyone is encouraged.

> *"…at a management review level, we set objectives …and we actively use that session to brainstorm ideas, where most of the staff are involved…we actively look for ideas and innovation from all staff." - Respondent 2*

To further encourage employee contribution, the respondents noted that acknowledging the initiatives taken, regardless of how small they are, was imperative, as employees see it as the company valuing their suggestions.

> *"It's something small…it's something visible that staff see it as an initiative from them… they can see something is happening… also how things are recycled and why it is important." – Respondent 5*

Additionally, most respondents felt that acknowledging and implementing these small ideas served as a way of linking and creating an understanding of management objects at all levels of the company.

When it comes to training, it is essential to provide training on various topics quarterly, not only on work-related topics but also training that is focused on the individual as well. The respondents believe that the business will also be healthy if the staff are healthy.

Most respondents agreed that giving employees responsibility for their section or workstations yielded positive results, as the employees are familiar with and spend most of their time in that area. Furthermore, respondents believed that the employee is best placed to develop sustainability improvement ideas, mainly regarding optimising raw material usage and waste reduction, within their section. Additionally, if these employees are included in conversations about sustainability and reducing the use of unsustainable materials, in many instances, the employees do come up with good sustainability ideas.

> *"So just by being inclusive, I think it makes them feel a bit important, it then motivates them to come up with these different ideas." - Respondent 6*

This respondent further stated that giving the employee this responsibility and discussing different problems during operational meetings motivates employees to come up with good ideas as they feel included in the discussion about the requirements of the process.

5.3.1.2 Collaboration with customers and suppliers

Many respondents emphasised the integral role that customers and suppliers played in their business. They highlighted the significance of developing sustainable solutions through the lens of both customers and suppliers. The respondents believe the most beneficial way to do so is to collaborate with various stakeholders, including customers, partners, consultants, and suppliers. It allows companies to gain insight and gather information about potential market opportunities, trends, and threats they would not usually be privy to.

Most respondents indicated they communicated extensively with customers and suppliers about sustainability initiatives to gather information from outside the organisations. The respondents stated that most of the information gathered was

focused on new products and innovations observed in the market or, as some respondents noted, on product challenges customers were experiencing.

Additionally, the respondents stated that collaborating with customers and suppliers was about working on solutions. In some instances, the focus was on innovating around reducing the supply chain's carbon footprint. During the interviews, the respondents indicated that understanding the customers' requirements, the respondents reiterated made it easier to innovate around a solution to the customers' needs. According to the respondents, getting feedback on a developed product was necessary, as this enabled the development of future products.

> *"…In post market surveillance…we use that feedback to drive new product innovation." – Respondent 2*

As specified by the respondents, the instances that worked well were where the customer had an established market. The respondent used their specialised technology to develop a product specifically for that market. The respondents emphasised that they used the technology to gain a competitive advantage.

The respondents also noted that they needed more than one person within their organisation to get information from the external environment to interact with customers. However, everyone who interacted directly with the customer was responsible for sensing opportunities in the market.

A few respondents stated that to gain better insight, they purposefully involved customers and suppliers in exploring opportunities with them and intentionally asked for feedback from a development progress perspective. The respondents stated that this indicated whether they were on the right track or where changes should be made. A respondent noted that their suppliers typically followed global sustainability trends and developed products accordingly. As the products were developed, the respondent adopted them, as the new products are environmentally sustainable and per industry regulations.

“There is a strategic partnership with suppliers…you have to be compliant regarding certain standards…as they develop it, we go with them.” – Respondent 3

The respondents emphasised that exploring the way forward together on sustainability initiatives was essential. They went as far as to refer to their suppliers and customers as partners, indicating they have strategic partnerships with suppliers to develop sustainability-focused new products.

“…whether we buy from them or sell to them, they remain partners. So much deeper than transactional” – Respondent 2

This type of partnership, the respondent pointed out, gave them access to R&D facilities they needed and gave them innovation assistance and a knowledge base at a much higher technical level than what the respondent had internally.

“We collaborate with a company like… and we are fortunate enough to…get broader aspects of innovation from a much higher level. They've got a fully developed R&D department which we have access to, fortunately". – Respondent 10

Most respondents stated that they attended industry forums, where matters affecting the industry are discussed, information exchanged and included discussion around sustainability and changes to legislation.

The respondents indicated they adopt a collaborative approach with institutions like the CSIR (Council for Scientific and Industrial Research) and SABS (South African Bureau of Standards). Also, some universities assisted them with research the respondents could not do for themselves. A respondent stated to reach out and collaborate, encouraged by the company. By subscribing to universities, they received the yearly commodity schedule and provided import and export statistics specific to the industry the respondent operated in.

In some instances, the respondents noted that they were members of several associations and technical committees, both locally and globally. The respondents

specified that they found this extremely useful as they gained access to information about leading trends, which enabled them to do online research, facilitated their market-sensing efforts for opportunities, and assisted with gap analysis.

Most respondents mentioned that they attended trade shows and conferences. From a marketing and research point of view, the respondents noted that this generally gives them a good sense of where their product is placed in the market and what trends and threats are coming. These trade shows were also ideal for viewing new technology.

> *"We go to the big trade shows around the world…and we generally get a good sense from that where we're placed and whether there's anything new coming into the mix." – Respondent 7*

5.3.1.3 Tracking Opportunities and Threats

Typically, the respondents noted that some market intelligence gathering resided with sales and marketing. With the innovation team continuously researching new trends and testing new ideas, they have picked up in the market. In this department, the respondents specified that innovation is managed through the innovation funnel; these projects typically go through various stages of selection.

> *"We are always looking for new opportunities to become more sustainable." – Respondent 5*

Although they generally sell to distributors, some respondents noted that even though they do not supply customers directly, they still have very close links to the market to understand the customers' needs. Other respondents noted that they had several distributors partners worldwide who gave them much feedback on what was happening in the market. The respondents stated that, quite often, new product opportunities were driven by requests from the customers directly.

A respondent indicated that one of the pillars of sustainability they report on is innovation; as such, they report on market trends. The respondents noted that they all track market trends; however, a few pointed out that they did so informally but

kept their ears to the ground where they needed to. However, other respondents stated that they were busy with a business continuity plan so that they could start monitoring trends, especially concerning responsible producer legislation.

According to the respondents, the responsibility for market intelligence resides primarily with sales and marketing. After evaluating the trends, the identified opportunities are typically presented to the board, which will decide whether to pursue the opportunity or delay the actions. When it is decided to pursue a sustainability project, this product innovation project is tested rigorously against the market requirements.

> *"We're very aware of where we are placed globally as a raw material. I wouldn't say we have any formal structure to track it. We go to the big trade shows around the world, both from a research and marketing point of view," – Respondent 7*

Some respondents mentioned that they belonged to industry forums, where quite often, new opportunities and new solutions applicable to the industry were discussed. Whilst most respondents indicated that they tracked opportunities or threats by subscribing to universities for commodity schedules and import and export statistics related to their industry.

Other respondents stated that they kept abreast of global trends by attending trade shows locally and abroad, where they generally got a good sense of anything new coming onto the market. These trade shows served from both research and a marketing point of view. Also, subscribing to international advertising companies, these activities, the respondents noted, help them stay informed about what is happening in the marketplace worldwide.

> *"…we regularly go to trade shows… We continuously go and explore new ideas… So, we're always looking to innovate and implement new ideas." – Respondent 10*

5.3.1.4 Sustainability Awareness

The respondents indicated that the approach to sustainability from a process waste and efficiency perspective is well integrated within these companies, with initiatives from lower levels of the organisation. The respondents mentioned that some initiatives flowed from the shop floor while others were driven by top management. The way sustainability was approached was to look at initiatives that immediately added value to the business. The respondent believed that sustainability initiatives live and run at the plant level because of this approach. From a culture perspective, these initiatives continue even without management.

Furthermore, respondents emphasised that everyone in the organisation had a collective responsibility for driving sustainability, not just top management, at the exclusion of other levels. Some respondents noted that when an opportunity arises, all resources were directed at it to make it work. One respondent stated that their sustainability focus was mainly around continuous improvement and noted that everyone could have an idea and put this suggestion forward.

> *"If you tell them, it is part of their responsibility…They always come up with these nice ideas… because we included them in the discussion about the requirement of the process." – Respondent 6*

It was also mentioned that the respondents believed that a way of embedding collective responsibility was how the company dealt with these innovative ideas from employees. They also stated that it was essential to acknowledge and use them.

> *"…but no idea goes unnoticed or unheard." – Respondent 9*

> *"It's something small, but it is something visible that the staff sees…it's an initiative from them. And they can see something is happening." – Respondent 5*

The respondents emphasised that until the company start to make sustainability real and make an impression on the employee, they will continue to see it as a project or something they do at work. The success of sustainability within an organisation is culture driven, and it is a culture that needs to be nurtured within the organisation.

The respondents reiterated that as part of creating and maintaining the sustainability culture, it was vital to communicate both from the top down and bottom up, and to keep employees in the loop about the company's ultimate objectives.

One respondent highlighted that even if there was a production problem, to prevent the employees from becoming discouraged, it is essential to discuss the issues around developing new ideas; this helped to prepare the employees mentally and teach them about perseverance.

5.3.2 Summary – Sensing

The four microfoundation building blocks of sensing were identified as employee engagement and empowerment, collaboration with customers and suppliers, tracking trends and evaluating opportunities, and sustainability awareness. These building blocks contributed to creating a sustainability culture throughout the organisation and facilitated identifying potential sustainability opportunities in the internal and external environment, further enabled by the partnerships formed with customers and suppliers.

5.3.3 Microfoundation Building Blocks – Seizing

During the interviews, the respondents concentrated on four main microfoundation building blocks that assisted companies in seizing the opportunities identified and were deemed beneficial in helping the businesses implement the new ideas.

The microfoundation building blocks that positively influence sustainability-oriented companies' view of the way seizing are internal drivers of sustainability and innovation, sustainability and innovation-driven from the top, value chain mapping, and customer–driven sustainability.

Table 4 below summarises the four most notable microfoundation building blocks in the seizing aggregated group that emerged from the analysis. The findings of this table are presented in the section below.

Table 4: Research question 1: Seizing - microfoundation building blocks

1st phase code	2nd phase - Axial codes	Code Groups	Frequency
			43
○ High commitment sustainability and Innovation - vison, heart, seeing it through	○ Internal drivers of sustainability innovation		26
○ Key to sustainability is to have objectives and to drive it			9
○ Leaders responsibility - sustainability			9
○ Sustain driven from top - goals and deliverables: key			5
			30
○ Granularity - analyse process - report what's real	○ Value chain mapping		10
○ Value chain mapping detail			20
		SEIZING	**20**
○ Innovation is driven from the top	○ Innovation - driven from the top		1
			2
			1
			16
			17
○ Should force enforcement/policing and compliance	○ Sustainability requirements - customer driven		7
○ Should force visibility and compliance			2
○ Sustainability requirements customer driven: Should force visibility and compliance			1
			1
			6

5.3.3.1 Internal drivers of sustainability and innovation

As per the respondents, companies with sustainability central to the business are highly committed to sustainability and innovation. This commitment usually starts at the board level, where the shareholders are seen to be driving a clean and green manufacturing agenda.

The respondents also noted that within these companies as a result of their high commitment to innovation and sustainability, both for product innovation and process innovation, strong innovation and future lead innovation were integral to the survival of these companies.

Furthermore, the respondents indicated that these companies' commitment to sustainability and innovation was not just focused on new products and processes. However, in many instances, these companies had innovation teams dedicated, from a sustainability framework perspective to identifying waste streams, which these teams were tasked with finding alternative uses for, either as a raw material or to be used for a different purpose.

"We have innovation teams who I can delegate tasks to from a sustainability perspective…we identify waste processes in each business…to either find alternate raw materials or different purposes" – Respondent 1

Furthermore, it was noted by several respondents that because of the company's commitment to sustainability, they managed to survive the 1990s in the textile industry as well as the onslaught from Chinese imports. Thus, by having sustainability at the heart of the business, they managed to reduce their water and energy consumption with their sustainability projects over the years.

"They've seen then the success of sustainability…the long-term success of our company, because not many companies survived the 1990s in the textile industry." – Respondent 3

Some respondents reiterated that sustainability is what they have always been doing; as such, they have been monitoring their carbon footprint since 2009. One respondent noted that it was essential to set targets for sustainability innovation and to start by reducing raw material usage, emission, and waste. Furthermore, the respondents agreed that it was more important to show improvement on the sustainability plan and believed that continuous improvement added more value to a company than calculating its carbon footprint.

According to Respondent 7, sustainability is the be-all and end-all of why they exist. This respondent noted that the critical thing was that more consideration should be given to the life span of raw materials used in temporary, semi-permanent and even permanent applications and what happens to these products when disposed of. The standpoint they took was to determine how they could use these materials as a starting point and still serve the market with what the customer needs, as illustrated in this respondent's comments below:

"We've always had this this viewpoint…that you can't just turn a blind eye to that, off the backend of chasing the bottom line. So, it's very much something that stands as a core reason as to why we are here." -Respondent 7

Other respondents emphasised that sustainability is one of their strategic objectives, mainly continuous improvement, with a sustainability department that drives this objective. Other respondents agreed and added that the main sustainability drive was from a resource point of view, to which they were very committed.

Some respondents had a unique approach to sustainability innovation within the company, which was driven by setting an objective of at least two innovations per year, thus 20% of the revenue per year had to originate from the launch of these new products every year. They indicated that this created urgency around sustainability innovation.

Most respondents agreed that it was essential to drive sustainability objectives. Thus, to drive these objectives they needed to agree on KPIs per department which helps drive the main sustainability objective of the company. The respondents reiterated that having these objectives and setting KPIs for departments and individuals creates urgency around sustainability.

Many respondents noted that their sustainability objective mainly focused on the continuous improvement of their process and stated that focusing on the small things resulted in incremental and continuous improvement.

