

**GREEN DYNAMIC CAPABILITIES AND PERFORMANCE OF HOSPITALITY  
FIRMS IN SELECTED MUNICIPALITIES IN LIMPOPO AND GAUTENG  
PROVINCES, SOUTH AFRICA: A MODERATED MEDIATED MODEL**

by

**MOKGAETJI MPHO CHIDI**

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**SUPERVISOR: PROFESSOR O.O. FATOKI**

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## DECLARATION

I, Mokgaetji Mpho Chidi, declare that this dissertation is my own work and has not been previously submitted at any other institution of higher learning. This research report is submitted in fulfilment of the requirements for the degree of Doctor of Commerce in Business Management in the Department of Business Management at the University of Limpopo. All the sources have been indicated and accurately acknowledged.



Mokgaetji Mpho Chidi

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## **ABSTRACT**

Tourism, including the hospitality industry, plays a significant role in creating jobs, eradicating poverty and preserving natural resources to enhance South Africa's economic growth. However, despite the positive contributions of tourism and the hospitality sector, the industry faces several environmental challenges. Businesses in this industry that intend to improve on their environmental performance need to introduce, modify, and implement various capabilities to survive in the changing environmental situations. The study developed and tested a new theoretical model linking Green Dynamic Capabilities (GDC) to a multi-dimensional measure of firm performance and the underlying mechanisms that support the relationship. The study aimed at establishing whether GDCs affect sustainable performance (financial, social and environmental performance) and green competitive advantage. The study also tested the mediation role of green innovation, measured by green product innovation and green process innovation in the relationship between GDC and performance. The moderation role of green self-efficacy (GSE) and environmental concern were also tested. The study was guided by the Stakeholder theory, the Legitimacy theory, the Resource-based view, the Natural resource-based view, and the Dynamic capabilities framework. Grounded in the deductive research approach and non-experimental design, the study adopted a quantitative approach to evaluate the proposed model. Self-administered questionnaires were distributed electronically for data collection. The population of the study included owners, managers, and chief executive officers of hospitality firms in Gauteng and Limpopo, South Africa.

This study used structural equation modelling to test the hypotheses and specifically, the Partial Least Square Structural Equation Modelling (PLS SEM) was utilised. The findings showed that there is a significant positive relationship between GDC and the four measures of firm performance. The mediation role of green innovation is significant. This indicates that for firms to achieve financial, social, environmental performance and green competitive advantage, green product innovation and green process innovations must be considered. The mediation effect of green self-efficacy and environmental concern are significant. The results showed that green innovation, green self-efficacy and environmental concern are mechanisms through which GDC can affect firm performance. The study concluded that hospitality firms should consider

the importance of generating, assimilating, and implementing green resources and green knowledge and information to develop green innovation products and green innovation processes toward achieving sustainable performance. Recommendations were made to various stakeholders, including government, managers, and organisations. The study recommends that government must improve its currently lax environmental policies, reduce red tape, and streamline regulations to provide firms with clear environmental guidelines and instructions. Regarding the duties of the private sector, businesses should hold educational and training programmes on a regular basis to improve staff and management's understanding of environmental problems and their ability to engage in responsible ecological behaviour. The significant contribution of the study is the development of a new theoretical model that links GDC to sustainable performance and green competitive advantage.

**Keywords:** Green dynamic capabilities, green product innovation, green process innovation, green competitive advantage, green self-efficacy, hospitality industry

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# **CHAPTER ONE**

## **INTRODUCTION AND BACKGROUND OF THE STUDY**

### **1.1 INTRODUCTION AND BACKGROUND**

The tourism sector, including the hospitality industry is vital to various countries across the world (Thommandru, Espinoza-Maguiña, Ramirez-Asis, Ray, Naved & Guzman-Avalos, 2023). Tourism plays a significant role in creating employment, eradicating poverty, preserving natural resources, and even fostering diplomatic relations among various nations in the world (Ruban, 2021; Zhou, 2022; Woyo & Musavengane, 2023). Tourism is one of the strategies used by the South African national and local governments to enhance the country's economic growth and development (Meyer & Rheeders, 2023). The World Travel and Tourism Council (WTTC, 2023) and the Economic Impact Research (EIR) report reveals that the travel and tourism industry in South Africa began to recover in 2021 following the Covid-19 pandemic. Tourism's contribution to South Africa's gross domestic product (GDP) grew by 8.4% year on year, to reach just over ZAR 195 billion from 2021 to 2022. The sector also saw a recovery of 20,000 travel and tourism jobs, representing a 1.9% rise, to reach almost nearly 1.1 million jobs (WTTC, 2022). Between January and September 2023, South Africa experienced an immense number of tourists, with over 6,1 million visitors arriving in the country, with this number having grown by more than 58.4% when compared to the 3.8 million tourist arrivals in South Africa in the same period in 2022 (National Department of Tourism, 2023). Although the tourist and hospitality sectors have highlighted to have positive contributions, the industry however encounters a variety of major ecological issues. These include the sector's creation of waste and pollution, and the overuse of natural and energy and resources, which have a detrimental effect on the environment (Andlib & Salcedo-Castro, 2021; Baloch, Shah, Iqbal, Sheeraz, Asadullah, Mahar & Khan, 2023; Vrana, 2023). Over the most recent decades, major pressure has been placed on businesses (including the tourism industry) to adopt sustainability and environmental protection. Businesses play a crucial role in promoting long-term economic growth, and contemporary businesses are shifting from prioritising short-term shareholder value to a long-term value orientation that integrates the economy, business, society, and the environment (Edwards, 2021). Firms that desire to enhance environmental performance ought to

change their operations and orientation and become engaged in pro-environmental behaviour (Loureiro, Guerreiro & Han, 2021). As such, firms need to develop, modify and implement various dynamic capabilities to survive in the changing environmental situations (Huang & Xiao, 2023). Dynamic capabilities (DC) refer to a business's actions and capacity to construct, assimilate and transform its resources to respond to and create a competitive advantage in a changing environment (Ellström, Holtström, Berg, & Josefsson, 2022; Wang & Liu, 2023). These capabilities are deemed crucial for attaining and sustaining competitive advantage in a constantly developing market environment (Xiao, Mamun, Masukujjaman & Yang, 2023). Traditionally, researchers have looked at the impact of dynamic capabilities (DCs) in a variety of settings; however, the novel paradigm, which is the use of green dynamic capabilities to anticipate certain outcomes, has not been paid attention to (Teece, 2017, Li, Hassan, Murad & Mirza, 2023). Green dynamic capabilities (GDC) refer to firms using their current resources and expertise to maintain and improve green organisational capabilities to adapt to the changing business environment and sustain competitiveness in the market (Khairy, Mahmoud & Hashsd, 2023). GDC helps a firm to identify, develop, and modify environmental opportunities and obstacles to achieve a competitive edge in the green market (Ahmad, Shafique, Qammar, Ercek, & Kalyar, 2022; Zhu, Zhang, Siddik, Zheng & Sobhani, 2023). Researchers have debated about the impact of DC on firms' performance and competitive advantage (Mutsvanga, 2021). The argument arose since the processes by which DC affect firms' performance was unclear (Pundziene, Nikou, & Bouwman, 2022). Researchers that have examined the effect of DC on firms' performance have focused on financial metrics and competitive advantage. However, the way in which performance of a firm is measured has shifted from a traditional measure to a sustainable measure, which includes social and environmental factors. The addition of social and environmental measures creates a new and more holistic measure of business performance (Iqbal, Ahmad, & Halim, 2021; Lee & Suh, 2022; Nogueira, Gomes & Lopes, 2023; Prester, 2023). Empirical studies on the implementation of an environmental strategy and firms' performance (primarily conducted with a financial focus) yield inconclusive results (Arbelo-Pérez, Armas-Cruz & Arbelo, 2022). The study of Tan, Siddik, Sobhani, Hamayun and Masukujjaman (2022) reveals that adopting an environmental strategy benefits a firm in a variety of ways. The positive strategy outcomes include reduced costs, attracting and retaining customers and employees, increased demand, improved operations, low

waste and energy consumption, recyclable resources, and an established brand status. However, another line of research claims that implementing an environmental strategy tends to raise operating costs, does not result in considerable cost reductions, and has no impact on business performance (Voinea, Hoogenberg, Fratostiteanu & Hashmi, 2020). According to Astuti and Datrini (2021), aiming for a Green Competitive Advantage (GCA) can bridge the gap between environmental strategy and the firm's performance (Astuti & Datrini, 2021). GCA refers to a business's special conditions that provide it with an edge over rivals in ecological management (Iam & Islam, 2021). The organisation's competitors often fail to replicate the implemented environmental strategy, resulting in the attainment of sustainable objectives and advantages (Bintara, Yadiati, Zarkasyi & Tanzil, 2023). The inclusion of mediating and moderating variables may increase the amount of information gleaned from the outcome of the study. This is because the variables will provide valuable insights into interventions and test concepts (Edwards & Konold, 2020; Rijnhart, Lamp, Valente, MacKinnon, Twisk & Heymans, 2021). Therefore, it is vital to understand the variables that can intervene in the relationship between green dynamic capabilities and firms' performance.

This study draws on green innovation as a mediating variable. This is because a firm's competitive advantage and higher performance are dependent on innovation (Farida & Setiawan, 2022). According to Matekenya and Moyo (2022), the introduction of new and inventive goods and processes aimed at enhancing a firm's performance is referred to as firm innovation. In recent years, innovation has been associated with sustainability and preservation of the environment (An, Kuo, Mabrouk, Sanyal, Muda, Hishan & Abdulrehman, 2023). GI is the greening of innovation, and it is defined as innovation that attempts to reduce waste, prevent pollution, have low emissions, low energy consumption, recyclability and creates an environmental management system (Li, Li, Zhao, Zhang & Xue, 2022). It includes non-harmful products and processes that protect the environment and enhances natural resources (Ahmed, Akbar, Aijaz, Channar, Ahmed, & Parmar, 2023).

Green product innovation and green processes innovation are measures of green innovation, which are significant factors for retaining customers' interest and ensuring the sustainability of hospitality firms (Yu, Park, Lee & Han, 2021) Introducing green products and processes has a significant impact on business operations and its

ecological practices (Ahmed et al., 2023). Hence, the aim of this study is to extend an understanding of the mechanism through which a firm's performance is translated into a superior level of GI. The study draws on managers' green self-efficacy (GSE) and EC as moderating variables in the relationship between green dynamic capabilities and green innovation. This is because managers' environment knowledge and environmental concern can influence firms' sustainability initiatives and performance (Weina & Yanling, 2022). According to the theory of self-efficacy by Bandura (1997), self-efficacy is described as one's self-belief in having the capability to complete tasks successfully. Green self-efficacy is when an individual believes in himself when making contributions to solve green environmental problems (Wang, Cao, Zhuo, Mou, Zihao, Pu & Zhou, 2021). Environmental concern is the level of people's awareness of environmental issues and their desire to address them and protect the environment (Li, Wang & Cui, 2022; Wang & Li, 2022). Based on this context, this study intended to develop and test a novel theoretical model that investigates the relationship between green dynamic capabilities and performance (financial, social, and environmental performance, and green competitive advantage). In addition, the mediating effect of green innovation (product and process) and the moderating effect of green self-efficacy and environmental concern will be examined.