In addition to setting objectives, the respondents concurred that managers should play a significant role in promoting sustainability throughout the company and encourage and motivate employees to suggest ideas. Most respondents agreed that their role as a leader was to drive sustainability. They stressed the importance of leaders having a genuine passion for sustainability, as this inspired their employees to share the same enthusiasm.

5.3.3.2 Sustainability innovation - driven from the top

Most respondents concurred that sustainability must be driven from the top to see results, further indicating that it is an absolute non-negotiable and that the companies and departments that benefited the most were those with leaders that embraced sustainability. It was observed that when passionate directors drove sustainability, it was easier to get sustainability buy-in and commitment from management, making it

easier to implement sustainability at all company levels. Also, it was seen, in these companies, that employees follow the example that is set for them.

> *"For our organisation, the commitment is pretty high because sustainability is one of our strategic objectives. So, it is in the mouth almost of everyone, but being led from the top." – Respondent 9*

Some respondents noted that they are fortunate that their shareholders are very actively involved in the business and that the shareholders knew what the market wanted. Therefore, it made it easier for the respondents to adjust the strategy and come up with new ideas, more importantly, to get those ideas accepted because the shareholders were that close to the business.

5.3.3.3 Value Chain Mapping

Central to the business is understanding what is happening in the plant, production, and operation; it is essential to get an accurate picture before presenting an ESG score. The respondents noted that this is the bases of what contributes to the carbon footprint and where to start reducing it. Furthermore, the respondents indicated that this is the first phase, and the next phase is determining what suppliers' transportation and freight add to the carbon footprint.

However, as noted by a respondent, most suppliers do have the information but are not ready for submission; this was especially true for raw materials from farms. The respondent stated that they felt assisting their suppliers with these calculations was important.

There is scope to improve and reduce the carbon emissions throughout the value chain, as observed by the respondents, but customer buy-in is needed. The respondents further noted that convincing the customer to eliminate some part of the transport leg was important as this could reduce carbon emissions. Most respondents agreed that value chain mapping could be complicated as only some businesses operate with sustainability in mind.

A few respondents stated that even though they had implemented several sustainability practices and processes, they were at the beginning of their

sustainability journey and had only just started measuring. These respondents indicated they were still looking at what needed to be measured, how to measure it, and the best way to calculate their emissions.

5.3.3.4 Sustainability Requirements - Customer Driven

Some respondents noted that they adapt and pivot to provide the customer with what they want and that, ultimately, the consumer pressures the manufacturer. Thus, as emphasised by the respondents, the role of society is crucial, and it is necessary to empower consumers with a stronger voice to prioritise sustainability.

> *"The consumers or society should force the need for proper labelling in this country to provide consumers with more information." – Respondent 3*

Additionally, the respondents stated that customers, especially in Europe, push sustainability, and there is a drive, by the customer to have all their suppliers present a plan for becoming carbon neutral. However, the respondents noted that it is easy to put it on paper and looks good. However, the respondents were concerned about the practicality of it, especially in the South African context.

> *"… with companies like us having to go for verification… that just doesn't make it easier… there is no policing or verification of what is actually happening and what people are saying is really true." - Respondent 5*

Furthermore, the respondents emphasised that the push for sustainability came from the customer base because of the demand from the market they are targeting: exports to Europe. The respondent further stated that customers in the European Union force manufacturers to use sustainable alternatives. Most respondents agreed and emphasised that the issue of sustainability was mainly raised from the customer side and believed that using more sustainable materials should be legislated, with penalties added for using non-sustainable materials. If legislation is implemented, more people will start innovating for sustainability. As illustrated by the comment below:

“But I think governments and customers really should play a very big role in sort of driving that issue of sustainability sooner than later.” - Respondent 6

The respondents reiterated that sustainability is no longer just a requirement but a commitment to preserving the environment and a better future for future generations. It is ultimately crucial to the success and survival of any company. The respondents feel that to honour sustainability truly; it must be core to the business and not just an afterthought.

5.3.4 Summary – Seizing

The four microfoundation building blocks of seizing were identified as internal drivers of sustainability and innovation, sustainability and innovation-driven from the top, value chain mapping, and customer–driven sustainability. It was noted that commitment to sustainability initiatives was effective if originating from the board level and seen to be driven by management through to all levels of the company. The respondents noted that it was essential to have internal objectives and departmental and individual KPIs to stress the urgency around seizing the opportunities identified. Furthermore, measuring the company's carbon emissions and setting continuous improvement targets to ensure its objectives were met was essential.

5.3.5 Microfoundation building blocks – Reconfiguring

The interview process yielded six microfoundation building blocks of reconfiguring which appeared to contribute notably to the inclusion of sustainability into the business. The microfoundation building blocks identified are strategic direction, implementing sustainability opportunities, and developing skills for implementing sustainability.

Table 5 below summarises the seven most notable themes in the reconfiguring aggregated group that emerged from the analysis. The findings are presented in the section below.

Table 5: Research question 1: Reconfiguring – microfoundation building blocks

1st phase code	2nd phase - Axial codes	Code Groups	Frequency
			111
○ Board/GM approval/support sustain projects	○ Implementing sustainability opportunities	RECONFIGURING	22
○ Funded using own working capital			2
○ Grasp change to enable competitive advantage			5
○ Key to fulfil customer needs			11
○ Specific sustainability objectives - long and short term			13
○ Sustain must add value to the business and/or benefit the customer			35
○ Sustainability progression - process driven			13
○ Sustainability Specific goal setting, measurement and reporting			20
			103
○ Abilities developed culture driven	○ Agility and adaptability to change		8
○ Agility/Adapt - can change products processes to incorporate sustainability			29
○ Key skills abilities for implementing sustainability - also help drive sustainability			29
○ Past lesson/journey on sustain and innovation (inhouse/efficiency based)			26
○ Production integration of sustainability			8
○ Waste, raw material and efficiency management			13
			67
○ Business model change to include sustainability	○ Redefining organisational boundaries		29
○ Factory site requirement to implement and adhere to sustainability practices			4
○ People, community and sustainability			30
○ Sustainability pillars			15
○ Big picture SMEs our future South Africa critical for circular economy			5
○ Circular economy implementation			1
○ Circular economy implementation and expansion			10
○ Demand for sustainability - market dependant			4
○ Ecosystem society SMME startups			9
○ Footprint South Africa brings opportunities closer to the business by integrating the community			6
			49
○ Future growth dependent on sustainability - innovation	○ Strategic direction		20
○ Future Strategic positioning of business - vision			30
○ IDC DTI funding support green initiatives - relationship			3
			42
○ Export view to start or are already exporting	○ Developing capabilities - implementation sustainability		9
○ How sustainability skills/ability/experience developed			9
○ How to facilitate sustainability transitioning and implementation			17
○ Skills, experience broad view of production			9
			12
○ Compliance and regulatory requirements laws needed to push sustainability	○ Sustainability regulations		12

5.3.5.1 Strategic direction

Most of the respondents indicated that for the companies' future, it was crucial to have a strategy heavily slanted to sustainability and sustainability innovation, with key strategies of expanding into export markets with the sustainability products created.

In the past, what these companies deemed to be innovation was effectively making products that were already in existence and were considered as merely redesigning those existing products. So too, initially, sustainability was seen to be nice to have. However, these companies have realised that strong future lead innovation is integral to survival.

The respondents stated that innovation and sustainability are driven differently now, as the focus is on creating new markets and products that place a firm emphasis on sustainability. As one of the respondents indicated, they are focusing on building sustainability by expanding the new manufacturing facility as part of their strategic growth.

> *"…next year we need to focus on the design of this facility…that will give s the ability to build in sustainability…as we expand." – Respondent 6*

Respondents indicated that from a strategic perspective, long-term sustainability outcomes and projects had been implemented. These respondents also stated that the companies believe SMEs play a critical role in job creation in South Africa. As part of this vision, the respondents indicated that communities are incorporated into the company's strategy by developing SMEs as suppliers in the business.

For other respondents, part of their key strategy was to be the first company in South Africa to be verified as carbon neutral.

5.3.5.2 Implementing Sustainability Opportunities

As stated by the respondent, access to capital is the most significant challenge for SMEs. Thus, the respondents indicated that they must follow an extremely rigorous review process to ensure they only embark on a new product launch if they are relatively sure the product will succeed. Especially when approaching the government, such as the Industrial Development Corporation (IDC) and the Department of Trade and Industry (IDC), for support.

> *"…when there is a proper case, they support us and we have also found support from government, especially the Industrial Development Corporation and Department of Trade and Industry." – Respondent 3*

According to the respondents, any project or machinery that requires capital typically needs a board or approval from the CEO, where ultimately, the board will make the final decision. The respondents highlighted that even though some projects may look great on paper, project approval will only be given to projects that meet the company's strategic requirements.

> *"…in our organisation the CEO and myself as COO carry a lot of weight…a lot of the time the strategy might not be as clear to the rest…we will then make the final call." – Respondent 2*

Before a project goes for funding, according to the respondents, it must pass through several stages where the project will be validated for sustainability, commercial justification and a payback period prior to the presentation of the innovation project to the board for approval for commercialisation. As reiterated by the respondents, even if they believe they have a great project, the project sponsor must ensure they deliver on the triple bottom line, people, profit, and planet. The respondents emphasised that even though it is a sustainability project, it must still produce a profit.

One respondent mentioned that, within reason, money was not an object for them when they needed to fund sustainability projects. The respondents indicated that the company finds a way of freeing up the required resources. This respondent indicated that they would tap into finance from venture capitalists, shareholder loans, funding from IDC or even internal working capital to raise finance to fund projects of a sustainable nature. These projects typically focus on reducing emissions, recycling water, or reducing the effluent being discharged.

While more extensive projects, primarily focused on energy generation were easier to fund, the respondent indicated, mainly because this prevents production downtime and reduces the company's dependence on energy derived from coal. The respondent stressed that the capital used to fund sustainability projects are a necessity, primarily because of the effect the unreliable electricity supply from Eskom had on production.

Pilot plant trials are conducted for smaller projects where there is no need to borrow capital. If they result in savings in energy or raw material, the resources needed to implement the new project are freed up and funded with working capital.

The respondents mentioned that many companies set very stringent goals at different levels of the company. These goals were classified into core objectives for the company's shareholders and management board and pertained to improving ESG scores. According to the respondents, the next level focuses specifically on a product manufacturing and environment perspective by implementing raw material and waste reduction targets.

Although legislation at this stage does not require an ESG score, respondents indicated that they report their ESG score internally and use it as a guideline of what needs to be addressed.

The respondents indicated that they felt fortunate that the shareholders and directors supported all their sustainability goals and the board's willingness to change the business model to incorporate sustainability.

> *"I think that's the one good thing is that they have supported us in all our sustainable business decisions." – Respondent 4*

Some respondents were driven by sustainability innovation goals within their companies, while other companies' goals were set from an emission and productivity perspective mainly driven by legislation or power outages. Respondent 8 stated that the reason for investing in and implementing the sustainability process is that the company has set it as a goal. By not investing in it, productivity will be compromised.

> *"…it makes business sense for us…we need this because (loadshedding)…is stopping our productivity." – Respondent 8*

Many respondents stated that they had set objectives for the next five years which specified the number of new products that should originate from innovation within the company. Typically, these companies innovate to fill a gap or create a new space in

the market. One of the respondents, a director of his company, stated that his objective related to continuously improving the sustainability score of the company.

The respondents felt it was essential to set yearly objectives, and they set targets and ways to achieve these targets, which ultimately helped them achieve the company's sustainability objectives. One respondent indicated that by sticking to these objectives for the long run, they now have three aerobic effluent plants, and 40% of their energy is derived from solar. They aim to have their product series certified as the first carbon-neutral product in South Africa. The audit and verification are set for Jan 2023. Respondent 5 indicated that this happened due to the company having a vision and setting goals and objectives which they rigorously stick to.

> *"… for us this new sustainability drive, is not really very new to us…we are in the process of getting a product of ours, carbon neutral. And we are going to be the first in South Africa to claim carbon neutral on the product series" – Respondent 5*

All the respondents noted that the most important thing to do for sustainability is to show continuous improvement. That adds more value to the company than spending money on carbon credits; companies with sustainability as the heart of what they do, focus on continuously and consistently reducing the companies' effect on the environment.

Furthermore, the respondents alluded to the fact that going down the sustainability development process was pointless if there was no sustainable market to sell the product. The respondents reiterated that all the products need to contribute a sustainability margin. The respondents made the point that profitability was vital and that there must be a commercial reason for implementing a new product or process.

> "*You can't have a sustainable product unless there is a margin in it…we had several of those in the past…and we have the scars to prove it." – Respondent 2*

Other respondents whose approach to sustainability is through resource and emission reduction and energy saving indicated that the new projects were looked at

from risk mitigation and an energy reduction perspective, contributing to cost saving for the company. The steps taken to implement water recycling buffered them against water shortages or drought risks in the case of climate change. This respondent emphasised that not all projects contributed to the bottom line. However, there was a need to look at these projects with the future in mind. Thus the merits of sustainability projects must be examined from several angles outside the cost-to-benefit ratio.

Other respondents stated that they focus on sustainability when they have a competitive advantage, like the project they are developing in collaboration with a customer in an established European market. This market requires specific products for the agricultural industry, which encompasses sustainability. Thus the respondent specified that the technology is unique and gives them a completive advantage. Because of this competitive advantage, the respondent indicated that the company was hurrying to incorporate more sustainability and focused on using biodegradable materials, thus expanding the competitive advantage.

> *"So, sustainability for me, when looking into the future, will give us a competitive advantage." – Respondent 6*

The key to maintaining a competitive advantage is to use the trends identified and change the process to satisfy the market requirements.

5.3.5.3 Developing capabilities - Implementing Sustainability

Most of the respondent's capabilities were acquired while doing the job, with some skills developed by various leadership development programs; the respondents indicated that skills could be taught through formalised education or internally trained. However, some respondents indicated that the most sought-after quality was drive and tenacity, which ties in with other respondents who indicated that they hire employees for attitude and training for competence and that a get-up-and-go attitude far outweighed the previously learned skills, as a desired quality.

Most respondents indicated they were involved with projects and had sufficiently skilled people to run the projects; however, if a specific set of skills were lacking, they did not hesitate to find the required skills externally.

> *"Where there wasn't a skill internally…recently we employed a sustainability manager…we will go outside and get a person who is qualified…" – Respondent 9*

The respondents indicated that sustainability is not a one-person skill or job and requires teamwork; they reiterated that once there is management's commitment, it is much easier to take sustainability to the rest of the employees at all company levels. One respondent stressed that the employees' sustainability thinking becomes embedded by having an integrated system.

5.3.5.4 Agility and Adaptability to Change

The respondent believed that flexibility, integrity, and the ability to rely on staff to do the right thing are crucial. This respondent reiterated that there are unintended consequences with any change. Therefore, they trust that the staff will give prompt feedback allowing the company to respond quickly, implement changes and remain flexible.

Because some respondents deal in different types of markets simultaneously, they believe they need to be agile, pivot and adapt the business model to suit the market they are dealing with, at any time.

> *"…It's difficult to pin any one particular model specifically on the business. It's a commodity in one sense, manufacturing…and I suppose…almost consulting." -Respondent 7*

The respondents thought agility and the ability to engage with and analyse the market, sense changes, react and seize opportunities quickly and adapt equally quickly was a prerequisite to successfully implementing new sustainability products or processes. Furthermore, the other respondents agreed that the ability to quickly pivot and take advantage of an opportunity as it presented itself ensured success.

> *"I think our ability to quickly pivot because we're not a very big organisation, it's easy to pivot…we see areas of sustainability as potential areas of competitive advantage and we want to get into that space before anyone else." – Respondent 6*

The respondents also indicated that it was not just the ability to sense what was going on in the market, but also the ability to adapt the manufacturing processes and adjust the process to accommodate the customers' requirements. Many respondents believe that regarding sustainability, there is no end in sight regarding opportunities. These respondents believe there are always opportunities to grasp that align with the company's strategy to move to be fully sustainable continuously. One respondent stated that the only limiting factor they believed was their imagination, provided the finished goods' price point worked for the market.

The respondents believe that the skills required to change products and processes to incorporate sustainability are being a designer or a creative at heart and having a sense of not being concerned with how something is done but making it happen. Respondent 1 agreed and elaborated that the ability to execute a project was paramount. She felt that a good idea was only worthwhile if it could be converted into a product or a process.

> *"It is not good having great ideas if you cannot convert that into either a product or process." – Respondent 1*

Social and management skills to communicate and guide, a passion for driving the sustainability process throughout the organisation, and the ability to develop people within teams was critical. Other social skills deemed necessary by the respondents were the ability to collaborate, having a strong affinity for problem-solving, and being able to jointly problem-solve with others, as this is what is done daily.

The other critical ability noted is the ability to engage with customers and suppliers, and creating opportunities from the information gathered, and, as stated by the respondents having the ability to foster solid relationships, even during difficult times, and still get the desired outcome by nurturing those relationships was considered invaluable.

While referring to the production processes, the respondents indicated that even if a project required significant structural changes, they would be adopted if feasible and sustainable. The respondents stated that there was a readiness within the business to implement, replace or modify the existing system if sustainability was a core aspect of the business. While others implemented sustainability to reduce the company's dependence on coal and have inadvertently become reliant on solar due to the problems experienced with load shedding in South Africa, the sustainably generated electricity has contributed to the overall increased efficiencies of this company.

Several respondents mentioned that they had specific goals to achieve regarding the waste generated with annual waste reduction targets used to measure and report against, which they drive hard. According to respondent 4, many novel processes were developed to manage waste generation and consisted of supplying off-cut fabric or PU leather to SMMEs to produce products sold into the market, thereby integrating these SMMEs into the company's sustainability chain. This model forms part of the company strategy. Respondent 4 further stated that this program was implemented to bring circularity into using a particular raw material.

> *"…PU waste…we helped create the SMME…they are actually in the process of producing workshop mats which can trap oil spillage…" – Respondent 4*

Most respondents emphasised that sustainability is a journey, and it is about chipping away continuously; it is not something that happens overnight. Many of the companies interviewed started small on their sustainability journey, mainly with minor incremental improvements steadily becoming more energy efficient over time, and it was easier to justify sustainability if there have been previous wins, which is very evident in the long-term sustainability success of some companies.

Furthermore, it was indicated that any idea should never be discounted or scoffed at, even if tried previously, as the market changes dramatically over time and ideas that did not work previously may be in demand in the current environment.

> *"We have watched the market change so much over time that something that might not have worked five years ago may very well be in play at the moment." – Respondent 7*

5.3.5.5 Redefining organisational boundaries

The respondents exhibited several different business models, ranging from vertical integration, partnering with other manufacturers, and incorporating SMMEs from the community as suppliers into the business. All the business models presented incorporated circular economy principles in some form.

A few respondents indicated that their company's business model was to own the entire vertical supply chain and start with manufacturing the base raw material. While other respondents indicated that because they target SOEs and public sector companies, who mainly deal with SMMEs as the route to the end customer, they have formed a direct link between these SMMEs and the company, where the SMME becomes an extension of the company.

> *"It is a demonstration of how innovation can be linked to creating sustainable SMMEs, over and above that creating the opportunity to look at what other products can come out of those projects." - Respondent 4*

Other respondents used multiple business models that differed according to the market targeted; these included partnering with other manufacturers already in the market to manufacture on their behalf or develop new technology for companies already in the market. The respondents indicated that partnering with other manufacturers enabled them to expand their production capacity without investing in additional non-core manufacturing equipment.

Several respondents indicated that the community was essential to the business, and they had several SMME businesses from the community very closely linked to the company.

> *"We have a few other very small businesses within our ecosystem". - Respondent 1*

Some respondents indicated that BBBEEE was included in the company's scorecard. Thus, they ensure that they employ people from the local community and offer support by ensuring that the STEM subjects (science, technology, engineering, and

maths) are fully sponsored within the community schools. The respondent further stated that the company employs school leavers from that school, providing continuous employment that intern grows the community.

It was essential to the respondents to be seen as a manufacturing company with roots in South Africa and ensured continuity and inclusivity of these businesses by including the communities in which they operate. The respondents indicated that this meant incorporating the community into their enterprise by providing a supplier development program, which enabled these communities to sustain themselves, the environment, and the community in which they live.

> *"When we talk about development, …we talk about also developing the community." – Respondent 4*

Other respondents indicated that they are driving sustainable housing projects and are trying to push various education projects, including building more schools faster, with the Department of Education.

Most respondents incorporated the three pillars of sustainability, industrialisation, transformation, and development into their business strategy. All three components, the environment, the community, and profitability, were integral to the company's success.

The respondents emphasised that the inclusion of the communities had to be beyond transactional and ensure that it becomes a partnership; this is achieved by training the project owners, namely the SMMEs, which allows them to grow their businesses. The SMMEs were taught accounting and technical skills and provided with the tools and an understanding of how their process fits into the company. The respondents indicated that they assisted the SMMEs in becoming self-reliant by partnering with the company. Furthermore, the respondent reiterated that by creating SMMEs, the company is being inclusive and trying to find a way of helping communities and SMMEs become self-sustainable.

> *"It is a process that we outsource to an SMME, and then helped create the SMME to produce for us." – Respondent 4*

Respondent 1 pointed out that they implemented a program to bring circularity into using raw materials. Previously, they only focused on how to reuse it. However, now, they are focused on who else in the ecosystem could use it. The respondent stressed that this process had been included in the business model and entailed recycling plastics, which are reused in producing new products sold in the retail sector.

> *"…an initiative that yielded a huge amount of value for us is how we look at our waste and bringing circularity…into that process...In fact, it's actually part of our business model" - Respondent 1*

Other respondents stated that they have included being part of an industrial hub in the business model. Thus, the sustainability projects benefit most of the companies in the hub, which also encourages greater sustainability practices from all the companies in that area.

5.3.5.6 Sustainability regulations

The respondents indicated that sustainability could be accelerated if legislated; at this stage, the market is competing on cost forcing everyone to lower their costs. However, there is a requirement for some form of legislation pressing on the issue of sustainability, which would be an added advantage and will encourage more companies to incorporate sustainability practices. One of the respondents was not convinced that sustainability legislation would be effective in South Africa and believed that legislation in other countries made a difference as those markets are more mature concerning products.

Other respondents stated that because of regulatory requirements they included solar, which ultimately benefited the business and the community.

> *"…We have regulations in terms of environmental…such regulations have forced us to come up with sustainability ideas but at the same time they've actually helped the business". – Respondent 8*

5.3.6 Summary – Reconfiguring

Crucial to have a strategy heavily slanted to sustainability and sustainability innovation focused on export markets, with a focus on developing new products and markets. These companies have come to believe that strong future lead sustainability innovation is crucial for the future of the business. Furthermore, SMEs play a critical role in job creation, hence there is a focus on incorporating communities in the company's strategy as potential future suppliers into the business. As capital is the greatest challenge for an SME, all new projects undergo a rigorous screening process to ensure viability and that they meet the sustainability criteria and are financially viable. The respondents stated that they were driven by the company vision, goals and objectives for sustainability innovation or emission targets that they stuck to rigorously and that continuous improvement had the most significant affect.

Additionally, it was indicated that sustainability requires teamwork and management commitment to drive sustainability at all levels of the company. Agility and adaptability are deemed necessary so that the company can pivot quickly to gain a competitive advantage. Moreover, expanding the company's business model to include the three pillars of sustainability is an integral part of the strategy.

5.4 Results for Research Question 2

Research question 2: What factors hinder the development or implementation of sustainability initiatives?

The aim of research question 2 is to gain a better understanding of the factors that hinder companies from incorporating sustainability initiatives into the manufacturing processes. Qualitative semi-structured interviews were conducted using an interview guide, with questions organised around the microfoundations of dynamic capabilities of sensing, seizing, and reconfiguring to determine what negatively affects sustainability adoption and implementation.

5.4.1 Negative Factors Detected - Sensing

Within the sensing aspect of dynamic capabilities, six 1st phase codes were detected that were grouped into the axial code group called negative effect on identifying opportunities aggregated into the sensing microfoundation of dynamic capabilities. Table 6 below summarises the most notable negative 1st phase codes that emerged from the data analysis; these factors were aggregated into the sensing group of dynamic capabilities. The findings of the table are presented in the section below.

Table 6: Research Question 2: Negative 1st Phase Codes - Sensing

1st phase code	2nd phase - Axial codes	Code Groups	Frequency
			31
○ Culture shift greatest challenge	○ Negative factors detected	SENSING	3
○ Employee doesn't own it - sustainability just a job			5
○ NEG - Sustainability concept language not understood or awareness created, education lacking			7
○ NEG - Sustainability culture not driven			4
○ NEG - Trying to do too many projects - slows the process down			3
○ NEG - Uncertainty around the word sustainability and what it means, and what needs to be done must be resilient			16

Some respondents indicated that sustainability was only spoken about and driven by top management, and employees at the bottom were not involved. A respondent further made the point that even though top management claimed the company was becoming more sustainable, the employees did not understand anything about sustainability, resulting in no sustainability culture.

> *"If you ask somebody on the floor, is your company sustainable? They will so no because they don't know what it means…they don't understand anything about sustainability." – Respondent 8*

Many respondents believed that lack of awareness, education and understanding of what sustainability is about are some of the things that negatively affect the adoption and implementation of sustainability. The respondents further stated that because people are not close to sustainability, it becomes one of those things people do not see the need for or will only do if there is something in it for them. Additionally, there needs to be more understanding of the research, the surveys, and the money that has gone into the sustainability projects before implementation. From a business point of view, one respondent reiterated that if the main aim was to see profit, there

could be a negative effect on adopting sustainability because sometimes the returns on sustainability ideas are not realised.

As indicated by a respondent, they were not looking at sustainability at this stage. However, they were predominantly looking at the economic growth of the business, noting that this business was volume and price based. Effectively, they still worked according to a linear business model.

> *"…the synthetic shoes are much cheaper, and that market has grown, and it seems to still be growing going forward. And I know that synthetic material is a big problem in the textile industry when it comes to sustainability, so I don't really see any avenues out of that." - Respondent 11*

According to the respondents, one of the biggest challenges facing South Africa is that the need for sustainability has not yet sunk in and in a number of companies it is seen to be a foreign concept, unlike in the developed countries where sustainability is a focal point. One of the respondents stated that in the developing world, the focus was mainly on cutting costs.

> *"I think with us in the developing world it has not really sunk in, but it is a major issue in more developed countries probably because they can afford it. A lot of people are trying to cut costs, especially us in the developing world." - Respondent 6*

Furthermore, the respondents emphasised that they believed the world was still stuck on the idea that if something is this "new eco thing", it means they can charge an extra 30% for it, but, all it means is that the supplier is not ready for it yet. The respondents further indicated that one of their most significant challenges was finding suppliers to accommodate their sustainability requirements.

For companies looking at transitioning to sustainability, it is not easy, as noted by the respondents, because there are no standards, guidelines, or legislation to follow to become sustainable. Many respondents, who have practised sustainability for several years, indicated that due to the lack of standards, guidelines, and legislation in South Africa, they struggled to plot their carbon footprint. One respondent, in

particular, achieved carbon neutrality. This respondent indicated that the difficulty is that nobody in South Africa can do the verification; an international company needs to do the verification.

> *"But if you need to look at sustainability. The isn't really a standard or legislation. It's difficult for many companies." Respondent 5*

A few respondents expressed difficulty in determining which ideas to prioritise due to the many opportunities identified and the limited time to complete the tasks. Also, as noted by the respondents, the ever-changing environment drives the need for rapid innovation, which exceeds the company's capacity to manage this demand effectively. The respondents found this frustrating as it leads to the inability to meet the customers' demands and creates a sense of urgency for everything, indicating a lack of understanding of what it takes to accomplish these tasks. Additionally, the customers expect quick results and sometimes request solutions that have not yet been developed in South Africa, which adds to the pressure.