## **1.2 PROBLEM STATEMENT**

The hospitality industry has become a major force of economic growth and development in various countries worldwide (Thommandru, Espinoza-Maguiña, Ramirez-Asis, Ray, Naved & Guzman-Avalos, 2023). However, a number of obstacles face the hospitality industry, such as scarce natural resources, pollution of water and the creation of waste, problems with labour, wasteful energy use, and other environmental issues (Khatteer, 2023; Perkumienė, Atalay, Safaa & Grigienė 2023). The long-term viability and competitive advantage of a business are impacted by environmental agreements, laws, and customers' environmental awareness. Thus, it is essential for hotels' leadership to raise the awareness of environmental issues among all relevant parties, such as management, employees, and customers, to implement green dynamic capabilities and green innovation and ensure sustainable performance and a competitive advantage (Li, Hassan, Murad & Mirza, 2023; López-Gamero, Molina-Azorín, Pereira-Moliner & Pertusa-Ortega, 2023). The testing and

validation of theoretical models that examine the relationship between green dynamic capabilities and sustainable performance and green competitive advantage is scarce in the literature. Previous studies focused on dynamic capabilities and firms' financial performance and competitive advantage (Rashidirad & Salimian, 2020; Saddam, Nizar, Ariffin & Abas, 2023.) However, the new approach in dynamic capabilities research is the link of the construct to the environment to create green dynamic capabilities (Li et al., 2023). Grounded on the dynamic capabilities concept by Pavlou and El Sawy (2011), green dynamic capabilities were used in an adapted format in this study. The contemporary measure of performance has moved from the old-style financial performance to a new sustainable performance model that includes social and environmental performance (Iqbal et al., 2020; Sarfraz et al., 2023). In addition, as pointed out by Astuti and Datrini (2021), the clash between environmental strategy and firm performance can be corrected or adjusted through a green competitive advantage (GCA). This is a paradigm shift from competitive advantage (CA) to GCA. However, to the best of the researcher's knowledge, theoretical models, and empirical studies on how green dynamic capabilities affect sustainable performance is sparse. In addition, the mediating effect of green innovation (as measured by green process and green product innovation) in the relationship between green dynamic capabilities and performance (financial, social and environmental performance, and green competitive advantage) has not received theoretical and empirical support. The moderating effects of managers' green self-efficacy and concern for the environment in the relationship between green dynamic capabilities and green innovation have also not received theoretical and empirical attention.

Based on these identified theoretical and empirical gaps, the identified issues have created significant problems in hospitality firms and literature; hence, the study intended to bridge the gaps by conducting in-depth research to assess the relationship between green dynamic capabilities and performance (financial, social, environmental and green competitive advantage) of hospitality firms and the effects of mediating variables (green [process and product] innovation) and moderating variables (green self-efficacy and concern for the environment) on firm performance. This study is driven by the growing environmental concerns that develop as hospitality businesses evolve as well as the necessity to use green dynamic capabilities and green innovation to solve environmental issues and achieve sustainable business performance.

### **1.3 AIM OF THE STUDY**

This study aims to examine the relationship between green dynamic capabilities and performance (as measured by financial, social and environmental performance and green competitive advantage) of hospitality firms, using a moderated mediated model. The mediating variable is green (process and product) innovation, and the moderating variables are green self-efficacy and concern for the environment.

### **1.4 OBJECTIVES OF THE STUDY**

- i. To examine the relationship between GDC and (a) financial performance; (b) social performance; (c) environmental performance; and (d) green competitive advantage.
- ii. To investigate the relationship between GDC and (a) green product innovation; and (b) green process innovation.
- iii. To explore the relationship between green product innovation and (a) financial performance; (b) social performance; (c) environmental performance; and (d) green competitive advantage.
- iv. To examine the relationship between green process innovation and (a) financial performance; (b) social performance; (c) environmental performance; and (d) green competitive advantage.
- v. To assess whether green product innovation mediates the relationship between GDC and a) financial performance; (b) social performance; (c) environmental performance; and (d) green competitive advantage.
- vi. To investigate whether green process innovation mediates the relationship between GDC and a) financial performance; (b) social performance; (c) environmental performance; and (d) green competitive advantage.
- vii. To evaluate the moderating effect of green self-efficacy in the relationship between GDC and (a) green product innovation; and (b) green process innovation.
- viii. To assess the moderating effect of environmental concern in the relationship between GDC and (a) green product innovation; and (b) green process innovation.

## **1.5 HYPOTHESES**

### **GDC and performance**

H1<sub>0</sub>: There is no relationship between GDC and (a) financial performance; (b) social performance; (c) environmental performance; and (d) green competitive advantage.

H1<sub>a</sub>: There is a significant positive relationship between GDC and (a) financial performance; (b) social performance; (c) environmental performance; and (d) green competitive advantage.

### **GDC and green innovation**

H2<sub>0</sub>: There is no relationship between GDC and (a) green product innovation; and (b) green process innovation.

H2<sub>a</sub>: There is a significant positive relationship between GDC and (a) green product innovation; and (b) green process innovation.

### **Green innovation and performance**

H3<sub>0</sub>: Green product innovation is not related to (a) financial performance; (b) social performance; (c) environmental performance; and (d) green competitive advantage.

H3<sub>a</sub>: Green product innovation is significantly positively related to (a) financial performance; (b) social performance; (c) environmental performance; and (d) green competitive advantage.

H4<sub>0</sub>: Green process innovation is not related to (a) financial performance; (b) social performance; (c) environmental performance; and (d) green competitive advantage.

H4<sub>a</sub>: Green process innovation is significantly positively related to (a) financial performance; (b) social performance; (c) environmental performance; and (d) green competitive advantage.

### **Mediation effects of green innovation**

H5<sub>0</sub>: Green product innovation does not mediate the relationship between GDC and a) financial performance; (b) social performance; (c) environmental performance; and (d) green competitive advantage.

H5<sub>a</sub>: Green product innovation mediates the relationship between GDC and a) financial performance; (b) social performance; (c) environmental performance; and (d) green competitive advantage.

H6<sub>0</sub>: Green process innovation does not mediate the relationship between GDC and a) financial performance; (b) social performance; (c) environmental performance; and (d) green competitive advantage.

H6<sub>a</sub>: Green process innovation mediates the relationship between GDC and a) financial performance; (b) social performance; (c) environmental performance; and (d) green competitive advantage.

### **Moderating effects of green self -efficacy**

H7<sub>0</sub>: Green self-efficacy does not moderate the relationship between GDC and (a) green product innovation; (b) green process innovation.

H7<sub>a</sub>: Green self-efficacy moderates the relationship between GDC and (a) green product innovation; (b) green process innovation.

### **Moderating effects of environmental concern**

H8<sub>0</sub>: Environmental concern does not moderate the relationship between GDC and (a) green product innovation; (b) green process innovation.

H8<sub>a</sub>: Environmental concern moderates the relationship between GDC and (a) green product innovation; (b) green process innovation.

## **1.6 DEFINITION OF KEY CONCEPTS**

### **1.6.1 Green dynamic capabilities (GDC)**

Green dynamic capabilities refer to the abilities to build complementary green competences and reconfigure organisationally embedded resources to pursue a competitive advantage in a rapidly growing market environment (Maksimov, Wang & Yan, 2022). Amaranti, Rukmana, Supena, Putri and Al-Alifi (2022) define GDC as the ability to identify change opportunities, seize these opportunities, and reconfigure resources to respond to these changes that are related to environmental aspects. Green dynamic capability develops innovative products and processes that transform

the business environment and uncover business opportunities for sustainable growth. Green dynamic abilities also convert sustainable organisational capabilities into environmental performance, such as green designing and environmental effectiveness initiatives for innovative product development (Yu, Tao, Hanan, Ong, Latif, & Ali, 2022). Li (2022) defines green dynamic capability as an entity's enhanced capacity to accomplish environmentally friendly and sustainable growth in a constantly shifting market. Moreover, GDC emphasises the creation incorporation, and reallocation of internal and external resources pertaining to environmental preservation. Based on the definitions discussed, this study defines GDC as the business's capacity to recognise and comprehend opportunities and challenges, as well as to use green internal and external resources to meet ecological challenges and achieve sustainable performance.

### **1.6.2 Green innovation (GI)**

Green Innovation (GI) is described as the deliberate creation and deployment of innovative technologies, processes, products and behaviours with the aim of plummeting or eradicating negative environmental impacts. This has drawn a great deal of attention regarding environmental sustainability (Abbasi, Shahbaz, Zhang, Irfan & Alvarado, 2022). GI is the process of prioritising the development of new products, procedures, technologies, and management techniques to reduce the potentially harmful and destructive effects that business operations and production processes may have on environmental quality (Wasiq, Kamal & Ali, 2023). It focuses on the development of environmentally products and processes through the adoption of organisational practices, which includes the use of green raw materials, eco-design principles, lesser utilisation of raw materials, and minimisation of emissions (Zhang, Sun, Yang & Wang, 2020). Moreover, GI can lower environmental costs while enhancing the quality of the environment.

GI is made up of green product innovation and green process innovation. Green products are generally eco-friendly products, whereas green processes encompass novel approaches, instruments, and methodologies that yield ecologically sustainable products (Wasiq et al., 2023). Green product innovation is the term for applying ideas to the creation of new products or the modification of current ones used to lessen the adverse effects on the environment. Green process innovation describes the

application and implementation of technologies that lower energy usage during production processes (Khan, Kaur, Jabeen & Dhir, 2021). Green product innovation can give businesses an advantage by setting their goods and services apart from competitors' offerings and enhancing customer value for sustainable development. Nonetheless, businesses can benefit from leading technical superiority advantages, lower environmental costs, and increased commercial value through green process innovation (Li, 2022; Singh, Del Giudice, Chiappetta Jabbour, Latan & Sohal, 2022). Both, green product and green process innovations are focused on creating an eco-friendly environment, reducing energy consumption and increasing resource efficiency, managing pollution emissions, recycling waste, enhancing organisational performance, and offering a pollution-free environment to society at large (Wang, Khan, Anwar, Shahzad, Adu & Murad, 2021). In the view of this, the current study adopted these definitions and examined whether the effects of different forms of green innovation on firm performance varied.

### **1.6.3 Green self-efficacy (GSE)**

Green self-efficacy (GSE) is the person's ability to perform a given task to achieve environmental goals (Sh. Ahmad, Rosli & Quoquab, 2022). Green self-efficacy describes an individual's faith in their capability to strategize and implement required measures to fulfil environmental objectives, with stimulation reliant on their self-confidence in tackling and attaining ecological issues (Mughal, Cai, Faraz & Ahmed, 2022). People who have greater levels of green self-efficacy are more inclined to pursue environmental tasks by acting in an environmentally friendly manner (Wu et al., 2023). Guo (2022) defines GSE as people's confidence in their ability to solve environmental problems and their ability to take initiative in protecting the environment. According to Wang, Cao, Zhuo, Mou, Pu and Zhou (2021), GSE is an individual's conviction that they can contribute to the resolution of green environmental issues, and it reflects an individual's confidence in their ability to enhance the environment. This study defines GSE as having belief in one's ability to adjust to changing environmental conditions and accomplish green objectives.

### **1.6.4 Environmental concern**

Environmental concern (EC) can be described as having a conscious awareness of the impact of environmental problems and a sense of environmental conservation. Firms that are driven by this awareness practise energy-saving, recycling and

consuming biodegradable products efficiently in the business (Ahmad et al., 2022). EC refers to individuals' awareness of ecological and environmental issues and their views about the need for action to solve these issues (Janmaimool & Chudech, 2020). Üzülmöz, Ercan, İştin and Barakazı (2023) define EC as people's awareness of environmental problems and their willingness to take action to reduce, prevent, and control the environmental challenges. The study further postulates that to achieve concern for the environment, individuals need to maintain environmental values to guarantee that current and future generations can live in a clean, safe, and healthy environment. This study defines environmental concern as the firms' awareness and involvement in environmental issues and the level of effort made to safeguard the environment.

### **1.6.5 Performance (PE)**

Sustainable performance is the potential of the business to meet its objectives and improve shareholder value while considering its long-term social, environmental, and economic responsibilities (Al-Abbadi & Abu Rumman, 2023). According to Liu, Yue, Ijaz, Lutfi and Mao (2023) sustainable performance depends upon functions, processes, and operations of the business's activities that determine the impact on the environment and health of employees and customers. A highly sustainable firm sets plans and strategies in place to maximise revenue without sacrificing the ecosystem's quality and the well-being of society. Organisations that take into account the environment, and the social, and economic issues, typically generate value over the long term more than those that only focus on matters that are profitable and financially driven (Farchi, Touzi, Farchi & Mousrij, 2021).

The study defines sustainable performance as the capacity of a business to accomplish its goals in a way that is socially, economically, and environmentally responsible. It entails achieving social, financial, and environmental goals all at once and calls for a comprehensive performance vision. The sustainable performance variable is measured through several dimensions, namely the financial performance, social performance and environmental performance (Al-Abbadi & Abu Rumman, 2023). These dimensions are discussed in more detail below.

#### **➤ Financial performance**

The financial or economic line is a triple bottom line component that defines the influence of a business's financial operations on its financial system (Yip, Zhou & To, 2023). Financial performance describes a firm's ability to deliver performance through increased shareholder returns, strong sales, and profitability (Kim, Duvernay & Thanh, 2021). Kim et al. (2021) further assert that utilizing financial ratios provide significant insights of a business's financial performance. Financial performance indicates its capacity to draw in and provide returns for investors, while also integrating the efficiency and effectiveness of resource allocation to achieve financial objectives (Tudose, Rusu & Avasilcai, 2022). The study describes financial performance as the capability of a business to achieve its objectives through money-related and financial figures, and through financial measures, such as profitability, investment and sales. These definitions were adopted for this study to gain insight depth of the construct.

➤ **Social performance**

A social line is described as a component of moral and equitable business operations for workers and the society. It involves communicating and creating relationships with employees, communities and organisations to address matters related to community and employees' development and fair wages (Beisland, Djan, Mersland & Randøy, 2021; Di Vaio, Varriale, Di Gregorio & Adomako, 2022). Social performance refers to the firm achieving the intended social mission and generating the desired values for the society. The community benefits derived from social missions include, among others, promoting wellness and peace, raising public awareness, and educating the public to improve socio-cultural conceptions in the community (Nordin, Khatibi & Azam, 2022). According to Adomako and Tran (2022), social performance encompasses social initiatives that require cooperation from stakeholders. These consist of efforts to protect the environment, raising safety standards, and giving back to local communities. Grounded on this definition, this study defines firms' social performance as a reflection of their interactions with various stakeholders, including the public, suppliers, customers, and employees. Furthermore, it deals with the management and business strategies that align with the societal norms and goals.

➤ **Environmental performance**

The act of not bargaining for future environmental resources is referred to as environmental performance. For the purpose of maintaining a healthy business

environment, it uses energy efficiently and lessens the greenhouse effect and ecological footprint (Zhang, Xu, Chen, Li & Chen, 2022; Khezri, Mamghaderi, Razzaghi & Heshmati, 2023). Environmental performance is also referred to as making effective use of natural resources to fulfil the needs of the business and protect the environment without compromising the needs of other organisations and stakeholders (LópezLópez, IglesiasAntelo & Fernández, 2020). Environmental performance describes how organisational actions affect the environment. In addition, companies use clean sources of energy for production, clean administrative and operational processes, and recycled materials in their goods, all of which reduce waste and pollution emissions that are harmful to the environment (Aftab, Abid, Cucari & Savastano, 2023). According to Mansour Salamé, Leroy and Saidani (2021) environmental performance demonstrates a business's dedication to minimising and avoiding environmental damage. Based on the definitions by various researchers, this study defines environmental performance as the actions a firm takes of using its resources to lessen environmental issues and achieve sustainability.

#### ➤ **Green competitive advantage (GCA)**

Green competitive advantage is a state that exist when a firm inhabits certain locations regarding its user-friendly environmental protection measures and green innovation. When a business implements and owns a GCA, competitors cannot replicate its effective environmental strategy, which gives the business long term competitive advantages (Astutia & Datriinia 2021; Kuo, Fang & LePage, 2022). Bintara, Yadiati, Zarkasyi and Tanzil (2023) define GCA as the state in which an organisation holds multiple positions related to environmental management or innovative environmental practices. Based on these definitions, this study adopts GCA. Green competitive advantage is when the firm's rivals find it difficult to copy the environmental strategy it has adopted to achieve long-term objectives and advantages.

## **1.7 RESEARCH METHODOLOGY OVERVIEW**

The study used the quantitative research methodology as anticipated to gather and evaluate statistical data. The research strategies were used following the survey research, correlation and descriptive research design. A primary data collection method was adopted to enable the researcher to collect novel and current data as

there is sparse literature on GDC and performance of hospitality firms. The study obtained ethical clearance from the University of Limpopo. The target population consisted of hospitality firms situated in the Limpopo and Gauteng provinces in South Africa and the participants were hotel managers and owners of the hospitality firms. The researcher distributed self-administered questionnaires to various hotel owners and managers for data collection. The 10-times rule was adopted in the study. The rule of thumb by Barclay, Higgins and Thompson (1995) is that the minimum sample size for the research study is recommended to be ten times the number of indicators in the most complex formative model, or ten times the greatest number of indicators for independent variables in the structural model, depending on which one is bigger (Jhantasana, 2023). Due to the difficulty in obtaining a sample frame for hospitality firms in Limpopo and Gauteng, the researcher employed the non-probability sampling method, which included convenience sampling, snowball sampling and quota sampling techniques to select the hotels in the two provinces. Data was analysed using the smart partial least square structural equation modelling (PLS-SEM). To ensure trustworthiness of the data collected, the study used the PLS-SEM measurement model analysis to measure reliability and validity. First, the reflective measures were analysed measuring reliability and validity. A structural model was analysed using common method bias,  $r^2$ , path coefficients and t-statistics, the goodness-of-fit test, predictive relevance of the model, the effect size and estimated model fit and tests, and the results are presented in tables and figures.

## **1.8 SIGNIFICANCE OF THE STUDY**

This study will contribute to knowledge in numerous ways, including theoretical contribution, empirical contribution and policy formulation.

### **1.8.1 Theoretical contribution, novelty and significant contribution to knowledge**

- ***Theoretical contribution***

In the era of environmental sustainability and sustainable development goals, the paradigm of firm dynamic capabilities has shifted to green dynamic capabilities. This study built and tested a unique theoretical model that investigated the relationship

between green dynamic capabilities and performance as assessed by performance (financial, social, and environmental performance and green competitive advantage). Research on the correlation between green dynamic capabilities, green innovation and performance is generally lacking. This study developed and tested a new unique theoretical model that linked green dynamic capabilities and performance (financial performance, social performance, environmental performance and green competitive advantage). The model also helped to explain the factors that can intervene in the relationship by exploring some mediating and moderating variables. The mediating effects of green innovation (as measured by product and process) and the moderating effects of green self-efficacy and concern for the environment in the relationship between green dynamic capabilities and green innovation were explored. The addition of mediating and moderating variables in the model helped the researcher identify intervention mechanisms in the relationship between green dynamic capabilities and performance of firms. The legitimacy theory and dynamic framework employed in the study, along with the resource-based view and natural resource-based view theories, will help researchers and managers comprehend the notions of green dynamic capability, green innovation, financial, social, and environmental performance, as well as the green competitive advantage. The theoretical model confirmed that green dynamic capability is one of the factors that firms can use to ensure sustainable performance and competitive advantage.

- ***Novelty of the study and significant contribution to knowledge***

The study makes a novel and significant contribution in the following way. Traditionally, researchers have explored the effect of dynamic capabilities across different contexts (financial performance and competitive advantage). However, the newest approach involves utilizing dynamic capabilities specific to a target to predict outcomes (Li et al., 2020). This is one of the early studies that focuses on how green dynamic capabilities (not dynamic capability) affects not only financial performance, but also social and environmental performance and green competitive advantage. Moreover, the addition of mediating and moderating variables in the model will help to identify intervention mechanisms in the relationship between green dynamic capabilities and sustainable performance and green competitive advantage. This study significantly contributes to knowledge by investigating how green dynamic capabilities impacts on the different performance indicators of a firm. The findings significantly add to knowledge

by showing green dynamic capabilities are key to ensuring sustainable performance and green competitive advantage. Past studies have tended to use a uni-dimensional measure of performance while this study focused on a multi-dimensional measure of performance. Thus, the findings of this study showed that a firm can use green dynamic capabilities not only to elevate financial performance but also to improve social and environmental performance and to obtain a green competitive advantage in the marketplace. In addition, the study's uniqueness comes from understanding the mechanisms through which green dynamic capabilities can affect different performance indicators. To the best of the researcher's knowledge, the mediating and moderating variables in the conceptual model of the study have not yet been tested in green dynamic capabilities studies. Thus, a new theoretical framework linking green dynamic capabilities to firm performance is created by the study.

- **Empirical contribution**

Empirically, research has mostly focused on dynamic capabilities and firms' financial performance. This study focused on how new constructs of green dynamic capabilities affect sustainable performance (financial, social and environmental performance) and green competitive advantage. Therefore, empirically, the study contributes to knowledge on how environmental strategy, such as green dynamic capabilities, can influence not only the financial performance, but also social and environmental performance and a green competitive advantage. Moreover, there is rare literature on how the measures of green innovation have mediated the relationship between green dynamic capability and performance. As such, this study is one of its kind to have tested green product innovation and green process innovation as constructs of green innovation and as a mediator on green dynamic capabilities and performance (financial, social, environmental performance, and green competitive advantage). Studies on green dynamic capabilities and different performance measures are scarce. In this regard, the present study contributes to body of knowledge.

- **Policy contribution**

South Africa is one of the world's leading greenhouse gas emitters. The country also suffers from a high level of pollution with negative effects on the climate. At the same time, South Africa is a member of the participants to the Paris Agreement on Climate

Change and must comply with the imposed rules. In addition, the country participated in the Climate Change Conference (COP26) in November 2023 (United States Agency for International Development [USAID], 2023). Sustainable tourism is one of the ways that South Africa can contribute positively to the climate and reduce its negative contribution to climate change and achieve local and international sustainable development goals. The findings of this study will help to understand how an environmental strategy, such as green dynamic capabilities and green innovation, can affect performance of hospitality firms. This will also help to eradicate harmful environmental effects of hotel businesses and ensure sustainable tourism. Therefore, hospitality firms will have to better understand how green dynamic capabilities can affect their performance and whether dynamic green capabilities should be included in their environmental strategy. The study's findings will be helpful in forming South Africa's environmental hospitality policy framework, which businesses and the government should implement to address environmental issues.