> *"…it brings a lot of frustration in the business because the customers are much more demanding, the market is much more demanding, the expectations are a lot higher than where they were and therefore, we are found to be sometimes short on keeping up with those." – Respondent 4*

5.4.2 Negative Factors Detected – Seizing

Within the seizing aspect of dynamic capabilities, seven 1st phase codes were detected that were grouped into the axial code group called negative effect on implementation aggregated into the seizing microfoundation of dynamic capabilities. Table 7 below summarises the most notable negative 1st phase code in the seizing aggregated group that emerged from the analysis. The findings of the table are presented in the section below.

Table 7: Research Question 2: Negative 1st Phase Codes – Seizing

1st phase code	2nd phase - Axial codes	Code Groups	Frequency
			36
○ Compliance and regulatory inhibits/long time			5
○ Disconnect - top management and ops			4
○ Don't meet customers expectations			1
○ NEG - Manufacturers closed due to competition from imports	○ Negative factors detected	SEIZING	2
○ NEG - Skill shortage training, or skilled people have left the country			1
○ NEG - Supplier customer competitor producer stuck in old ways don't want to transition			21
○ Negative perception that sustainability comes at high cost and no return for business			4

A few respondents noted that industry regulations were not enforced uniformly and that monitory varied depending on the factories' location. Additionally, some manufacturers located near the river were found to be discharging their waste directly into these rivers with no consequences. It was emphasised that because of this inconsistency, the environmentally responsible manufacturers had additional costs compared to their unscrupulous counterparts.

Furthermore, another respondent emphasised that currently, producers were competing on cost and that certain producers use underhanded tactics, including underreporting, to get a competitive advantage, the outcome of which is that sustainability takes a backseat. The respondents felt that if sustainability was legislated or penalties were imposed on the use of non-sustainable materials, more companies would be innovating to incorporate sustainability.

> *"So, enforcement is an issue and maybe corruption is…So I think that maybe there is not a level playing field for everybody." - Respondent 3*

There is a perception in the market, the respondents noted, that sustainability projects were too expensive to invest in and resulted in a poor financial outcome, this was one of the factors that stopped companies from adopting sustainability. Furthermore, sustainability is regarded as a luxury; for it to work, much money needs to be invested, with smaller companies seeing it as nice to have. To address this perception, the respondents believed that education had a role to play, especially in South Africa, as even some of the biggest companies did not believe in sustainability.

“We need to make sure that we educate our communities, our businesses, being small, big, even our private businesses, because some of our biggest entities still don’t believe in sustainability.” - Respondent 9

The respondents indicated that the barriers they encountered from a cost perspective are linked to capital investment and product manufacture. They elaborated that suppliers charge significantly more for bio-credible materials than non-biodegradable raw materials, which means there is a very fine balance between cost and sustainability. Some respondents indicated that they had not ventured fully into sustainability yet, because of the higher associated cost.
One respondent noted that the local market hindered them from moving to produce more sustainably because local consumers pay cannot more for the same product. Furthermore, the respondent noted that in their industry, the biggest problem is that prices they have bottom-up pricing. The consumer drives the price. However, retailers maximised profit to the detriment of the manufacturers.

A few respondents emphasised that because we are a developing county, what people are trying to do is look after feeding themselves. The last thing on their minds is sustainability. The respondents stated that there is a deep-seated perception that environmentally friendly products are more expensive, further indicating that the biggest problem was how we think about sustainability has not changed.

“The perception is very deeply ingrained and rooted, that if you go sustainable, your products are going to be more expensive.”- Respondent 8

Additionally, the respondents indicated that they found it very frustrating, especially if they were fast movers in sustainability, when they tried to incorporate suppliers into their business. They noticed that many of the suppliers and, in some instances, their customers did not want to change or were afraid of change. The respondents agreed, indicating that they were constantly up against the historical materials and the comfort zones that the customers did not want to move from, especially if that was the way they were doing it for the past ten or twenty years; they prefer to fall back onto the tried and tested. According to the respondents, their biggest hindrance is getting the customer to step out of their comfort zone and try the new product.

"So, somebody's got to give you that break, somebody's got to take the chance. And that's 99% of where our biggest barrier comes in." - Respondent 7

5.4.3 Negative Themes Detected – Reconfiguring

Within the sensing aspect of dynamic capabilities, eight 1st phase codes were detected that were grouped into the axial code group named realign tangible and intangible assets that were aggregated into the reconfiguring microfoundation of dynamic capabilities.

Table 8 below summarises the most notable negative 1st phase codes that emerged from the data analysis; these factors were aggregated into the reconfiguring group of dynamic capabilities. The findings of the table are presented in the section below.

Table 8: Research Question 2: Negative 1st Phase Ccodes – Reconfiguring

1st phase code	2nd phase - Axial codes	Code Groups	Frequency
			49
○ NEG - Access capital greatest challenge	○ Realign tangible and intangible assest	RECONFIGURING	3
○ NEG - Business model linear			3
○ NEG - Business strategy not always clear			5
○ NEG - Electricity, loadshedding, and technology lagging impacts sustain implementation			9
○ NEG - External financing from commercial banks - specifically South Africa			3
○ NEG - Sustainability implementation barrier SME vs Corporate			2
○ NEG - Sustainability implementation resistance/conflict			9
○ Sustainability focus and company structure change			17

This section highlights the challenges SMEs face in securing funding for innovative and sustainably manufacturing projects.

The respondents indicated that in the SME space, access to capital is one of the biggest challenges; thus, the respondents stated that their project selection criteria for new products are extremely rigorous. Furthermore, it was indicated that convincing the local commercial banks and other financial institutions of their manufacturing ideas is not easy. The respondents elaborated that from an environmental perspective, the banks see solar panels are relatively easy to finance. However, they were not so enthusiastic about another sustainability project. The

ability of SMEs to access capital is very different to a listed company, as emphasised by a respondent. That is, where working capital funding becomes crucial for ESG initiatives, the respondent referred to it as survival capital for SMEs.

> *"It's not easy to convince the local banks, and I'm talking commercial banks and even some of the development finance institutes that manufacturing is a sure and safe bet, specifically in South Africa."- Respondent 2*

Other respondents agreed and added that as a relatively young SME, it took a lot of work to access capital, even for solar. Further limitations mentioned by the respondents were that there were no alternatives available at this stage for the energy incentive equipment used in their manufacturing processes.

The challenges of accessing capital for SMEs, also the limited alternatives available for energy-intensive equipment used in sustainable manufacturing processes, were highlighted by the respondents.

5.4.4 Summary – Research Question 2

No culture of sustainability throughout the company presented one of the most significant barriers to sustainability adoption, caused by a lack of awareness, education and understanding of sustainability. The respondents indicated that the company's aim is profitability, conducts business in line with the traditional linear business model and does not adopt sustainability as they believe returns from sustainability ideas are seldom realised. Sustainability is seen as a foreign concept in developing countries, with one of the most significant challenges to fully transitioning companies was to finding suppliers that could accommodate their sustainability requirements. Furthermore, the market had a false impression that suppliers could charge more for eco-friendly products.

Due to a lack of standards, guidelines and regulations, companies find it difficult to transition, and the lack of enforcement of environmental regulations resulted from cost-cutting by unscrupulous manufacturers. In some instances, the manufacturers of sustainability products find it difficult to keep up with the customers' demands. It is perceived that sustainability projects are too expensive to invest in and regarded as

a luxury, resulting in companies not adopting sustainability. It is believed that to address these misconceptions, and education needs to play a role. It was further stated that because we are a developing country, people are looking to feed themselves, and the last thing on their minds is sustainability.

Access to capital remains one of the most significant challenges to SMEs, and it was challenging to convince financial institutions to fund sustainability projects. Furthermore, there is a deep-seated perception that environmentally friendly products are more expensive, indicating that the way sustainability is thought about has stayed the same. Additionally, it was challenging to get customers to change as they were stuck in the comfort zone of using the old traditional products they were used to.

5.5 Conclusion to Research Questions

In conclusion, sustainability is a critical aspect of business that companies should embrace to remain competitive and ensure long-term profitability. The microfoundation building blocks capabilities identified that makeup sensing, seizing, and reconfiguring are essential in creating a culture of sustainability within the organisation. However, lack of awareness, education, understanding, and regulations, as well as the perception of sustainability as expensive, considered a luxury, and foreign, are some of the barriers to sustainability adoption that companies should address. Moreover, sustainability requires teamwork, management commitment, agility and adaptability. Education, standards, guidelines, and regulations are the best way to encourage sustainability. Integral aspects of sustainability strategy are focused on sustainability innovation for export markets, as well as the inclusion of communities into the circular economy business model of these companies are integral aspects that companies should embrace to remain relevant and maintain a competitive advantage in the future. Finally, access to capital remains one of the most significant challenges, particularly for SMEs.

CHAPTER 6: DISCUSSION OF RESULTS

6.1 Chapter Description

In this chapter, the results presented in Chapter 5 are discussed in detail and compared and contrasted with the literature set out in Chapter 2 to answer the research questions posed for this study. This chapter is organised similarly to Chapter 5 to facilitate the flow of information.

6.2 Introduction

The purpose of this study was to uncover the dynamic capabilities that can either enable or hinder the adoption of sustainability in SMEs. By examining the formation and interconnectedness of these microfoundation building blocks, the study sought to determine which dynamic capabilities should be developed to help SMEs transition to a circular business model.

The results from this empirical study enhance the understanding of the dynamic capabilities necessary to implement sustainability practices. Furthermore, this study has identified the barriers that inhibit SMEs in South Africa from adopting sustainability practices. The findings of this study are discussed below.

6.3 Discussion of Results for Research Question 1

RESEARCH QUESTION 1: What dynamic capabilities within SMEs are considered major factors that help transition or implement sustainability initiatives?

This research question sought to understand the dynamic capabilities required within SMEs to facilitate the adoption of sustainability. According to Khan et al. (2020), companies, particularly SMEs, find it extremely challenging and cannot translate the concept of sustainability into business strategy and operations, stating that it should be left to big corporations. Felin et al. (2012) note that to understand a company's dynamic capabilities, attention must be given to its microfoundations, which are the basic building blocks that shape a company's dynamic capabilities. Teece (2007)

states that these microfoundations of dynamic capabilities are made up of skills, procedures, and process that support sensing, seizing, and reconfiguring. The findings of this study noted specific building blocks of sensing, seizing, and reconfiguring, which played a significant role in placing sustainability as a crucial part of the strategy and facilitated the incorporation of a sustainability culture at all levels of these companies to provide a continued competitive advantage.

6.3.1 Microfoundation Building Blocks – Sensing

The data obtained from the interviews aligns with the description of the sensing microfoundations of dynamic capabilities in the literature. These data were grouped into similar occurring themes and analysed, as depicted in Table 3, in the findings. The analysis was based on the frequency of reoccurring themes, as prompted by the section of the interview guide dealing with sensing activities within these companies. The most common building blocks contributing to sensing within SMEs are employee engagement and empowering, collaboration with customers and suppliers, tracking opportunities and threats, and sustainability awareness. These building blocks from the study are compared with the findings in the literature and are discussed below.

6.3.1.1 Employee Engagement and Empowerment

Based on the findings, the aspects of employee engagement, according to the respondents, included culture, training, management, inclusivity, acknowledgement and giving responsibility to employees. The respondents noted that if a culture of sustainability awareness is not created, businesses find it challenging to create new sustainability opportunities. The findings indicate that to achieve the sustainability objectives; sustainability awareness should be prevalent throughout the organisation by providing employees with specific sustainability training, giving the employees appropriate responsibility, and having an inclusive culture.

Some respondents indicated that through management initiatives, employee sustainability awareness started with domestic waste. At face value, the actions taken to create awareness among employees regarding domestic waste appeared only to address a mindset change of the employees. However, on closer inspection, this touches on many different factors, including incorporating a waste management

culture in the individual's home, within the family and community. In this way, according to the respondents, it changes the thinking toward sustainability of the individual and the community and creates an awareness of the value of recycling. Thus, according to the findings, the greater community also benefits. Enabling and empowering the employees also expands the company's boundaries and lends itself to forming circular economy practices. Furthermore, the respondents stated, from an operational level, the company benefits from the employee's embedded behaviour in that the employee is sensitised to the value of reducing raw material usage and minimising the waste generated. This agrees with Kirchherr et al. (2018), who stated that the circular economy focuses on minimising both resource use and waste generation and compares with Teece (2018a), who noted that management philosophy, culture and leadership approach to decision-making reinforces the dynamic capabilities within a company.

Based on the findings, this also talks to the company's strategy in sensing more opportunities in the external environment and incorporating them into internal thinking and culture. Thus, according to the respondents, unique dynamic capabilities were used within the company to incorporate sustainability sensing throughout the different levels of the company from shop floor, management, and director level, as well as beyond the company's borders into the community (external environment). Additionally, as indicated in the findings, sensing opportunities beyond the traditional linear business model have been included in the sustainability business model for these respondents. This compares with the literature in that Ferreira et al. (2020) reiterated that dynamic capabilities must not only reside with top management.

Based on the finding from this study, it became clear that culture and training play a significant role in creating awareness around sustainability among employees. Furthermore, to create a sustainability culture, the respondents believed that sustainability needed to be internalised on a very personal level by the employees. Additionally, the respondents believed that if the employees lived these values and saw the benefit in their lives, they would be more sensitised and willing to look for opportunities to optimise raw material usage and waste reduction at work. This aligns with the thinking of Inigo et al. (2017); Kump et al. (2019) and Teece et al. (2019), who noted that companies use dynamic capabilities to convert ordinary skills into

difficult-to-acquire skills, processes and behaviours that contribute to the company's competitive advantage. Furthermore, the respondents noted that it was essential to promote an open culture, where employees are exposed to different innovation and technical groups and collaboration and participation by everyone is encouraged. Assigning appropriate responsibility to employees facilitated the generation of ideas; the respondents added that it was essential to acknowledge the idea regardless of how small they were, as this encouraged the employees to continue coming up with more ideas, thus embedding a sensing culture.