## **1.9 STRUCTURE OF THE RESEARCH**

The study will consist of eight chapters as outlined below.

### **CHAPTER ONE**

This chapter served as the study's introduction. The study's background, problem statement, aim, hypotheses, and objectives were all described in this chapter, and these aspects influenced the research methodology used in the present study. The chapter also included an extensive discussion of the study's significance, highlighting the significance of conducting the study.

### **CHAPTER TWO**

This chapter presents an overview of the tourism and hospitality Industry. First, the chapter provides a background and description of tourism and the hospitality industry, followed by a discussion of tourism grading used in South Africa. The chapter covers various ways in which the tourism and hospitality firms contribute to GDP, poverty alleviation, employment, and competition and innovation. Challenges faced by the hospitality firms are also covered in depth, and environmental challenges are also

given attention. To mitigate these challenges, the chapter concludes by discussing the environmental practices and strategies adopted by hospitality firms.

### **CHAPTER THREE**

This chapter provides an overview of the study's theoretical framework and literature review. As the primary theories guiding the present study, the resource-based view theory, natural based resource view theory, the shareholder theory, and the legitimacy theory are examined. The concept of green dynamic capabilities is discussed in detail as an independent variable of the study.

### **CHAPTER FOUR**

This chapter provides an in-depth analysis of the context and variables under investigation. It discusses performance as an independent variable measured by financial performance, social performance, environmental performance and the green competitive advantage. In addition, the chapter covers the mediation and moderation variables adopted in this study. These include green innovation, green product innovation, and green process innovation as mediators of the study. The chapter also covers self-efficacy and environmental concern as moderating variables.

### **CHAPTER FIVE**

Chapter five discusses the relationship between the green dynamic capabilities' variables and performance variables. Each performance measure is linked to the firms' green dynamic capabilities. The study incorporated the moderating variable of green product innovation and green process innovation; and mediating variables, which include green self-efficacy and environmental performance. The chapter also presents a conceptual model of the hypotheses, followed by a discussion of the model.

### **CHAPTER SIX**

The research methodology for the study is presented in this chapter. This chapter offers a comprehensive analysis of the research design, population and sampling techniques, data and collection techniques, variable measurement, data collection and analysis, aspects of validity and reliability, and ethical considerations.

## **CHAPTER SEVEN**

Chapter seven presents the research results, which are followed by a thorough discussion based on the results of previous studies. The research results are presented as tables and charts. The results are first presented descriptively, with elements such as mean, standard deviation, and minimum and maximum values. Subsequently, the chapter presents the results of the PLS-SEM analysis as well as the structural model statistics and interpretations.

## **CHAPTER EIGHT**

This chapter provides a summary of the study's results. It also provides the implications and recommendations emanating from the findings, and the study's limitations and areas for future studies.

### **1.10 SUMMARY**

The first chapter gave a summary of the entire study through presenting an overview of the study's major variables. Additionally, it stipulated the rationalisation for conducting the study by pointing out various ways in which the study's findings will be useful to readers or hospitality firms. The chapter highlighted how green dynamic capabilities are being considered as a new strategy for overcoming environmental challenges in the hospitality industry. Firms can develop green innovation through managers' green self-efficacy and concern for the environment, resulting in sustainable performance and operations, which foster sustainable performance. This chapter indicated that there is no consensus among research that have undertaken to investigate how GDC could impact performance. Moreover, literature on the relationship between GDC and on performance measures, such as financial, social, and environmental performance and green competitive advantage, is very limited, hence the study adapted a dimensional approach of GDC (independent variable) and a multidimensional approach to firm performance (dependent variable) to fill this gap. It evaluated the relationships between these constructs, together with the mediating role of green innovation (green product innovation and green process innovation) and the moderating roles of green self-efficacy and environmental concern. The methodology used for this investigation was another important subject covered in this chapter. This provides readers with a clear roadmap and step-by-step instructions for

understanding the process the researcher has taken to gather and analyse data to achieve the desired results. The next chapter will discuss the literature review of the tourism and hospitality industry in detail.

## **CHAPTER TWO**

### **TOURISM AND HOSPITALITY INDUSTRY**

#### **2.1 INTRODUCTION**

The first chapter introduced the study's purpose. This chapter explores the research context. The chapter's goal is to provide a broad overview of the tourism and hospitality industry. This will facilitate the process of conceptualising and comprehending the study's broad focus. The tourism and hospitality sector is one of the largest sectors globally. This industry fosters stability, enhances social development, boosts economic growth, and creates jobs. The background information and the definitions of the hospitality and tourism industry will first be covered in this chapter. Additionally, a detailed discussion of tourism establishments, such as hotels, guest houses, bed and breakfasts, resorts and lodges, and restaurants will be covered in this chapter. The South African tourism grading system will be examined in detail since the Tourism Grading Council of South Africa (TGCSA) is the only accredited body that authorises lodging facilities to show quality stars, and that offers guarantees for a variety of tourism establishments. The contributions made by the hospitality and tourism industry are explored, emphasising their impacts on GDP, employment, poverty reduction, competitive advantage, and innovation in various nations. In addition, statistical data from literature is presented when analysing these contributions regarding the sector's role in contributing to the creation of sustainable economies. Lastly, the chapter delves into the challenges faced by the tourism and hospitality industry. Green practices and strategies to mitigate environmental challenges are also discussed. The background information and definitions of the tourism and hospitality industry will be covered in the following section. The background will provide an overview of the industry's development, its key features and a comprehensive understanding of the hospitality and tourism industry. The definitions from a variety of research studies are also provided. The next discussion provides the background and definitions of tourism and hospitality firms.

## **2.2 BACKGROUND AND DEFINITIONS OF TOURISM AND HOSPITALITY**

Globally, tourism makes a substantial contribution to national economies in the form of income, GDP, job creation and economic development (Zhou, 2022). At the global level, travel and tourism industry is the main economic sector and the major GDP and employment contributor for several countries (WWTC, 2021). According to Nurmatov, Lopez and Millan (2021) the World Tourism and Travel Council asserts that the tourism industry is among the global leaders in economic terms. Within the last few decades, international and national travelling has become even more popular among all population groups. It has grown from being an exclusive preserve of advanced societies to becoming a multi-party phenomenon in which the emerging markets are now actively participating (Zhou, 2022 Thommandru, Espinoza-Maguiña, Ramirez-Asis, Ray, Naved & Guzman-Avalos, 2023). Tourism has a multiplier effect across economic sectors, such as accommodation and food services, agriculture, retail and transport, and when sustainably managed, it can contribute to economic diversification, enhance local culture and products, promote local enterprises and support job creation (ILO, 2022).

Tourism can be distinguished based on the trip purpose, mostly business or leisure, and the duration of stay. That tourism activities that have increased can be attributed to globalisation, rising incomes, and changing working patterns that allow for additional short breaks (Ulrich, Wilkes, Kostorz, Briem, Kagerbauer & Vortisch, 2022). There is no universally agreed definition of tourism. Tourism, by many definitions, can be found to be a scientific and economic discipline, which has a multidisciplinary character (Tahiri, Kovaçi, Lekiqi & Rexhepi, 2021). According to Walton (2023), tourism is the act of travelling and spending time away from home for leisure, pleasure, and relaxation, while utilising services that are provided for at a cost. Khan, UI Hassan, Fahad and Naushad (2020) describe tourism in terms of specific activities, selected by choice, and undertaken outside the home environment. Tourism may or may not involve an overnight stay away from home (Khan et al., 2020). Furthermore, it involves the actions of individuals, who travel for a purpose other than engaging in a compensated activity from the location they visit and who are not within their normal surroundings for a longer duration of time (Tahiri, Kovaçi, Lekiqi & Rexhepi, 2021). Tourism is defined as the tourists' travelling for leisure or other goals and staying

outside their common environment for a specific period, not surpassing one continuous year (Mahdi & Esztergár-Kiss, 2021). The United Nations World Tourism Organization (UNWTO) describe tourism as an economic, social, and cultural occurrence that involves people traveling for leisure, business, or professional reasons to nations or locations outside of their normal surroundings (UNWTO, 2020). According to Ahmed and Akbab (2022), tourism refers to visitors travelling to another destination. A visitor is a traveller, whose purpose of the trip is related to tourism, namely personal, business, or study, to be a crew member in a private vehicle (private aircraft or private boat), or whose purpose is not known, and whose trip duration is less than one year. Visitors can also include excursionists (Stats Canada, 2022). Tourists are categorized as visitors, who spent not more than 24 hours in a visited area but for less than a year. When traveling for pleasure, welfare, sport, vacation, study, or spiritual reasons, the visit is often viewed as leisure. Alternatively, excursionists, including boat travellers, are regarded as temporary visitors, visiting in a place for a maximum period of 24 hours, which is a visitor without an overnight stay (Foris, Florescu, Foris & Barabas, 2020; Ahmed & Akbab, 2022; Ulrich et al., 2022). Therefore, tourism includes the movement of people for a wide range of purposes, including day visits or excursions (Khan et al., 2020). Tourism can be categorised into international and domestic tourism.

#### ➤ Domestic tourism

Domestic tourism refers to travel activities carried out by citizens of a country of origin to various locations within that country. Moreover, domestic travel is the main driving force of the travel and tourism in major economies (Sako & Szente, 2021). In many developing countries, domestic tourism is thought to be reasonably stable. This kind of tourism is crucial for generating business opportunities, jobs, reducing poverty, incentivising the development of infrastructure, and enhancing the nation's GDP (Mazhande, Basera, Chikuta, Tapfuma, Ncube & Baipai, 2020). Bayih and Singh (2020) describe domestic tourism as the activities of resident tourists within their own country of residence. Domestic tourism offers the main chance for driving recovery and supporting the tourism sector. The domestic tourism economy is significant and accounts for the tourism economy in countries worldwide (Organisation for Economic Cooperation and Development [OECD], 2020).

### ➤ International tourism

International tourism involves the activities of resident tourists and non-resident tourists outside their country of residence (Bayih & Singh, 2020). International travel also has symbolic value and serves as a marker of prestige. Travelling abroad triggers out-of-the-ordinary experiences and discoveries, being full of unfamiliar situations, sensory impressions and close contact with local people and strangers (Gyimothy, Braun & Zenker, 2022). International tourism has expanded in conjunction with economic and social changes, including increased national income and leisure time, and improved quality of life. Moreover, International tourism affects various aspects of a country, such as contributing positively to the wider economy with a relative effect on a country's GDP and employment (Seok, Barnett & Nam, 2021).

The hospitality industry is an essential sector of the tourism industry (Dube, Nhamo & Chikodzi, 2021). There is no single definition of the concept of 'hospitality' as various definitions have been offered by various researchers. The hospitality sector encompasses all businesses that provide accommodation, meals, beverages, and other extra services that tourists need, such as guaranteeing a respectable level of comfort, safety, and most importantly, sufficient leisure time (Bello & Bello, 2021). According to Çekirdekci, Karkış and Suna Gönültaş (2021) hospitality is a broad category of fields within the service sector that directly or indirectly rely on travel and tourism. This industry involves resorts and hotel chains, restaurants and catering, bars and night clubs, transportation and travel, spas and health, cruise lines and bus tours, and events (discrete, business, traditional, and sports). Giving visitors a warm welcome or a place to stay while they are away from home is known as hospitality. Its fundamental aspect is the interaction between a guest and a host, in which the host extends some degree of kindness to the guest by entertaining and welcoming them (Mitchell, 2022). The hospitality industry comprises all products and services given to travelers, tourists, and various kinds of visitors. It is significantly related to and part of the tourism industry, as well as a critical component of the tourism industry's value chain (Junyu, 2020). According to Boudou (2021), hospitality is a kind of social recommendation to give or lend, encompassing a gift of time (welcome), protection (space), goods (gifts), or meals (food, drink). Its justification generally relates to a natural duty of generosity and kindness. The hospitality providers are paid for the services they provide to the guests, especially in the lodging industry. Hospitality

offered to guests is very important to improve their satisfaction, and as a component of the service. One of the characteristics of hospitality is to impress guests by exceeding their expectations in response to their explicit requests (Morishita, 2021). The hospitality industry is the combination of the accommodation, food and beverage groupings, collectively making up the largest segment of the industry (Go2HR, 2020). The definitions indicate that the industry is made up of businesses focused on service that cater to travellers and tourists when they are far from home. The hospitality and tourism industry is an immense sector that incorporates all the economic operations that rely on travel and tourism. This sector is divided into the following (Mitchell, 2022):

- i. Hotels & Resorts
- ii. Restaurants & Catering
- iii. Night Clubs & Bars
- iv. Travel & Transportation
- v. Tourism
- vi. Spas & Wellness
- vii. Cruise Liners & Bus tours
- viii. Events (Private, Business, Cultural, and Sports)

Tourism and hospitality are closely related industries, as the hospitality industry serves an essential role in the tourism industry (So, Li & Kim, 2020). Academics and practitioners often examine tourism and hospitality together because they are related industries (Carvalho & Alves, 2022). Hospitality refers to providing travellers and tourists with accommodation, food, and other services. The providers can include hotels, resorts, restaurants, and other types of establishments that cater to the needs of travellers. On the other hand, the tourism industry encompasses all the activities and services related to planning, promoting, and facilitating travel; transportation, tour operators, travel agencies, and other businesses that help facilitate tourist travel experiences. Both industries rely closely on each other to thrive, as travellers need places to stay and eat while on vacation, and hospitality businesses rely on tourists for their income (Han, 2021; Dang & Nguyen, 2023). According to UNWTO (2020), tourism is the act of moving frequently between different locations for any purpose, but primarily for leisure, whereas hospitality is the business of assisting others in feeling at home, at ease, and having fun. The tourism and hospitality industry thrives on the patterns of visitations and considerable efforts are placed by decision-makers to attract

visitors to support the sector (Kaushal & Srivastava, 2021). Within the hospitality sector, a broader spectrum of tourism organisations is hereby considered, including food and beverage facilities, culture and leisure activities, sports and corporate tourism (Rodrigues, Cvelbar, Lozzi, Teoh, Ramos, Antonucci, Marcucci & Gatta, 2021). The hospitality and tourism sectors include transportation, travel, food and beverages, hotels and other lodging establishments, recreation, and event planning (Kravariti, Voutsina, Tasoulis, Dibia & Johnston, 2022).

Countries such as Botswana, South Africa, and Mozambique are leveraging tourism to broaden and expand their economies. Limpopo, South Africa, is one such region with many distinct cultural features such as paintings, drawings, landmarks, and landscapes. Limpopo is known as the Province of Peace. It is endowed with abundant natural resources, including 54 provincial reserves and numerous private game reserves. Limpopo province has immense potential for rural tourism, which drives local economic development and entrepreneurship (Mohale, McKay, & Van der Merwe, 2020; Limpopo Department of Tourism, 2024; Ramaano, 2024). Cultural tourism attractions in Limpopo include theatres, museums, art galleries, antique stores, curio shops, crafts, and unofficial art dealers (Mohale et al, 2020). Limpopo's hospitality industry had improved dramatically and completely recovered, with tourism remaining the province's largest employer. Following the pandemic, the province was ranked in the top three most-visited destinations in the country, and it is now ranked sixth for international arrivals, with African travelers dominating (Ramukumba, 2023; Schultz, 2024). The Gauteng province's economic development and growth are significantly influenced by the tourism industry (Meyer, 2023). Meyer (2021) states that a 1% increase in the gross value-added activities of the tourism sector result in a 0.86–0.89 percent increase in GDP per capita. This suggests that tourism has the capacity to reduce unemployment, alleviate poverty, and enhance the quality of life for local residents. Gauteng is expected to continue to lead South Africa's inbound tourism through 2025, with South African Tourism projecting an increase in international arrivals from 2.3 million in 2022 to more than 3.6 million (Hes, 2023; Gauteng MEC for Economic Development, Tasneem Motara, 2023).

The hospitality and tourism industry sub-sectors are closely related, and each holds a vital position in the development and growth of the other industry. The tourism and hospitality industry involves entertainment destinations (recreation, culture, sports

activities, and so forth); restaurants (restaurants, cafes, taverns, and so forth); accommodation (hotels, motels, campgrounds, and so forth); transportation (airplane, rail, bus, auto, and so forth); shopping facilities, and others (Junyu, 2020; Mahdi & Esztergár-Kiss, 2021). For the purpose of this study, the tourism and hospitality industry segments to be discussed include accommodation and restaurants. Accommodation establishments play a crucial role in catering for tourists' needs; hence, these establishments were the focus of this study.

#### ➤ Accommodations

Accommodations serve as a symbol for the places where travellers can unwind and make plans for the day (Mahdi & Esztergár-Kiss, 2021). Accommodations are defined as guest houses, service apartments, bed & breakfast (B&B) lodges, and homestays that are provided to travellers for only a few days (Singh, 2021). Travellers tend to select the location based on their personal preferences and limitations, with price, location, and amenities serving as the primary determining factors (Mahdi & Esztergár-Kiss, 2021). Thus, accommodation is an indispensable element in the creation and promotion of tourism at any destination. The scope and quality of accommodation facilities available can mirror the extent of tourism development at the destination and also persuade visitors to choose that destination (Çelik & Çevirgen, 2021). Accommodation enterprises can provide various additional benefits, such as gaining a competitive advantage, saving costs and surviving in times of crisis, owing to sustainable business practices, gaining customer loyalty and corporate social responsibility activities (Moneva, Bonilla-Priego & Ortas, 2020; Olya, Altinay, Farmaki, Kenebayeva & Gursoy, 2020). According to Pjero and Gjermëni (2020) and Farmaki and Miguel (2022) When tourists are searching for lodging for their beach vacations, city breaks, or cruises, TripAdvisor and booking.com are believed to be the most reliable sources of information. All of the main tourist locations offer accommodations that range from world-class luxury hotels to low-cost backpackers, lodges, B&Bs, and hotels, to give visitors a place to call home away from home. Tourists and travelers require a place to stay while they are on a tour or vacation (Pertwi & Sulistyawati, 2020). There are various sub-segments within the accommodation industry (Clark, 2019; Singh, 2021), namely, hotels, guesthouses, B&Bs, resorts and a number of other types of accommodation, besides venues such as restaurants, catering and bars.

## **2.2.1 Types of accommodation and services**

### **2.2.1.1 Hotels**

This is the first and the most prominent part of the hospitality industry's type of accommodation. Hotels serve as venues for people to meet with friends, for work, exercise, or 'just to unwind' (Han & Lee, 2021). This is a type of venue that supports and accommodates different services for visitors and guests, including tourists and travellers (Andrews & Crawford, 2021). A hotel is a commercial entity that uses space, equipment, places and certain consumer materials to meet the guests' needs of accommodation, entertainment, shopping, food and beverages, and recreation to obtain economic and social benefits, and simultaneously have a favourable effect on large numbers of people (Liang, Watters & Lemański, 2022). According to Ma (2020), a hotel is a suitable place for business negotiations and fitness sessions, and the delivery of superior services is essential. The main aim of hotels is to provide customers with catering and accommodation services. Hotels provide guests with comfort and convenience (Wu, 2021). The fundamental objective of hotels is to deliver quality service for customers. Hotels' service quality is the service provided to meet or exceed guests' expectations and almost all hotels are able to gain customers' satisfaction through providing a high quality of services (Top & Ali, 2021). Besides offering accommodation, hotels offer products and services, such as food and beverages, business facilities, and recreational activities (Sangpikul, 2021). In the latest 2019 revised report of TGCSA (2019), a hotel is described as an accommodation that offers services to tourists and has at least 80 rooms. A hotel features a dining room as well as a reception area. The following categories are used by the Tourism Grading Council of South Africa (TGCSA, 2019) to group hotels:

- a) Small hotel: This type of establishment can accommodate up to 10 rooms and offers travellers either full or limited services. There is a dining area and a reception area in a small hotel.
- b) Apartment hotel: An apartment hotel is a type of lodging with at least ten rooms that offers travellers lodging along with full or limited services. A reception area and dining room are features of an apartment hotel. Every room has a dining spot and a kitchenette.

- c) Boutique hotel: A boutique hotel accommodates travellers with either complete or partial services. A boutique hotel has distinctive rooms, a dining zone, and a reception area. It is a 5-star establishment providing all the features and facilities of a normal hotel, in a unique and exclusive style. These properties are generally small, feature top-class service and are marketed to the affluent in South Africa.

#### **2.2.1.2 Guest houses**

Guest houses, which typically have between 20 and 50 rooms, are an essential component of the accommodation industry. They primarily provide food, drinks, and accommodation in a warm, small-town setting (Moswete, Mpotokwane, Nkape & Maera, 2020; Sucheran, 2022). The TGCSA (2019) defines a guest house as an accommodation provided in a house, renovated house or a specifically designed building. It includes the provision of breakfast and has public areas for the exclusive use of guests. This type of accommodation provides a comfortable environment in which guests can share facilities and food with the hosts (Sucheran, 2022). Guest houses are defined as premises that provide sleeping accommodation, with limited services to guests in return of monetary payment. Compared to other commercial accommodation establishments, the size and the capacity of guest houses is limited, and they are operated on a small scale and offer limited facilities (Chia & Muiz, 2021). Opening a guest house normally requires a small start-up capital, and they are owned and operated by owners and family members. The term guest house refers to any one of various types of independent short-term accommodation suppliers, tourist apartments, small dwellings and local lodgings used for vacations and temporary stays (Ferreira, Ramos & Lahr, 2020). A guest house is typically a normal home, converted or specifically built/renovated to provide accommodation for guests (Chia & Muiz, 2021). A guest house is defined by the TGCSA (2019) as an accommodation that is offered in a home, a house that has been renovated, or a building that has been specially designed, and it includes breakfast. There are public spaces that are only available to visitors. This kind of accommodation provides a warm atmosphere where visitors can use the hosts' facilities and enjoy meals together.