The findings of this study compare with the literature in that these companies are changing ordinary capabilities into unique dynamic capabilities (Eisenhardt & Martin, 2000)(Eisenhardt & Martin, 2000). As Sharma et al. (2021) stated, for SMEs to transition and implement a circular economy business model requires a strong drive from management, innovation, and employee training. Furthermore, as reiterated by Felin et al. (2012); Magistrettiet et al. (2021) and Teece (2007), the levels of interaction at different levels of an organisation are known as the microfoundation building blocks of dynamic capabilities which are used when people contribute to converting ideas and knowledge into achieving real innovation. These microfoundation are building blocks of dynamic capabilities and comprise the individual's personality, skills, characteristics, processes, interaction, and company structure (Felin et al., 2012; Teece, 2007).

Therefore, the findings concur with the literature, further noting that the deeper the capabilities are embedded in an organisation, the less they are dependent on top management to drive the company's objectives, and the greater they serve as a company's foundation for its competitive advantage (Ferreira et al., 2020).

6.3.1.2 Collaborating with Customers and Suppliers

The finding shows that SMEs that have successfully transitioned to sustainability collaborate extensively with many internal and external parties to ensure they stay abreast of local and global market trends, opportunities, and threats to gain a competitive advantage. Furthermore, according to the respondents, many SMEs utilise multiple avenues in which they scan the external environment for opportunities and threats, which include attending trade shows, conferences, or affiliation with

industry-specific bodies and technical associations. This concurs with Santa-Maria et al. (2022), who stated that a company's sensing abilities are developed and used for continuously scanning the external environment to create a holistic view, supporting the company's strategy.

In addition, as seen from the findings, these SMEs collaborate extensively with customers and suppliers and, in many instances, form partnerships by incorporating customers and suppliers into the company's innovation process. Furthermore, several respondents stressed that collaborating with external parties was encouraged and that sensing opportunities were the responsibility of everyone within these companies, regardless of the level of the employees. It was also deemed extremely important, by the respondents, to use research institutes such as the CSIR, SABS, universities, or suppliers with more advanced technical facilities and abilities to collaborate with and for assistance with R&D in developing new sustainability products.

The findings indicate that collaborating on innovation is not merely based on operational drivers but is driven by the company's strategy. As part of the strategy, the respondents noted, was the extension of the company's business model and boundaries to include sustainability and a more circular economy approach to business. This is evidenced in the findings by the SMEs emphasising that the partnership with customers and suppliers is much greater than transactional. Thus, the findings indicate that these SMEs are moving away from traditional linear economic practices. The traditional linear business practices are typified by customer and supplier relationships that extend only to procuring raw materials, manufacturing, and consumption (Merli et al., 2018). The type of collaboration described by the respondents requires a strong drive by management and the appropriate guidelines to enable these types of interaction; this concurs with the findings by Sharma et al. (2021). The strong drive needed by management further emphasises the link to strategy and the overall company objectives within these SMEs and is evident throughout all the levels of the organisation according to the respondents.

The approach taken by the SMEs in the findings concurs with the findings in recent research, according to Arfi et al. (2018), who noted that a company's ability to innovate successfully is dependent on the ability to assimilate knowledge, both

internally and externally, at every stage of the sustainability process and transform them into internal skills. This is especially evident in the findings, in how SMEs gained better insight by partnering with customers and suppliers and purposefully incorporating them into the innovating, getting feedback and adjusting. These SMEs, according to the respondents, collaborated and used external R&D facilities to gain better insight. Technical assistance to innovate towards more sustainability-oriented products, which compares with Khan et al. (2021) assertion that R&D is one of the essential functions of the sensing microfoundation, and further agrees with the findings of Santa-Maria et al. (2022), who states that R&D activities generate information that can be used to guide an organisations sustainability strategy and initiatives. Furthermore, this aligns with the findings of Mousavi et al. (2018), who asserted that an organisation's sensing capabilities include the ability to analyse both the internal and external environments for potential opportunities, make strategic decisions and position the company to develop these opportunities. Doing so also emphasised the importance of information flow within the company, fostering a collaborative culture with a shared vision (Teece, 2018).

Therefore, the findings of this study are consistent with the literature and suggest that SMEs that have successfully transitioned to sustainability rely extensively on collaboration with various internal and external stakeholders to remain informed about market trends, opportunities, and threats, to maintain a sustainability focus and create a competitive advantage. Collaborating extensively, and using multiple avenues, extends these companies beyond linear business model practices, and this type of collaborative behaviour is included in the company's strategy. It is driven by management across the entire organisation. These outcomes align with recent research findings.

6.3.1.3 Tracking Opportunities and Threats

The findings show that opportunities are identified via very close links to the markets, the information provided by other partners in the market, or new product are driven by the customer. According to the respondents, once opportunities have been sensed from gathering market intelligence, these opportunities are rigorously evaluated by the innovation team. If the opportunities are deemed viable, they are presented to the board for a decision to pursue or delay them. Once approval is

received, the findings indicate, the innovation team tests the opportunity rigorously against market requirements. One respondent noted that innovation was one of the sustainability pillars they reported on.

The findings suggest that having a requirement to report on innovation as one of the pillars of sustainability within an organisation, points to a strong drive by management to make innovation a vital component of the strategic sustainability drive within the company. This compares favourably with the findings of Sharma et al. (2021), who stated that a strong drive by management and incorporating innovation is a prerequisite for circular economy implementation. Furthermore, this concurs with the findings of Eikelenboom and de Jong (2019), who found that a company requires dynamic capabilities to incorporate sustainability pillars into the business model and, as stated by Kraaijenbrink et al. (2010).

As evident from the findings, these SMEs constantly search for and evaluate new sustainability opportunities to innovate and implement to meet the customer's needs and provide a competitive advantage. The ability to constantly evaluate new sustainability opportunities compares favourably with the literature, which states that unique dynamic capabilities are required to retain and continuously search for ways of renewing a company’s competitive advantage (Geissdoerfer et al., 2018).

Therefore, the findings are consistent with the literature and suggest that SMEs require dynamic capabilities to constantly search for and evaluate sustainability opportunities in the external and internal environment. Additionally, according to the findings, SMEs with a strong drive by management to incorporate sustainability into the business are more likely to implement sustainability initiative and maintain a completive advantage successfully.

6.3.1.4 Sustainability Awareness

The study suggests that many companies have successfully integrated waste management and sustainability initiatives across all company levels, from the shop floor to top management. This can be attributed, according to the respondents, to a sustainability culture throughout the company regardless of the level, even when management is absent. The sustainability initiatives started by looking for ideas that

could immediately add value to the business; because of this approach, sustainability is embedded throughout the company, as indicted by the respondents. The findings suggest, regardless of the level, everyone is responsible for sustainability, not just top management. The findings indicate that to ensure sustainability is successfully embedded, it is essential to acknowledge and use the ideas put forward by the employees. Furthermore, a respondent mentioned, even when encountering difficulties, discussing these matters with the employees is essential to prevent them from becoming discouraged and teach them perseverance. A culture of sustainability, as stated in the findings, requires continuous nurturing and must be driven; it is imperative to keep employees informed of the company's ultimate objectives.

The findings suggest that internal dynamic capabilities developed in the companies studied, compared with the findings in the literature, it is well documented that a company's internal dynamic capabilities are essential for sustainability innovation and incorporating sustainability into a company's business model (Bocken & Geradts, 2020). Furthermore, core to the company's success is its ability to develop these internal dynamic capabilities (Teece, 2007), and is evident in the findings, where sustainability appears to be embedded and the drive for sustainability throughout these companies was a collective responsibility. This agrees with the findings by Ferreira et al. (2020), who postulated that the dynamic capabilities should not only reside with top management. Additionally, it was apparent that several sustainability initiatives flowed from even the lowest levels of the organisations while others were driven from the top. From the findings, to achieve this depth of sustainability awareness at every level of the organisation, it is comprehensible that communication, inclusivity and assigning responsibility, regardless of the position in the organisation, is imperative for forming the unique dynamic capabilities required for sustainability innovation within these SMEs. This compares with the literature where Singh et al. (2021) stated that a company's leadership and employees' commitment to sustainability positively affects the acceptance of responsibility within the organisation for implementing sustainability solutions. To drive a culture of sustainability within these SMEs, as noted by the respondents, continuous encouragement, even in the face of failure, was essential to ensure that employees remain enthusiastic and do not become despondent. Additionally, as indicted in the findings, acknowledging all ideas, even the smallest ideas, was essential to the

employees. This further served to inspire the employees and drive the company's objectives, which agrees with Hina et al. (2022), stating that the purpose and objective of companies filter down from an institutional level into the strategic direction and operational functions of the company, and the company culture is seen as an internal driving force that facilitates sustainability implementation.

Therefore, the findings are consistent with the literature and further agree with Schilke et al. (2018), who commented that dynamic capabilities are context-specific and take a considerable commitment by these companies to develop and embed them. Thus, as explained by the respondents, sustainability is lived at all levels of these organisations.

6.3.2 Conclusion – Sensing

In conclusion, this study found that all the microfoundation of sensing discussed in this section played a critical role in identifying sustainability opportunities inside and outside the organisation. However, a deeply embedded sustainability culture is essential for companies to fully realise the potential of the sensed opportunities. Also, this culture needs to be driven by the company's strategy and top management. Furthermore, as noted in the findings, collaboration with customers and suppliers across all levels is crucial for these SMEs to pursue sustainability initiatives. These SMEs use unique dynamic capabilities to incorporate sustainability thinking throughout all the companies' levels, including the ability to change ordinary capabilities into unique ones. It is imperative that dynamic capabilities not only reside with top management.

6.3.3 Microfoundation Building Blocks – Seizing

Seizing capabilities are an organisation's ability to invest in or adapt business models, products and processes to respond to opportunities or threats in the market and align them to meet the customers' needs. Management's ability to develop and adapt business models is crucial for an organisation's dynamic capability to seize new opportunities.

The four microfoundations of dynamic capabilities identified during this research project, as indcicated in Table 4, are internal drivers of sustainability and innovation and; innovation is driven from the top, value chain mapping, and customer–driven sustainability requirements.

6.3.3.1 Internal Drivers of Sustainability Innovation

The findings show that companies with sustainability at the core of the business are highly committed to sustainability and innovation. The respondents noted that commitment starts at the board level, with shareholders driving a clean, green manufacturing agenda. Some companies interviewed had dedicated teams focused on innovation and finding new and alternative uses for waste streams. As stated by the respondents, many of these companies had continuous improvement as a strategic objective, with targets and KPIs linked to sustainability initiatives to create urgency around sustainability. In the findings, it was also noted that management plays a significant role in promoting and encouraging organisational sustainability.

The results correspond with the findings of Santa-Maria et al. (2022), who asserted that distinct drivers are imperative for an organisation to seize the opportunities and threats that these companies sense. These actions include setting a clear sustainability vision and future direction for the organisation. This compares with the findings, as the respondents indicated that the shareholder is drives a clean, green manufacturing agenda. Furthermore, Santa-Maria et al. (2022) stated that these companies need to create a specific sustainability strategy to support developing a sustainability-oriented culture, an innovative and continuous improvement culture, and encouraging continuous improvement and bottom-up innovation. This compared with the findings of Santa-Maria et al. (2022) in that the respondents clearly stated that these companies have specific sustainability objectives and focused on continuous improvement, with targets and KPIs driving urgency around sustainability. As discussed previously in this chapter, bottom-up innovation was extensively encouraged.

Additionally, this agrees with the findings of Sharma et al. (2021), who indicated that sustainability implementation requires a strong drive by management, innovation and appropriate guidelines, which are in place in the form of objects, targets and KPIs as mentioned above. Setting continuous improvement as a strategic objective

compares with the literature, indicating that dynamic capabilities are the ability over time to solve problems systematically (Ferreira et al., 2020). The respondents state that continuous improvement is small incremental changes that result in continuous improvement in raw material usage, emissions and waste generation over time.

Therefore, the findings are consistent with the literature in that the companies interviewed have sustainability at the heart of the business with a commitment to sustainability starting at the board level, and the shareholders driving a clean, green manufacturing agenda, which is focused on sustainability innovation, and the continuous improvement of products and processes. Per the findings, to achieve the overall sustainability strategy, these companies have specific objectives and targets in place, further indicating that the purpose, dynamic capabilities and strategy are aligned for the company's interview and compared with the findings of Teece (2018a).

6.3.3.2 Sustainability Innovation - Driven from the Top

The findings from this study indicate that companies with sustainability at the core of the business are driven from the top, with commitment usually starting at the board level, where shareholders drive the company’s sustainability objectives. When directors are passionate about sustainability, it is easier to get buy-in and commitment from other managers and facilitate successful implementation at all company levels. The respondents note that shareholders were actively involved in the business and well-versed in sustainability and market requirements, making it easier for these companies to adjust their strategy to incorporate new sustainability ideas.

This study agrees with the literature's findings, stating that commitment and support from top management are crucial to the successful transitioning and implementation of sustainability in organisations (Santa-Maria et al., 2022). Furthermore, it was noted that to successfully implement sustainability in a company, advanced managerial practices, shareholder investment in a circular economy (Hina et al., 2022), and a strong drive by management are required (Bocken et al., 2018). The respondents added that the companies and departments that benefited the most were those with leaders that embraced sustainability. The respondents even went so far as to state

that they believed it was an absolute non-negotiable that sustainability is driven from the top, as the company's strategy would be set directly in line with sustainability goals. The respondents indicated that objectives and KPIs are established to drive the sustainability strategy, indicating that sustainability is driven from the top and filtered down through all company levels.

6.3.3.3 Value Chain Mapping

From the study, it is noted that the respondents believed it was essential to understand the plant, production, and operations to accurately determine the company's carbon footprint prior to determining the company's ESG score. The respondents indicated that it was essential to get the suppliers and customers' buy-in to reduce carbon emissions throughout the entire value chain, which can be challenging as many suppliers do not prioritise sustainability. However, the respondents indicated they assisted if the suppliers were willing. Many of the respondents indicated that even though they had implemented several sustainability practices and processes, they were still trying to figure out how to measure and the best way to calculate the emissions.

The results indicate that to quantify the company's carbon emission for the entire value chain and enable monitoring of carbon emissions in line with carbon reduction targets. These companies had to develop specific dynamic capabilities, including making strategic decisions on what and how to measure carbon emissions. These results support the findings of Teece et al. (1997) and Kump et al. (2019), as the respondents had to determine which alliances to form and how to collaborate with outside parties, including suppliers and customers.

As sustainability is not enforced in South Africa, as noted by the respondents, there are minimal guidelines on what and how to measure carbon emissions. As indicated in the findings, only the companies with sustainability at the core have put systems and standards in place to meet sustainability standards that are not legal requirements but based on the company's conscience and values. In the long run, these measures will provide a competitive advantage.

Therefore, the findings suggest that these companies have a strong sustainability culture and internal dynamic capabilities that help drive the sustainability objectives of these companies. Additionally, the company's strategic direction is apparent to employees at all levels of these companies. It compares with Teece's (2018a) statement that a company’s objectives, dynamic capabilities, and strategy are interconnected.

6.3.3.4 Sustainability Requirements – Customer Driven

As indicated by the respondents, these companies indicated that to seize the opportunities presented to them, they pivoted their business and adapted products and processes to meet the customer's needs. Additionally, as noted in the findings,many customers pushed for sustainability. Thus, the respondents believe the role of society is crucial, and it is necessary to empower consumers with a stronger voice to prioritise sustainability. Many respondents suggested that legislation should be implemented to encourage sustainable material use, as this will drive businesses to innovate around sustainability.

These findings compare with the literature, with the responndents indicating that they adapted internal products and processes to meet the customers' needs. Additionally, Teece (2018), stated that for organisations to seize opportunities, they should adapt products, processes or designed new technologies and business models to meet the changing needs of the customer. Furthermore, the respondents believed that to create urgency and expedite the transition to sustainability, the role of society and the voice of the customer was crucial in driving sustainability. This compares with the findings of Hermundsdottir and Aspelund (2021), who contends that sustainability innovation is driven by external factors such as legislation and customer demand. The findings noted that the primary pressure for sustainability came from European customers, where using sustainability alternatives in their products is mandatory, this agrees with the findings of Ferreira et al. (2020) who indicated, dynamic capabilities within the company are required to adapt the business model and to uncover business opportunities and customer needs.

Additionally, Arfi et al. (2018) argued that an organisation's ability to innovate successfully depends on its ability to assimilate knowledge, externally and internally, at every stage of the sustainability process and transform it into internal skills.

Therefore, the findings of this study align with the literature findings. To meet the customers' needs, the respondents changed and adapted the products and process, especially when using sustainability alternatives during manufacture. Thus, as noted in the findings, the dynamic capabilities exhibited in meeting the customers' needs are the ability to adapt the products and process to meet the customer's needs, internal and external collaboration, and alignment in determining and delivering what is required by the customer.

6.3.4 Conclusion – Seizing

In conclusion, as noted by the respondents, these companies have sustainability at the core, which driven from the top, starting at the board level, among the shareholders and throughout the entire company. The findings indicate that strategic objectives, targets and KPIs are linked to sustainability initiatives to create urgency around sustainability, and management plays a significant role in promoting and encouraging sustainability throughout the organisation. The purpose of the company, strategy and dynamic capabilities are aligned in these companies, as stated by the respondents, contributes to the robust sustainability culture in these companies. Thus, according to the findings, unique internal dynamic capabilities help drive the sustainability objectives of these companies. To seize opportunities, these companies pivot and adapt products and processes to meet customer needs.

6.3.5 Microfoundation Building Blocks – Reconfiguring

Reconfiguring, as summarised by Magistretti et al. (2021); Santa-Maria et al. (2022) is a company's ability to continuously realign tangible and intangible resources to meet the everchanging market requirements. The findings yielded six microfoundation building blocks of reconfiguring namely, strategic direction, implementing sustainability opportunities, developing capabilities - implementing sustainability, Adaptability, and agility to change, redefining organisational boundaries and Sustainability regulations, as referred to in Table 5.

6.3.5.1 Strategic Direction

Most of the respondents believed that integral to the future of these companies, it was crucial to incorporate vital future lead sustainability innovation into the strategy, with many respondents stating that part of the strategy was creating new markets and new products with a rigorous emphasis on sustainability. Additionally, the findings indicated that the exportation of these sustainability products was a crucial part of the strategy.

The findings of this study are in contrast with the literature in that Khan et al. (2020) state that SMEs find it extremely challenging to translate the concept of sustainability practices into their business strategies and operations, Khan et al. (2020) further contended that there was a belief that sustainability practices should be left to large corporation who have sufficient resources.

The findings of this study show that most of the SMEs interviewed indicated that they have successfully incorporated sustainability into business strategy and have stressed that sustainability was integral to the future of these companies. Additionally, the respondents noted, sustainability has been part of the business model of several of these SMEs for many years. The respondents further pointing out that some of these businesses would not have survived the onslaught from the importation of competitive products if it were not for the inclusion of sustainability practices. Thus, the findings show, these SMEs have successfully transitioned and have sustainability deeply entrenched as a crucial element of these businesses and central to the long-term strategy of these companies. This concurs with Santa-Maria et al. (2022); and Teece et al. (1997), who contended that it takes dynamic capabilities to rapidly rebuild, regroup and reconfigure internal and external competencies to survive where change and disruption have become the norm. Furthermore, the findings show that the actions of the SMEs interviewed correspond with the findings of Teece (2018a), who indicated that a company’s purpose, dynamic capabilities and strategy are interrelated, which is evident in how the business combines its tangible and intangible assets to meet the company's strategy. In addition, the respondents indicated that they believed that SMEs play an essential role in the future of job creation in South Africa. Indicating that part of the vision of these businesses is to assist in creating additional SMMEs as suppliers into the

business, thus expanding and including the community in the company's circular economy business models.

Thus, the findings of this study indicate that the companies interviewed showed unique dynamic capabilities by continuously adapting to changes in the external environment. The respondents indicated thay by changing the business strategy, business model, products and processes to incorporate sustainability and society into the business and adopting a circular economy business model, they renewed the company's competitive advantage. Additionally, the finding showed, a sustainability culture is deeply embedded throughout these companies. The findings concur with the literature, where Geissdoerfer et al. (2018) state that it takes unique dynamic capabilities to continuously retain a competitive advantage, including adapting the company's business model and successfully improving its sustainability performance.

Therefore, the findings of this study compare with the findings of Khan et al. (2020), who state that many SMEs find it extremely challenging to translate the concept of sustainability practices into business practices. However, the respondents interviewed successfully transitioned to having sustainability as core to the business. Moreover, the finding show that these SMEs have a deeply embedded sustainability culture throughout the companies, with a strong and dedicated sustainability push by top management with a highly collaborative, open business culture.

6.3.5.2 Implementing Sustainability Opportunities

The findings indicate that access to capital is the greatest challenge for SMEs, and an extremely rigorous project approval process is followed to ensure that new products developed are successful. Typically, the respondents stated, capital approval is given by the board or CEO, and approval is only given to projects that meet the company's strategic requirements, and if the project meets the triple bottom line. The respondents noted that funding sources include venture capital, shareholder loans, IDC, DTI, and working capital, with large projects for energy generation being easier to fund. The findings show that specific sustainability goals are set at all levels, with targets that ultimately help achieve the company's objectives, and continuous improvement is crucial. The respondents stated that the

shareholders are very involved in the business, and supportive of sustainability, they are even prepared to change the business model to incorporate sustainability. The findings indicate that the major challenge of access to capital compares with the literature, Sharma et al. (2021) stated that a lack of finance was one of the most significant barriers in developing countries.

The findings suggest there is an immense commitment to sustainability innovation, in the SMEs interviewed, which is indicated in the willingness of the shareholders and the company to reconfigure the business model to accommodate the sustainability innovation initiatives, provided these initiatives meet the sustainability criteria and are profitable. These findings compare with the literature; as stated, the driving forces that facilitate the implementation of sustainability business models are shareholder investment in sustainability implementation, company culture, R&D and the project's profitability (Hina et al., 2022). Singh et al. (2021) state that SMEs could enhance their sustainability performance and innovation depending on their green dynamic capabilities. The findings show that the level of commitment to sustainability within these companies drive these internal unique capabilities.

Therefore, the findings of this research indicate that sustainability innovation is driven from the board level and applied by managers throughout the company. Furthermore, the findings suggest that strong internal dynamic capabilities drive the process, which includes incorporating the external community into the company's sustainability business model.

6.3.5.3 Developing Capabilities - Implementing Sustainability

The findings suggest that even though some skills can be taught through formalised education, many respondents indicated that they preferred to hire people with the right attitude and train them internally.

The respondents stated that hiring employees with the right attitude far outweighed any previous experience gained. This compares with the literature, where Teece et al. (1997); Kump et al. (2019) and Inigo et al. (2017) state that companies use dynamic capabilities to convert ordinary capabilities into unique behaviour and difficult-to-acquire skills that contribute to the company's competitive advantage.

These capabilities include the ability to develop teamwork, internal collaboration and management's commitment to sustainability, which, as the respondents indicated, made it easier to incorporate a sustainability culture at all company levels. Additionally, one of the respondents stressed that having an integrated system facilitated the embedding of sustainability thinking in the employees, ensured continuous improvement, and drove the company's objectives. Furthermore, as noted by the respondents, training and developing the skills required within these companies requires dynamic capabilities at all levels of the organisation to facilitate an overall culture of sustainability and openness to new ideas from employees at all levels. This agrees with the findings in the literature, stating that people at various levels of the organisation contribute to converting ideas and knowledge into a real innovative success (Singh et al., 2021; Wilden et al., 2016). Thus, achieving this requires levels of interaction called the microfoundation building blocks of dynamic capabilities. The microfoundation building blocks consist of three categories, namely, the individuals' personality, skills and characteristics; processes, formal and informal interactions; and company structure (Felin et al., 2012; Magistretti et al., 2021; Teece 2007).

6.3.5.4 Agility and Adaptability to Change

The study found that agility, integrity, trust, open communication, and prompt feedback are critical for companies to adapt and pivot quickly to grasp the opportunities detected. Utilising these opportunities, the respondents noted, requires agility to pivot and adapt the business model to suit the market and ensure successful implementation of the new products and processes. Additionally, the respondents indicated, an openness and willingness to adapt and change anything within the business, including structural changes, implementing, replacing or modifying existing systems, and even changing the business model, as long as it had sustainability at the core and was feasible. The findings show that the critical skills needed to facilitate these changes are flexibility and adaptability, creativity and the ability to convert the idea and information into a product or service, good social and management skills, people development skills and the ability to form relationships with customers and suppliers.

The findings indicate that unique dynamic capabilities are prevalent at all levels of the organisation, with open communication about sustainability and requirements

across all levels of the business. Furhtermore, not only is sustainability deeply embedded in the culture, but a deep trust, respect, and a can-do attitude filter through all levels of the company, not just at management level. The findings also point to a universal vision throughout the company and an understanding of the company's strategy and objectives at every level.

These findings compares with the finding by Eikelenboom and de Jong (2019), who stated that dynamic capabilities are required to incorporate the three pillars of sustainability into the business model. Additionally, the findings aligned with Geissdoerfer et al. (2018), who states that companies that can remain sustainable and create a competitive advantage need to have unique dynamic capabilities to adapt the company's business model rapidly, and continuously to renew the company's competitive advantage and successfully improve the sustainability performance of the company. Furthermore, Ferreira et al. (2020) indicated that the key to a company's dynamic capabilities for implementing new opportunities is the ability of management to develop and adapt the business model; this compares with the findings of this study.

6.3.5.5 Redefining Organisational Boundaries

From the findings, it is clear that the respondents developed different business models, far removed from the traditional linear business model, to incorporate sustainability into the business. Even though they varied from respondent to respondent, much thought, or in the case of these respondents, unique internal dynamic capabilities were used to transform the business models significantly to include the three pillars of sustainability into the business. This agrees with the findings of Eikelenboom and de Jong (2019), who highlighted that companies require dynamic capabilities to integrate the three pillars of sustainability into the business model. The findings also agree with Teece (2007), who states that the core to a business's success was its ability to develop internal dynamic capabilities. Teece et al. (1997, p. 516) suggest that dynamic capabilities are a "firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments". This is evident in the findings on how the respondents reconfigured the business model to include SMMEs as suppliers in the business.

As stated by Khan et al. (2021), reconfiguring includes the ability to reorganise and reconstruct organisations existing resource base to take advantage of an opportunity identified in the external environment. Additionally, this requires flexibility, trust-building communication and transparency with stakeholders, and commitment and support from top management (Santa-Maria et al., 2022). The findings concur with the literature and show that the respondents went to great lengths to change the business model to incorporate the three pillars of sustainability. These changes, according to the respondents, could only occur with the knowledge and support of the shareholders and getting buy-in from stakeholders in the external environment. The changes, as stated in the findings, included assisting the communities in forming and training the SMMEs in business practices to become suppliers in the business. Thus, the respondents noted including the community in the business ecosystem adds value to the business and the community; making this endeavour successful took unique dynamic capabilities, vision and an embedded sustainability culture, this agrees with the findings of Bocken and Geradts (2020).