#### **2.2.1.3 Bed & Breakfasts**

Bed and breakfasts, also known as B&Bs, are small establishments that cater primarily to overnight guests, but they also offer breakfast in the morning and the majority of

B&Bs are situated within a home, where the owners reside. They offer separate, private rooms exclusively for their visitors and set themselves apart by including breakfast and overnight lodging in a quoted price (Ferreira et al., 2020). The B&B category is synonymous with various other accommodation terms, such as home-stay or guest house (Li, Zhang & Ruan, 2022). A homestay operates as home for a paid guest for a limited time on its joint terms (Dash, 2022). Jia, Kim and Tao (2023) define B&Bs as personalised accommodations that use vacant houses to provide customers with a homely experience by making their guests interact with the local natural resources, lifestyles, and atmosphere with culturally authentic, warm, friendly and personalised services. B&Bs are described as unoccupied rooms in privately owned residences that are used for hosting visitors and that are run as a side-business for families offering overnight accommodation and breakfast (Pan & Shen, 2022). A study by Tian, Sun, Hu and Dong (2022) defines a B&B as a small accommodation facility, rich in local culture and living characteristics, opened by residents through the use of relevant idle resources and with the help of the family as a side-business. In addition, B&Bs are a type of non-standardised accommodation that play an important role in helping rural revitalisation, revitalising idle resources, increasing employment income, and promoting industrial upgrading and revitalisation (Tan, 2021; Tian et al., 2022). In South Africa, the TGCSA (2019) defines a B&B as an informal accommodation with limited services, but including the provision of breakfast, provided in a family (private) home where the manager or owner resides either on-site or in the residence. Additionally, visitors share the common areas and amenities with the host, including the dining room, the lounge, and occasionally the bathroom(s).

#### **2.2.1.4 Resorts and lodges**

Resorts are a full-service accommodation, specifically aimed at tourists because they offer a complete range of services, or as much of the services and amenities a tourist needs (Viljoen, Kruger & Saayman, 2019). Resorts are most often situated near to special tourist destinations. These resorts usually offer all the basic amenities for a tourist's comfortable stay with well serviced rooms. They provide food and beverages, room services, and also leisure and recreation facilities (Clark, 2020). Resorts are usually smaller properties and located far away from cities and close to tourist attractions. Tourists, who stay at resorts, usually seek them for vacations and engage in leisure and recreational activities, including health-related activities (for example,

spas and sports) (Sangpikul, 2021). Resorts, as a component of the destination, offer a unique combination of resources, attractions and facilities. They often also have unique physical environments, ecological conditions, and socio-cultural specifics of the communities inhabiting the area (Clark, 2020). Some characteristics of resorts include that they offer adequate indoor facilities, a pleasant environment, quality service, refreshing entertainment, and natural sights (Hussain, Li, Kanwel, Asif, Jameel & Hwang, 2023). A resort offers more 'opulent' amenities, such as swimming pools, fitness centres, golfing, tennis courts and spas, so one does not have to leave the property for such activities, while a lodge only offers the necessities, such as room with a bed, television, and bathroom (Sethmini, 2023).

Lodges are often small and unique, providing a specialised experience of a place. They display features of traditional hotels, such as high-quality, comfort, security, and safety elements. These establishments also have a strong connection with local communities, facilitating the interaction between guests and local people, cultures, and reflecting the character of the region in the architecture and activities offered (Manfreda, Melissen, Presbury, Richardson & King, 2023). According the TGCSA (2019) a lodge is a type of formal accommodation with all or some services, situated in natural settings outside of a garden area and devoid of any wildlife. In the study of Yeon, Song and Lee, (2020) lodges are defined as commercial places for 'short-term dwelling' for travellers. The TGCSA (2019) makes a distinction between a nature lodge, and a game lodge:

- a) Nature lodge – A nature lodge, which also includes private nature reserves, is a type of formal accommodation that is situated in an environment that is more natural than a garden area and sometimes farther away from populated areas. There is at least one activity, such as a nature or cultural experience, that is led. According to the establishment's marketing materials, there should be a reasonable chance that visitors will see, feel, or observe animal species or take part in cultural events.
- b) Game lodge – A game lodge is a type of accommodation that is typically situated far from populated areas and in natural settings that extend beyond the boundaries of a garden area. There is at least one guided activity or experience offered, such as a nature or cultural tour. According to the establishment's marketing materials, there should be a reasonable chance that visitors will see

particular animal species or engage in cultural activities. The wild animals that are available to visitors must be free to roam and not kept in cages if the lodge is referred to as a "game lodge."

#### **2.2.1.5 Restaurants**

Restaurants are classified as one of the sub-sectors of the South African tourism and hospitality industry (Mhlanga, 2023). Restaurants are defined as establishments that have a dining area on the same premises, and that offer a range of food, beverages and services. Although the primary purpose of restaurants is for customers to come in, place an order, and enjoy their meal, some also offer takeout options (Ferdous & Mim, 2021). A restaurant can be defined as an establishment or business that provides catering services. In addition, restaurants have become a place, where people also socialise, listen to music, and participate in different occasions, events, and activities (Tan, 2021). According to Borges, Lopes de Almeida, Vieira, Dias and Rodrigues (2022) restaurants include cafés, bars, fast food and other food service providers that allow customers to enter, order food, and eat on the premises, as well as order takeaway food.

Customers are demanding more convenience as technology advances, including the ability to order through online, self-serve kiosks, mobile applications with GPS capabilities, and delivery services. In many countries, restaurant and food services are partnering with delivery service businesses (Li, Miroso, & Bremer, 2020; Kraak, 2020; Melián-González, 2022; Li, Miroso & Bremer, 2020). Providing service quality is a critical factor in creating a competitive advantage in the restaurant industry. As a result, service quality is critical for a restaurant's success and determining consumer food satisfaction (Abdullah, Sufi & Kumar, 2022). Restaurants' service quality provides emotional comfort to customers, with indicators, such as speed and friendliness of service, preparation, menu, staff, equipment, appearance, and individual interest toward guests (Lisnawati & Astawa, 2020). Food quality, service quality, menu variety, and price fairness have been widely investigated in the context of food consumption and were associated with higher levels of tourists' satisfaction (Mohamed, Kim, Lehto & Behnke, 2022). Within this context, service quality is characterised as one of the fundamental elements of the food experience, along with the theme concept of the

menu, and the restaurant's atmosphere (Polat, 2022). Food experience holds important consumption values that are vital for consumers' choices and behaviours, including food quality and price values and other utilitarian values. The restaurant's facilities include lounge staff, service skills and hospitality knowledge. In respect to ordering, the process involves sending in food orders to chefs and pacing the delivery of courses through different drills in the lounge area (Ferdous & Mim, 2021). Fresh ingredients have the potential to enhance the food's core quality, leading to greater consumer satisfaction (Sharma, Arora & Kharub, 2021). The next section shall provide discussions relating to the grading system used in South Africa.

### **2.3 TOURISM GRADING IN SOUTH AFRICA**

Considering establishments, such as hotels, B&Bs, guest houses, MESE (Meetings, Exhibitions, and Special Events) and venues, The Tourism Grading Council of South Africa (TGCSA) is the country's only formally authorized quality assurance authority for tourism products (TGCSA, 2019). The TGCSA's primary goal is to ensure that a reliable quality assurance procedure is used throughout the whole range of travel accommodations and services in South Africa (Mothoagae, 2020). The TGCSA is the only recognised organisation that authorises accommodation establishments to display quality stars and offers a variety of tourism establishments, such as hotels, bed & breakfasts, game reserves, guest houses, lodges, caravan sites, camping areas, backpackers, and meeting spaces (TGCSA, 2019). By quality assuring these products, TGCSA helps these offerings meet globally benchmarked grading criteria. This not only ensures that the standards of South African accommodation products are on a par with global counterparts, but it also helps in maintaining a comprehensive and legal accommodation database in the country (Ministry of Tourism Republic of South Africa, 2023).

The different types of overnight accommodation establishments are graded according to a set of grading criteria that the TGCSA developed for the specific type of accommodation establishment (Ntsane, 2022). The star-grade insignia of the TGCSA is an adequate confirmation of the establishment's quality and service excellence that is communicated to the market. Grading requirements are the minimal conditions that travel-related businesses must fulfil to receive a star or diamond rating (Koutoulas &

Vagena, 2023). Furthermore, grading ensures that South Africa's tourism products, experiences and accommodation establishments deliver on the brand promise of welcoming visitors and guests (domestic and international) in a safe manner and by exceeding their expectations (National Department of Tourism, 2021). The evaluation criteria of grading encompass the tangible elements of service delivery, such as flooring, security features, and customer service, as well as intangible components like cleanliness and customer service (TGCSA, 2019). Tourist establishments utilise the star rating to classify and communicate their services to the customers (Tiwari & Omar, 2023). Star ratings, which range from one to five stars, are the most widely used symbols for accommodation classification in the world. Furthermore, star ratings serve as a means of informing consumers about the quality of the accommodation they have reserved, by using publicly available standards (Koutoulas & Vagena, 2023). A hotel star-rating system is provided to each hotel's individual property by the competent authority based on the types of services offered and the overall service quality, with higher ratings reflecting higher service standards (Nunkoo, 2020). According to Shabardina (2020), rating systems are ranking tools used in the lodging business that classify establishments based on an assessment of their amenities and services in accordance with predetermined criteria. At present, the international classification of hotels uses a five-star rating system: The lowest rating is one star, and the highest rating is five stars. The appearance of the building, the interior decoration, the equipment and facilities, and the management system of a hotel are usually used as the star-rating criteria. Therefore, hotels with a higher star rating are more luxurious than hotels with a lower star rating. Moreover, the higher star-rating hotels have better service quality. However, different countries have different national situations and cultures, and these star ratings are still based on individual national criteria (Cheng, Tsai & Chang, 2023; Tiwari & Omar, 2023). The most common star grading scale used by various countries, such as Kenya, South Africa, Italy, French, Spain and Germany is between one star and five stars (Koutoulas & Vagena, 2023).

South Africa updated its grading system in 2019 and added a 5-star premium category, as stated below (TGCSA, 2019):

1. One star: Fair to good quality of service and facilities. Fair to good (acceptable/modest) quality in overall standard of furnishings, service and guest care. The accommodation is tidy, warm and functional.
2. Two stars: Good quality overall. Good quality in overall standard of furnishings, services and attention to guests.
3. Three stars: Very good quality of service. Very good quality in overall standard in terms of furnishings, service and guest care.
4. Four stars: Excellent comfort and quality of service with high standard of furnishings. Superior (excellent) comfort and quality. High standard of furnishings, service and guest care.
5. Five stars: Exceptional service and luxurious furnishings.
6. Five-star premium: Premium service and luxurious accommodation. Exceptional quality and extravagant accommodation (compliant with international standards). Highest quality furniture, immaculate service, and meticulous guest care (SA-Venues, n.d.).

Hotels with a higher star rating usually have higher prices and guests need to consider the relationship between benefits and costs on a case-by-case basis. Guests have to consider that there are hotels with lower star ratings that have a good reputation and brand awareness (Vagena & Manoussakis, 2021). The TGCSA's grading criteria first became effective in 2002. The most recent revision was put into effect on April 1, 2019, and as a result, the grading system's criteria have been more consistently applied and adhere to strict quality standards and quantitative and qualitative core requirements (Ntsane, 2022). Grading standards were reevaluated, updated, and the TGCSA operating system was optimized, resulting in a more efficient operating experience (TGCSA, 2019). According to TGCSA (2019), the new grading system has presented some enhancements as described in Table 2.1. In accordance with universal best standards, the star grading levels of one to five stars have been expanded to include a five-star "premium" level. This category is retained for South Africa's highest opulent product offerings, permits great five-star properties to be recognised. Additionally, three new classifications have been created by TGCSA (2019) to accommodate small hotels, boutique hotels, and apartment hotels, taking worldwide best practice and industry demands into consideration. The final major change is the continuation of

the category formerly referred to as meetings, exhibitions, and special events centers (MESE). Below is a table with the enhancements made by the TGCSA (2019).