Furthermore, this study agrees with the framework proposed by Bocken and Geradts (2020), as depicted in Figure 1. The SMEs interviewed, according to the findings, showed that the drastic change in the business model to include the three pillars of sustainability is driven at all levels of the business, namely institutional, strategic and operational levels. The respondents noted that by changing the business model, which consisted of balancing shareholder and stakeholder value, yielded massive value to the company. Furthermore, the respondents indicated that they assisted SMMEs and the communities in becoming self-sustainable. Embracing ambiguity compares with the findings and the respondents' action, which includes forming SMMEs in the community, training and incorporating these SMMEs as supply partners into the business. Valuing business sustainability, as specified by Bocken and Geradts (2020), includes implementing a circular economy business model that incorporates the three pillars of sustainability. These findings also compares with the strategic drivers proposed by Bocken and Geradts (2020), including collaborative innovation, strategic focus on a sustainability business model innovation and patient investment. The respondents showed collaborative innovation internally and externally, the strategy encompasses sustainability, and there are definite signs of patient investment. The respondents noted that investing in the community, forming

SMMEs within these communities and further investing in training and developing the SMMEs as suppliers takes time before the business can reap the rewards.

Therefore, the findings of this study conclusively show that the SMEs in this study used unique dynamic capabilities inside and outside the company to incorporate the three pillars of sustainability into the business model.

6.3.5.6 Sustainability Regulations

To accelerate the adoption of sustainability practices, the respondents believe legislation should be passed to mandate sustainability. According to the respondents, many unscrupulous manufacturers only focus on competing on cost, and believed that incorporating sustainability legislation would encourage the incorporation of sustainability practices.

This agrees with Hermundsdottir and Aspelund (2021), who contended that sustainability innovation is mainly driven by external factors such as regulatory pressure and that insufficient government regulations and support may negatively affect the urgency and competitiveness of sustainability implementations. Furthermore, this agreed with some respondents who indicated that they incorporate sustainability measures into the business due to regulatory requirements, which ultimately benefits the business. The findings indicate that regulating sustainability may assist in shifting the industry's mindset around sustainability into seeing the benefits for manufacturers, the environment, and society. This concurs with the findings of Sharma et al. (2021), who noted that some of the most significant barriers encountered in several developing countries were a lack of regulatory pressure.

Therefore, the findings of this study compares with the literature; due to insufficient regulations, many SMEs do not adopt sustainability practices and drive short-term profit-seeking in line with the traditional linear economic business model.

6.3.6 Conclusion – Reconfiguring

In conclusion, incorporating sustainability into the business strategy is crucial for the future of SMEs. As noted in the findings, the SMEs interviewed have successfully integrated sustainability into their business models, products and process to adapt to changes in the external environment, thereby renewing their competitive advantage. Access to capital, as stated by the respondents, remains a significant challenge for SMEs. For projects to be approved, the respondents indicated, they must meet sustainability targets and generate a profit. Thus, as noted in the findings, agility, trust, open communication, and prompt feedback are critical for implementing new ideas. These SMEs indicated that they are willing to adapt and change anything within the business to take advantage of new opportunities, provided the new ideas are sustainable and feasible. According to the findings, these SMEs have redefined organisational boundaries to include communities by forming partnerships which have expanded the company's ecosystem and business model to include the three pillars of sustainability. However, as noted by the respondents, a lack of sustainability legislation prevents more companies from transitioning and incorporating sustainability practices.

6.4 Discusion of Results for Research Question 2

Research question 2: What factors within SMEs hinder the development or implementation of sustainability initiatives?

This research question sought to identify and understand the factor that negatively influence the ability of SMEs to adopt and implement sustainability initiatives.
In many instances, companies face barriers that inhibit them from transitioning and implementing sustainability practices. When understanding an organisation's failure to incorporate sustainability into its business model, it is essential to understand its dynamic capabilities. Barriers to sustainability implementation are seen as either external or internal barriers.

According to Hina et al. (2022), external barriers arise outside the organisation, including policy-related barriers, lack of trust within entire supply chains, consumer misperception or other social, cultural and environmental barriers.

According to Hina et al. (2022), internal barriers are a lack of communication between the various internal stakeholders and employees, including unclear policies, strategies, and departmental responsibilities toward implementing a sustainability business model. As argued by Bocken and Geradts (2020), barriers that affect the adoption of sustainability business models innovation are situated at every level of an organisation, namely the institutional, strategic, and operational levels.

6.4.1 Negative Themes Detected – Sensing

The findings demonstrated in Table 6 of the negative 1st pahse codes for sesing, indicate that the barriers encountered by SMEs attempting to adopt sustainability practices are mainly attributed to a need for sustainability culture at all company levels, namely the institutional, strategic and operational levels. Some respondents indicated that sustainability was only spoken about and driven by top management, with no employee engagement at any other level of the company. As a result, the respondents stated, the employees have no understanding of sustainability. Furthermore, as stated by some respondents the lack of awareness, understanding and education about sustainability negatively affected the adoption and implementation of sustainability. This compares with Arfi et al. (2018), who attest that culture is the leading factor that negatively affects knowledge sharing within an organisation, the adoption of new skills, and the company embracing sustainability practices.

These findings also correspond with Ferronato et al. (2019), who believe that insufficient knowledge, lack of education and training needed for sustainability implementation are major barriers. The findings show that the lack of sustainability culture, awareness and understanding is not restricted to these companies. However, it is prevalent throughout the country, with the respondents indicating that it is one of the biggest challenges facing South Africa, with many companies still seeing sustainability as a foreign concept. The respondents indicated that the focus is on cutting costs in a developing country like ours; some manufacturers are still firmly entrenched in practices in-line with a linear economic business model. These findings also agree with Bocken and Geradts (2020), who state that the barriers typically associated with a linear economic business model, which include maximising profit, uncertainty avoidance and short-termism, inhibit the formation of

dynamic capabilities. Additionally, the respondents noted that supply chains are deeply rooted in the traditional linear economic way of doing business, which has proven to be a significant barrier to companies that have already transitioned into sustainability; this concurs with the findings of (Ormazabal et al., 2018).

Furthermore, the study suggests a connecction between insufficient government regulations and support negating the urgency and competitiveness of sustainability implementation as noted by Hermundsdottir and Aspelund (2021). The respondents stated that insufficient guidelines, standards and regulations made it difficult for companies to transition; also, there are no South African agencies to do the required sustainability verification needed by some export customers. These findings compare with Sharma et al. (2021), who noted that some of the most significant barriers encountered in several developing countries were a lack of regulatory pressure as well as the lack of know-how at the company level for the transitioning from a linear business model to a circular business model.

6.4.2 Negative Themes Detected – Seizing

The negative codes detected in the findings associated with seizing are indicated in Table 7. In the findings, many respondents expressed concern over the inconsistency of monitoring and enforcing of environmental regulations or, in other areas, the lack of legislation regarding implementing sustainability practices. This, according to the findings, leads to unscrupulous behaviour, corruption, underreporting and a total disregard for sustainability practices to gain a competitive advantage. Many of the markets are solely focused on the lowest cost. Furthermore, the respondents felt that sustainability legislation needed to be implemented and imposed penalties for non-compliance, believing this would encourage more companies to innovate to incorporate sustainability.

The respondents believe these barriers lead to the failure of a company to identify and seize new opportunities and transition to sustainability practices, with companies in this space focusing on short-term profits typified by the linear business model. This, the respondents noted, also stifles the formation of internal dynamic capabilities for seizing new opportunities across all levels of the company, with companies reverting to maintaining the status quo and focusing on volume and price-based

production unless there is a specific strategic decision for the business to focus on markets that are more receptive to sustainability.

These findings compare with Hina et al. (2022), who state that external barriers hinder the implementation of sustainability, which includes policy-related barriers and ambiguous policy frameworks, and Ferronato et al. (2019)(Ferronato, et al., 2019) note that a lack of regulatory pressure, especially in developing countries (Sharma et al., 2021). The respondents believe that due to this lack of legislation, competitor companies do not have any reason to implement sustainability. Thus, they continue manufacturing unsustainably to maximise profit, disregarding the effect they are causing on the environment.

Other barriers encountered in the literature are classified as consumer misperceptions or social and cultural barriers (Hina et al., 2022), which compare with the findings of this study. The respondents indicated that people's perception of sustainability had stayed the same, and there is a deeply ingrained perception that sustainability is more expensive than non-sustainable. Thus, the findings indicate, smaller companies are discouraged from investing in sustainability due to perceived poor financial outcomes. Furthermore, the respondents noted, this also results in the misperception that suppliers can charge more for bio-credible raw materials and services.

As indicated in the findings, these barriers force a company to reevaluate how they do business and, in many instances, the markets they target. In this case, many respondents target the export markets that require sustainably produced products. The respondents stressed that education needs to play a more prominent role in South Africas in informing people about sustainability.

6.4.3 Negative Themes Detected – Reconfiguring

The findings suggest that the most significant challenge encountered by the respondents was access to capital and securing funding for sustainability projects, as indicated in Table 8, which details the negtive codes in the findings associated with the reconfiguring microfoundation. Additionally, the respondents noted that it was easier for larger companies to source financing than SMEs. This concurs with

the findings of Sharma et al. (2021), who stated that one of the most significant barriers encountered in developing countries is the lack of financial sources to facilitate the transition from a linear business model to a circular business model. Additionally, in the findings, the respondents indicated limited alternatives to energy-intensive equipment available for use in sustainable manufacturing processes. As part of the continuous improvement strategy, these respondents identified high-energy and capital-intensive equipment essential to the manufacturing process, and indicated that they have not managed to identify alternative, less energy-intensive equipment on the market that is suitable for the process. Based on the findings of this study, some of the significant challenges affecting the microfoundation of reconfiguring are external with specific focus on access to finance and not alternatives to energy intensive manufacturing equipment required during manufacture.

6.4.4 Conclusion – Research Question 2

In conclusion, several barriers were uncovered during this study, and all of these findings concur with the findings in the literature. According to the findings, the main internal barriers encountered by SMEs attempting to adopt sustainability appear to be mainly attributed to a lack of sustainability culture at all company levels. Furthermore, as indicated by the respondents, sustainability is only spoken about by top management. However, employees at the lower level have no knowledge or understanding of sustainability. Also, a lack of sustainability inclusion is linked to a lack of training, education, awareness and understanding of sustainability, which inhibits the adoption of sustainability. The findings of this study concur with the findings of Bocken and Geradts (2020); Hermundsdottir and Aspelund (2021); and Hina et al. (2022).

The external barriers encountered in the findings are, in developing countries, the focus is on cutting costs, with companies stuck on focusing on short-term profits, typified by the traditional linear business model. Also, as stated by the respondents, companies need more guidelines, standards or regulations, especially for companies new to sustainability. Additonally, there is a misperception that sustainability costs more for no benefit, resulting in SMEs not transitioning to sustainability. The respondents noted that an SMEs' greatest challenge is the access to capital and the

lack of sustainability alternatives for the energy-intensive equipment used during some manufacturing processes. The findings of this study concur with the findings of Hina et al. (2022); and Sharma et al. (2021).

6.5 Summary of Research Questions

This study found that the microfoundation of sensing played a critical role in SMEs identifying sustainability opportunities in the internal and external environments. A deeply embedded sustainability culture and strategy, driven by top management, was vital to fully realising the potential of the sensed opportunities. Furthermore, collaboration with customers, suppliers and across all company levels was central to pursuing sustainability initiatives. It was noted in the findings that dynamic capabilities in the company needed to not only reside with top management. When seizing opportunities in a changing external environment, SMEs successfully integrate sustainability into their business models, products, and processes. Agility, trust, open communication, and prompt feedback are critical for implementing new ideas. According to the findings, these SMEs are willing to adapt and change anything within the business to take advantage of new opportunities, provided they are sustainable and feasible. When reconfiguring the business, the respondents indicated that SMEs had redefined organisational boundaries to include and form partnerships with SMMEs in communities by expanding the company's ecosystem and business model to include the three pillars of sustainability. However, a lack of sustainability legislation, education, understanding, and know-how prevents more companies from transitioning and incorporating sustainability practices. Other barriers that hinder the transition to sustainability include a lack of sustainability culture at all levels of a company and the lack of access to capital and alternatives to energy-intensive manufacturing equipment, which are factors hindering the sustainability transition of more companies.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

This study aimed to identify and gain a deeper understanding of the microfoundations of dynamic capabilities and the relationship between these capabilities within SMEs that facilitated the adoption and transition to sustainability practices. Furthermore, this study also serves to identify and understand the barriers encountered by SMEs that hindered the adoption and implementation of sustainability within the South African context.

This chapter summarises the findings of this study in terms of the two research questions set out in Chapter 3 and the findings uncovered in Chapter 5. This chapter summarises the principal findings, implications for management and stakeholders, limitations, and recommendations for future research.

7.2 Principal Conclusions

7.2.1 Dynamic Capabilities within SMEs that Help the Development and Implementation of sustainability initiatives

The findings of this study contribute to the literature by providing evidence and understanding of the presence of the microfoundations of dynamic capabilities, namely sensing, seizing, and reconfiguring in the SMEs interviewed, and how these microfoundations facilitate the incorporation of sustainability, resulting in the expansion of the business models to include circular economy principles. In the context of the companies interviewed for this study, four microfoundations of sensing, four microfoundations of seizing, and six microfoundations of reconfiguring were identified.

Therefore, the findings indicate that these companies use unique capabilities to incorporate sustainability thinking across all levels of the organisations. As indicated by Ferreira et al. (2020), dynamic capabilities must not only reside with top management, this results in a deeply embedded sustainability culture driven by the company's strategy and top management. As indicated by Sharma et al. (2021), a strong drive by management is needed to link strategy and the overall company

objectives, which is essential for identifying and implementing sustainability practices. An integral part of sensing opportunities was identified as collaboration with internal and external parties and is deemed essential for pursuing sustainability initiatives, as stated by Santa-Maria et al. (2022), to support the company's strategy. Continuous scanning of the external environment creates a holistic view of the market's changing needs, and how to position the company to develop these opportunities (Mousavi et al., 2019).

Furthermore, it was evident that these companies are agile and are prepared to adapt, pivot even change company structure and business model to pursue new opportunities, provided sustainability was core to the project and that the project was profitable. These companies redefined their organisational boundaries and business model to incorporate the three pillars of sustainability. As highlighted by Eikelenboom and de Jong (2019), companies require dynamic capabilities to integrate the three pillars of sustainability into the business model. These findings compare with Teece et al. (1997, p. 516), who state those dynamic capabilities are a "firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments".