**Table 2.1 Enhancements made by the TGCSA (2019)**

| <b>Sub-category</b>                         | <b>Definition</b>                                                                                                                                                                                                                                 |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hotel Accommodation</b><br>Hotel         | A hotel is defined as an establishment that has at least 80 rooms and offers travellers accommodation with complete or partial services. A hotel offers a dining room in addition to a reception area.                                            |
| Small Hotel                                 | A small hotel can accommodate up to ten rooms and offer travellers either complete or partial services. A dining room is available in a small hotel along with a reception area.                                                                  |
| Apartment Hotel                             | An apartment hotel has at least ten rooms and offers travellers accommodation with either full or limited services. Every room has a dining area and kitchen.                                                                                     |
| Boutique Hotel                              | A boutique hotel offers travellers accommodation with complete or limited-service options. A boutique hotel features a dining area, reception area, and unique rooms.                                                                             |
| <b>Guest Accommodation</b><br>Country House | Accommodation offered in a home, a home that has been renovated, or a structure that has been specially built. consists of breakfast and dinner being served, as well as guest-only use public spaces. Situated in peaceful natural surroundings. |

|                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Guest House                                                                             | Accommodation is provided in a house, a renovated house, or a specially designed building. Breakfast is included, and public areas are reserved exclusively for guests.                                                                                                                                                                                                                  |
| Bed and Breakfast (B&B)                                                                 | Accommodation provided in a home where the host resides either on the property or in the house. Visitors share the open space. facilities (lounge, dining room, etc.) shared with the host. includes the serving of breakfast.                                                                                                                                                           |
| Self-Catering Accommodation<br><br>Self-Catering Exclusive<br>One or more exclusive use | Self-catering units with little to no shared common area.                                                                                                                                                                                                                                                                                                                                |
| Self-Catering Shared                                                                    | Multiple self-catering accommodation units on one property, with shared public amenities.<br>(At least one receptionist) and recreational facilities.                                                                                                                                                                                                                                    |
| Caravan and Camping<br><br>Caravan and Camping                                          | A caravan and/or camping facility allows guests to bring their own accommodation, such as tents, motor homes, and/or caravans. Public restrooms are always available. Communal kitchens, laundry rooms, recreational facilities and amenities, and so on may be available.<br><br>Self-catering accommodation units may be available on the property. A campground that allows caravans. |

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    |                                                                                                                                                                                                                                                                                                                                                                                                          |
| Campsite                           | A caravan and/or camping establishment allows guests to provide their own accommodation, such as tents, motor homes, and/or caravans. There is always access to communal restrooms. A communal kitchen, laundry, recreational facilities, and amenities, among other things, may be available. Self-catering units may be available on the property. It does not specify whether caravans are permitted. |
| Backpackers and Hostels            | An accommodation that offers shared and social amenities to visitors, such as private rooms or dorms. The only facilities that can be graded are those that serve travellers.                                                                                                                                                                                                                            |
| Game/ Nature lodge<br>Nature Lodge | A nature lodge, which also includes private nature reserves, is a type of official accommodation that is situated outside of a garden area and sometimes even far from populated areas. There is at least one activity or experience that is guided, such as a cultural or natural experience.                                                                                                           |

|                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                        | <p>According to the marketing materials of the establishment, there should be a reasonable chance that guests will see, experience, or view particular animal species or enjoy cultural events.</p>                                                                                                                                                                                                                                                                                                                                                                                   |
| <p>Game Lodge</p>                                      | <p>A game lodge is a type of residing facility that is typically situated far from populated areas and in more natural settings than just a garden area. There is at least one activity or experience that is guided, such as a cultural or natural experience.</p> <p>The establishment's marketing material indicates that there should be a reasonable chance for guests to see particular animal species or engage in cultural experiences.</p> <p>If a lodge is referred to as game lodge, animals that are available for guests to see must be free-ranging and unconfined.</p> |
| <p><b>VENUES</b></p> <p>In-Hotel Conference Centre</p> | <p>A hotel, small hotel, or apartment hotel with one or more venues that, when seated to the greatest extent possible, can hold fifty or more delegates.</p>                                                                                                                                                                                                                                                                                                                                                                                                                          |

|                                                                                          |                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Conference Centre</p> <p>Convention and Exhibition Centre rooms, boardrooms, etc.</p> | <p>A facility that offers a specific setting for gatherings, particularly those of a small to medium size. Meeting and breakout spaces are specifically designed to optimize efficiency.</p> <p>A spacious convention centre that usually offers a range of event spaces, such as halls, conference rooms, exhibition spaces, and auditoriums.</p> |
| <p>Events Venue</p>                                                                      | <p>a multipurpose indoor or outdoor venue that can be used for sports, concerts, religious, political, or other special events.</p>                                                                                                                                                                                                                |
| <p>Historical Venue</p> <p>Function Venue</p>                                            | <p>A historically significant structure or landmark—such as a gallery, city hall, museum, castle, theatre, country club, winery, stately home that has been modified to accommodate special events.</p> <p>An establishment that can accommodate smaller gatherings.</p>                                                                           |

Source (TGCSA, 2019)

Graded establishments receive advantages such as a larger customer base, increased profitability, and consequently, business survival. This is because tourists are likely to stay in a graded facilities where they can be assured of consistent and guaranteed quality (Mothowagae, 2020). Graded tourism establishments in South Africa have been permitted to be promoted on government agency websites, namely

TGCSA and the National Department of Tourism (NDT) (2021) (TGCSA 2019). This gives graded establishments a competitive edge as they are endorsed by the government, whereas non-graded establishments are considered informal and sometimes even illegal. In addition, established grading ensures that South Africa, as a tourist destination, achieves the highest level of quality assurance, promotes maximum value for money, and meets customers' expectations (TGCSA, 2019). This grading system makes significant contributions to the country's economic growth and development. The following section covers the contributions of the tourism and hospitality industry in detail.

## **2.4 CONTRIBUTIONS OF TOURISM AND HOSPITALITY FIRMS**

The tourism and hospitality industries are essential for their economic prosperity in many nations (Naseem 2021). The majority of countries have turned to the tourism industry in an attempt to boost their economies, perceiving that it helps to accomplish goals (Rasool, Maqbool & Tarique, 2021). Tourism operations possess an extensive effect on economic growth, which is commonly known as tourism-led growth (Naseem, 2021). Tourism is an economic activity that generates economic advantages such as economic growth and development, employment creation, poverty alleviation, competitive advantage and innovation (Rasethuntsa, 2021). The World Travel and Tourism Council (2023) adds that tourism is also a source of investment, which in turn serves as an economic advantage. South Africa has one of the most developed and largest tourism markets in Southern Africa (Dube, 2021). According to the World Economic Forum (2022), South Africa is ranked 68<sup>th</sup> in the top tourism destinations globally. The South African tourism sector is known for its diverse landscapes, wildlife, cultural heritage, and vibrant cities (Uppink & Soshkin, 2022). The industry is tied to the world's hospitality sector, which has a favourable impact on the country's GDP (Rasool, Maqbool, & Tarique, 2021). Through the tourism industry, many job opportunities are generated, which plays a great role in poverty reduction and socio-economic improvement and leads to economic growth and development (Rasool et al., 2021). Tourism and hospitality firms contribute significantly to the economy (Naushad, Absar, Shah & Mahnoor, 2020).

Following the downturn in the industry through Covid-19, the hospitality industry has experienced increased development and expanded diversification and is emerging as one of the industries with the fastest global growth. The tourism and hospitality sector have been considered as one of the main sectors in both the developed and developing countries. It plays an important role in job creation, poverty eradication, socio-economic development, in promoting gender equality and in the preservation and promotion of natural resources. Furthermore, it strengthens peaceful relations all over the world, leading to a continuous expansion and diversification that reveals it as one of the growing economic industries globally (Abdou, Hassan & El dief, 2020; ILO, 2022; Zhou, 2022 & Rojas-Méndez & Davies, 2023). With this view, this section examines the contributions of tourism and the hospitality industry to GDP, poverty, unemployment, a competitive advantage, and innovation in developed and developing countries.

#### **2.4.1 Contributions of hospitality firms to GDP**

Tourism is an economic activity that, like many other sectors, drives economic growth at the local, regional and national levels through demand, investment and employment. It also has a significant impact on foreign exchange and generates demand in other related sectors (Su et al., 2021; Brida et al., 2021). In the era of globalisation, tourism has acquired a prominent importance in the GDP of countries, becoming a leading sector in countries' economy (Gutiérrez, 2021; Sarmiento Castillo et al., 2022). GDP is regarded as an essential gauge of a nation's economic prosperity, and growth in GDP signifies that the economy is expanding (Statista, 2023). The effect of the Covid-19 pandemic highlighted the significance and beneficial role that travel and tourism play (OECD, 2020; WTTC, 2021). In 2020, the pandemic resulted in the loss of 62 million jobs globally, leading to only 271 million active labours in the travel and tourism sector. This represents an 18.6% reduction in employment throughout the entire industry, including small and medium-sized enterprises (SMEs), which account for approximately 80% of all worldwide businesses in the sector (WTTC, 2022). Travel and tourism's share of the US GDP rebounded by 23.1% in 2021, outperforming the average growth of 21.7% globally, following a sharp decline of 45.5% in 2020. The GDP contribution of travel and tourism grew from USD 1,447 billion in 2020 to USD 1,781 billion in 2021, expressed in absolute terms. In 2022, the travel and tourism sector contributed 7.6% to global GDP; an increase of 22% from 2021 and

only 23% below the 2019 levels (WWTC, 2023). This relatively strong recovery has helped the United States maintain its position as the region's economy with the highest contribution to GDP from travel and tourism (WTTC, 2022). The global GDP expanded by 3.4% in the second quarter of 2023 compared with a year earlier. The resilience reflected strong consumption amid tight labour markets in the USA and robust activity in economies with large travel and tourism sectors, such as Italy, Mexico, and Spain (International Monetary Fund [IMF], 2023). According to forecasts by the international tourism body, the sector will increase its GDP contribution to \$15.5 trillion by 2033, representing 11.6% of the global economy. The most recent Economic Impact Research (EIR) (2023) also shows that, with respect of GDP contribution, 34 of the 185 countries examined have since recovered to their levels prior to the epidemic. WTTC (2022) predicts that by the end of 2023, roughly fifty percent of the 185 countries will have either reached full recovery or be within 95% of full recovery compared to their pre-pandemic status. Tourism and travel accounted for USD 7.7 trillion of the world economy in 2022. An estimated USD 9.5 trillion was predicted to be reached in 2023, which would be 5% less than the levels prior to the pandemic. When considering the total GDP contribution of travel and tourism in 2022, the United States and China were by far the largest travel markets. Germany, the United Kingdom, and Japan followed in the ranking (Statista, 2023). The Economic Impact Research (EIR) and the World Travel & Tourism Council (WTTC) (2023), reveals that the travel and tourism industry in the European Union (EU) was expected to reach 98% of its peak in 2019. The global tourism body projects that by 2033, the industry will contribute nearly €1.9 trillion to GDP, accounting for over 10% of the EU's GDP. The industry is expected to employ over 26.3 million people regionally, with one in eight EU citizens employed in the sector (WTTU, 2023). In 2022, travel and tourism contributed 5.9% to Africa's GDP, up from 4.4% in the previous year. During the period in review, 2019 recorded the highest contribution, 7%, while travel and tourism was forecast to contribute 6.5% of the continent's GDP in 2023 (Statista, 2023).