7.2.2 Factors that inhibit the development or implementation of sustainability initiatives

Therefore, the findings suggest that the barriers encountered inhibit the implementation of sustainability and are mainly attributed to a lack of sustainability culture at all levels of the company. Culture is the leading factor that negatively affects knowledge sharing within an organisation and the adoption of new skills and sustainability practices (Arfi et al., 2018). Furthermore, the findings confirm that there is a strong link to a lack of training, education, awareness, and know-how about sustainability implementation, which are significant barriers which inhibit the incorporation of sustainability (Ferronato et al., 2019), especially in developing countries where the focus is on cutting costs (Sharma et al., 2021). These findings agree with Bocken and Geradts (2020), who state that barriers typically associated with a linear economic business model, including maximising profit, uncertainty avoidance and short-termism, inhibit the formation of dynamic capabilities. Other factors hindering sustainability adoption are insufficient guidelines, standards, and

regulations. The study's findings agree with Ferronato et al. (2019), who indicated that barriers include policy-related and ambiguous policy frameworks, and lack of regulatory pressure, especially in developing countries (Sharma et al., 2021). Moreover, there is a misperception that sustainability costs more without financial benefits. Additionally, in agreement with the findings, access to capital is one of the most significant barriers to SMEs incorporating sustainability, as elaborated by Sharma et al. (2021), that one of the most significant barriers in developing countries is a lack of financial sources to facilitate the transition from a linear business model to a circular business model.

7.3 Implications for Management and Stakeholders

The findings from research questions 1 and 2 illustrate that although the respondents represent four different industries and manufacture very diverse products, the views and approaches to implementing sustainability are similar.

From the findings, it is recommended that shareholders and managers should follow the following recommendations to assist in incorporating sustainability.

- Shareholders and stakeholders should influence the view of top managers and assist in driving sustainability at all levels of the company.
- Sustainability must be a crucial part of the company's vision, structure, and strategy, with clearly defined objectives and KPIs is driven by top management.
- Collaborating openly with external and internal parties across all levels of the organisation is essential, which is important for identifying new sustainability opportunities to enhance the company's competitive advantage.
- It is vital to nurture a culture of sustainability throughout the organisation and to make sustainability personal and tangible for the employees. Furthermore, it is essential to acknowledge all the ideas and suggestions that employees have put forward. Additionally, managers should simplify the language used around sustainability as it is not always understood and leads to misperception.
- Assigning responsibility around sustainability to individuals in their area of work, and including employees in discussions around sustainability, helps

embed sustainability. This enhances sensing and seizing abilities for sustainability opportunities throughout the company.

- Start small and set objectives and targets for continuous improvement.
- Collaborating with other SMEs who have already incorporated sustainability is essential, as this will guide in areas of uncertainty.
- Sustainability should be incorporated throughout the organisation and not just reside with one person. It is also essential to educate and train employees about sustainability.
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Further recommendations are that policymakers create guidelines and regulations to address sustainability, possibly implementing incentives for sustainability inclusion or penalties for disregarding sustainability practices.

7.4 Research limitations

This study adopted a narrative approach to data collection which may have contributed to the limitation of this study. Several limitations related to this study include data collection being conducted on a small sample group within a limited timeframe. The interviews were conducted with respondents of the companies, namely founders, directors, and senior managers, which only represented a view from top management. Additionally, interviews were conducted with companies operating in four manufacturing sectors, namely, textile, chemical, packaging, and agricultural beverage, based in the Western Cape, Gauteng and KwaZulu Natal. However, the interviews were heavily weighted toward the textile industry operating in KwaZulu Natal. Even though there was alignment in the findings across all industries; this could have skewed the findings to one specific sector of the manufacturing industry.

Furthermore, in some instances, the respondents are known to the researcher. This may have introduced unconscious bias during the interview process.
The focus of this study was on sustainability; there appears to be an overlap between sustainability and sustainability innovation required to incorporate sustainability solutions. Future research can be done to determine the relationship between sustainability and sustainability innovation within SMEs.

7.5 Suggestions for Future research

This study focused on the definition of sustainability, which touched on sustainability innovation. Future research should be conducted to gain a deeper understanding of the relationship between sustainability and sustainability innovation within companies in South Africa.

This study was conducted on founders, CEO, and senior managers within the SMEs interview; also, respondents were heavily weighted to the textile industry in KwaZulu Natal. Thus, future studies could focus on SMEs in other provinces and industries.

Additionally, future research can be conducted on a cross-section of SME employees to determine the extent of sustainability understanding and integration across all levels of these companies.

7.6 Conclusion

As indicated in the literature, although SMEs contribute significantly to total employment in developing countries, they are also responsible for very high levels of industrial pollution (Prieto-Sandoval et al., 2019). Thus SMEs should transition to more sustainable methods of production. Furthermore, as indicated, dynamic capabilities are required within these companies to facilitate the move to incorporate sustainability practices within SMEs. However, there needs to be more understanding of dynamic capabilities and how to apply them within SMEs to transition to sustainability.

This study contributes to the literature in determining the factors and dynamic capabilities that either help or hinder SMEs within South Africa, a developing country, transition and incorporate sustainability practices. The findings that emerged from the 10 respondents interviewed established a clear understanding of the dynamic capabilities within these companies and the internal and external interaction essential for identifying and implementing new opportunities to gain a competitive advantage. Furthermore, a deeper insight was gained into how these SMEs expand the boundaries of their business models to include communities into the companies' ecosystem, thus incorporating the three pillars of sustainability and creating a circular economy business model.

This empirical research study contributes to the literature by providing key insight into the practices and dynamic capabilities required within organisations to facilitate embedding sustainability and converting a traditional linear economic business model into a circular economic business model. Furthermore, it is hoped that this study contributes to SMEs adopting the information and incorporating sustainability into their business processes.

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Appendix A: Interview guide

Background Questions

1. What is your current position?
2. What are your work responsibilities?
3. What products/services does your business offer?
4. Can you describe your business model?

Semi-structured, more in-depth questions

Innovation: Sustainability-Oriented (Hermundsdottir et al., 2021)

5. How would you describe your commitment to sustainability?
6. To what extent is sustainability integrated into your business/production processes?
7. Can you give an example of sustainable products/processes in your business?
8. Are there any examples of a sustainability project that was successfully implemented, and why/what reason did this project make it to the implementation stage?
9. How do you deal with these types of innovative ideas?
10. How do you determine which sustainability ideas need to be focused on?

Dynamic capabilities (Eisenhardt et al., 2000; Teece, 2007; Teece, 2014; Brocken et al., 2020; Ferreira et Al., 2020; Magistretti et al., 2021)

Sensing Abilities

11. Do you search for market trends, new technical solutions, potential threats, and market opportunities regarding sustainability?
12. Who in your business is responsible for this?
13. Do you encourage employees to contribute new ideas, information, and solutions to facilitate sustainability development and implementation?
14. Do you encourage receiving ideas and inspiration from customers or suppliers that promote sustainability development and implementation?
15. Is there a drive within your business to keep informed about changes/improvements in sustainability practices? Where does this knowledge base reside?

Seizing Abilities

16. How do you implement changes to capitalise on market trends/opportunities, new technologies, and legislation and fend off threats in terms of sustainability?
17. How do you motivate and inspire your employees to produce new ideas that facilitate implementing sustainable solutions?
18. Who decides when and what changes are to be implemented?
19. Is there a readiness within your business to move to implement and/or replace/modify existing systems to embrace sustainability?
20. Is a move to sustainability incorporated into your business strategy, and how and what is the timeline?

Reconfiguring Abilities (Khan et al., 2020)

21. What opportunities do you have to implement structural changes and procedures to meet new sustainability goals and technologies, fend off threats and take advantage of market sustainability opportunities?
22. Do you have mechanisms for testing new ideas - e.g., pilot tests?
23. Does your business culture encourage employees to contribute ideas that improve products and processes within your business?
24. Do you change your business, processes, and products as the demand for sustainability in society increases?
25. What steps do you take to validate and implement sustainability?
26. What resources are available to address sustainability opportunities or requirements?
27. What are the key abilities within your business and/or key skills to implement sustainability?
28. How were these key abilities developed?
29. What are the abilities of individuals/management that help drive the implementation of sustainability?
30. What negatively affects the adoption and implementation of sustainability?

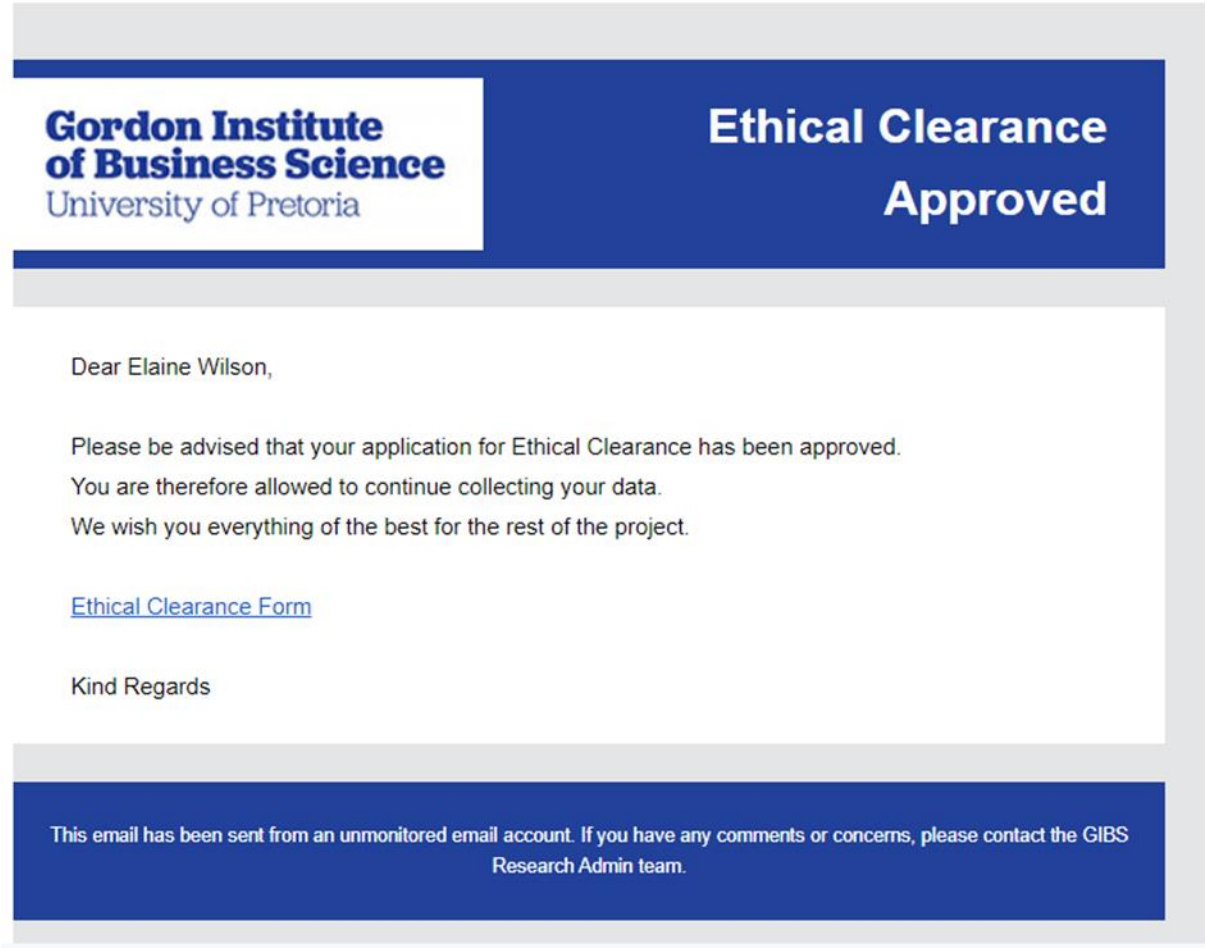
Concluding Question

31. Do you have anything else to add?

Understanding what factors enable or hinder sustainability implementation

RESEARCH QUESTION	LITERATURE REVIEW	DATA COLLECTION TOOLS	ANALYSIS
Research Question 1: What dynamic capabilities within SMEs are considered major factors that help the development or implementation of sustainablity initiatives?	Section 2.4; 2.5; 2.5.2	Interview guide (Questions 5-10; 11-15; 16-10; 21-29)	Qualitative content analysis
Research Question 2: What factors hinder the development or implementation of sustainability initiatives of SMEs?	Section 2.2; 2.5; 2.5.1	Interview guide (Question 5-10; 11-15; 16-20; 21-29; 30)	Qualitative content analysis

Appendix C: Ethical Clearance



Gordon Institute of Business Science
University of Pretoria

Ethical Clearance Approved

Dear Elaine Wilson,

Please be advised that your application for Ethical Clearance has been approved.
You are therefore allowed to continue collecting your data.
We wish you everything of the best for the rest of the project.

Ethical Clearance Form

Kind Regards

This email has been sent from an unmonitored email account. If you have any comments or concerns, please contact the GIBS Research Admin team.

Appendix D: Informed Consent

Informed consent letter:

I am currently a student at the University of Pretoria's Gordon Institute of Business Science and completing my research in partial fulfilment of an MBA.
I am completing research on SMEs transitioning to more sustainable business practices and what capabilities within these organisations either helped or hinder the development or implementation of sustainable initiatives. Our interview is expected to last about an hour and will help us understand what can be done to help existing businesses become sustainability-oriented within South Africa. *Your participation is voluntary, and you can withdraw at any time without penalty.* All data will be reported without identifiers. If you have any concerns, please contact my supervisor or me. Our details are provided below.

Researcher Name: Elaine Wilson
Email: 21834319@mygibs.co.za
Phone: 082 326 9489

Research Supervisor: Prof. Kerrin Myres
Email: myresk@gibs.co.za
Phone: 011 771 4000

Signature of participant: _____
Date: _____

Signature of researcher: _____
Date: _____