Globally, the travel and tourism industry is developing and recuperating from the Covid-19 pandemic. The majority of regions have seen improvements in tourism following prior declines in arrivals and expenditure (The United Nations World Tourism Organisation (UNWTO), 2023). With the Middle East and Europe leading the way, tourism arrivals reached 900 million worldwide in 2022 (UNWTO, 2023). The UNWTO

(2023) anticipated the tourism sector's arrivals to regain between 80% and 95% of their pre-Covid-19 status across all regions. Travel and tourism's contribution to the region's GDP is predicted to rise 4.1% above its pre-pandemic level in 2024, surpassing the performance of the sector in 2019 (WTTC, 2022). Asia-Pacific was predicted to be the first region to revert to the 2019 scenario in 2023, with all other regions expected to recover completely by 2024. The number of tourists in EU countries is steadily increasing and tourism contributes tremendously to the country's GDP (WTTC, 2021).

During the first 11 months of 2023, South Africa welcomed 5.8 million visitors from the rest of the African continent, which marked a significant 75.5% of all arrivals, compared to the same period in 2022. Within the African region, Zimbabwe and Kenya stood out for their remarkable growth of tourism. Zimbabwe saw an exceptional 77,5% increase in tourist arrivals, totalling 1.9 million, while Kenya recorded a 94,2% surge, reaching 37,414 arrivals for January to November 2023 compared to the same period in 2022 (StatsSA, 2023). This last official release of statistics for the months of January to November 2023 demonstrates the growing movement of the country's tourism industry. Then Tourism Minister, Minister Patricia De Lille on the launch of tourism month (2023) reported that the travel and tourism sector contributed nearly 3.2% to South Africa's GDP in 2021, surpassing agriculture, utilities, and construction, and she believed that the future for tourism looked even brighter. Over the next ten years, South Africa's travel and tourism sector's GDP will propel the country's economic recovery (WTTC, 2022). As stated in WTTC's Economic Impact Report (EIR), the travel and tourism industry in South Africa is expected to expand at an average annual rate of 7.6% over the next ten years, significantly exceeding the 1.8% growth rate predicted for the nation's overall economy (EIR, 2022; Meyer & Rheeders, 2023). The industry could contribute more than R554.6 billion to GDP by 2032 (7.4% of the total economy), bringing in close to R287 billion for the country's funds. WTTC forecasts that the sector will add over 800,000 jobs over the next ten years, reaching over 1.9 million by 2032 (South African Government, 2023). The World Travel and Tourism Council (WTTC, 2022) suggests that South Africa could benefit economically from the tourism industry.

#### **2.4.2 Contribution of hospitality firms to poverty alleviation**

The relationship between the hospitality sector's development and poverty reduction has attracted a considerable amount of attention in recent years (Odhiambo, 2021). Hospitality development has not only been viewed as an engine for economic growth, but it has also been viewed as a tool for alleviating poverty and improving people's livelihood. The hospitality industry helps to alleviate poverty through increased income to many families, skills development, and infrastructure development (Jani & Magai, 2022; Pan, Wang & Ryan, 2021). Previous studies have shown that the hospitality industry translates to poverty reduction through several additional channels, such as tax, an influence on pricing and risk reduction. The income channel enables poor households to earn an income from participation in tourism activities, either directly, indirectly, or both, which enables the poor to become employable in the hospitality-related sector. Tourism directly alleviates poverty by lowering the employment threshold and providing jobs, driving the development of relevant industries, increasing the income of the poor and improving transportation conditions (Hong-Min, Xiao, Tong & Fan, 2021; Nicholas & Odhiambo, 2021; Odhiambo, 2021). The poverty reduction effect of tourism is affected by the diversity of local tourism resources, initial facilities, service levels, consumption capacity, and other factors, showing apparent spatial heterogeneity (Qin & Zhang, 2022). Experiential research indicates that one of the most important ways for impoverished areas to escape the cycle of poverty is through tourism-based poverty alleviation. It is also a model of regional development that propels impoverished areas with superior tourism resources to grow economically and flourish (Yang, Wu, Wang, Wan & Wu, 2021). It is necessary to expand leisure agriculture, rural tourism, and other characteristic industries. It is equally important to consolidate and enhance the achievements of poverty alleviation, improve the overall development level of poverty alleviation areas, and realise the effective connection between consolidating and expanding the achievements of poverty alleviation and rural revitalisation (Wang, Du, Tian, Liu & Zhang, 2023; Zhang, Wang & Yang, 2023). Lagos and Wang (2023) attest that internationally, tourism provides more domestic jobs and opportunities for people with different backgrounds and businesses of different sizes. Employing tourism as a tool for reducing poverty and the enhancement of urban economic growth may be altered by many factors. These include targeted programmes and policies for tourism, funding aids, tourism education, a proper and effective tourism policy, and access to credit facilities (Fikire, Bires & Emeru, 2022).

An increase in international tourism will result in an increase in per capita household consumption and ultimately, reduce poverty (Xiao, Ullah, Fu & Zhang, 2023). Tourism requires less infrastructure and technology than manufacturing; thus, many developing countries have expressed enthusiasm about fostering the tourism industry. Scholars recently advocated that governments in developing countries promote tourism to increase human development and sustainable development (Sharma, Mohapatra & Giri, 2021). This helps to alleviate poverty since this sector has a huge multiplier effect in terms of increasing foreign exchange, job creation and promoting tourism-related supply industries (Shah, 2023). Tourism has had economic impacts in the Southern African rural communities for the past decades, though at varying degrees. Notably, it has created employment opportunities for the rural population, who never thought they would become employed at any formal organisation. Some have noted that the money earned through direct employment enables them to buy assets and meet essential household obligations, resulting in poverty alleviation (Fikire, Bires & Emeru, 2022). Communities in the area now have the chance to launch small businesses because of tourism. According to Woyo and Musavengane (2023), the majority of individuals engaged in entrepreneurial pursuits offer souvenirs for sale at curio shops located within or close to the conservation areas. Tourism has become the backbone of poverty alleviation because it combines the excellent tourism resource endowment of poor areas and meets people's consumption needs (Liu, Lu, Mao, Sun, Li, Lu & 2021). A study by Çolak, Kiper and Kingir (2023) reveals that tourism reduces poverty through increased employment. The tourism sector is very diverse in terms of its structure and has the potential to support other economic activities. It is a labour-intensive industry and thus, creates many jobs. It enables local entrepreneurs to earn a livelihood and provides opportunities for a large number of women and young individuals who represent a high percentage of the poor. The tourism industry recognises the value of the environment in terms of social, physical and economic aspects and increases the sense of ownership, and it creates the infrastructure and superstructure areas required for the realisation of tourism, thereby creating opportunities for poor people to find income solutions (Çolak et al., 2023).

Woyo and Musavengane (2023) reveal that tourism in countries such as Botswana, Namibia, South Africa, and Zimbabwe, has been beneficial in assisting the poor with

income, employment, food, entrepreneurship, capacity building and other social benefits. With a well-designed tourism poverty alleviation policy, the challenges of the rural poor communities can be dealt with. One key element of tourism is giving locals jobs and integrating them into the value chain through outsourced work, which essentially amounts to micro-entrepreneurship and thereby contributes to reduction of poverty (Khizar, Younas, Kumar, Akbar & Poulouva, 2023). Participating in the tourism sector in South Africa enhances rural communities' standard of living by distributing the industry's benefits. As a result, people are deterred from leaving the rural areas and are encouraged to take advantage of the resources available there to support themselves (Toerien, 2020.; Rogerson, & Sixaba, 2022). Mbaiwa (2021) asserts that wildlife-based tourism is a significant economic sector that promotes rural and community development in many African nations, including South Africa. It provides for and improves the welfare of those who live close to the popular tourist spots with abundant biodiversity, many of which are in isolated and remote areas (Rogerson & Sixaba, 2022). Tourism in South Africa provides job creation prospects for the local workforce, minimizing unemployment and increasing income. In the tourism sector, job opportunities range from positions in the hospitality and service industry to positions as local tour guides or rangers, artisans, and cultural performers. Tourism development often leads to infrastructure improvements, including roads, airports, accommodation, and public facilities, which enhance accessibility and the overall quality of life for residents and visitors (Chiwawa & Wissink, 2023). One of the goals of tourism is to improve the social well-being of the communities. The availability of social services within communities alleviates the hardships that are common in South African rural areas. Thus, social service provision directly alleviates poverty (Makwindi & Ndlovu, 2021; Woyo & Musavengane, 2023).

#### **2.4.3 Contributions of hospitality firms to employment**

Employment in tourism is seen as a strategic alternative that involves long-term considerations of the hospitality labour market and human resource development. Jobs created or maintained within the tourism and hospitality industries can help counteract economic decline and contribute to economic development (Cheng, Gao, Saliba & Dorduncu, 2021; Haller, Butnaru, Tacu Harsan & Stefanica, 2021). The tourism and hospitality industry creates numerous employment prospects in different other industries, such as transportation and attraction sites. Any plan or program for

tourism development must have access to skilled and trained labour in order to be successful (Sucheran, 2021). Tourism is labour intensive; hence, it provides many jobs for skilled and unskilled labour, as well as for other cohorts, who have difficulty in finding employment (Sun, Li, Lazin, Malik & Pomponi, 2022). Tourism's global employment level in 2022 was 9.0%, which is close to the creation of 300 million jobs, and it is estimated to be 11.8% in 2033. The sector's significance magnifies as it empowers small and medium-sized enterprises, with over 80% of travel and tourism businesses falling into this category. It also plays a pivotal role in employing women, youth, migrants, and informal workers, thereby contributing significantly to economic opportunities (World Economic Forum, 2024). From 2022 to 2032, the standard annual growth rate in travel and tourism is expected to reach 5.8%, surpassing the average annual growth rate of 2.7% predicted for the global economy (WTTC, 2022; WTTC, 2023). The WTTC has urged for action to enhance the travel and tourism industry in the EU. They aim to maximise its potential to contribute €1.9 trillion to the EU economy by 2033. WTTC forecasts that by 2033, the travel and tourism sector will reach this ground-breaking figure, equivalent to one in €10 in the EU's economy. The Economic Impact Research (EIR) from WTTC also forecasts that the sector will support the creation of almost 4 million more new jobs by 2033, to reach 26.4 million, one in eight jobs across the EU (WTTC, 2024). Research by WTTC (2024) consistently demonstrates that the more seamless a traveller's journey can be, the more this leads to increased economic growth, jobs and inbound tourism. Tourism is also a major driver of global connectivity in an era of rising geopolitical tensions and conflict, as globalisation appears to be slowing. The role of it in mitigating socio-economic risks will only grow in the coming decade, with the WTTC forecasting that the travel and tourism sector's GDP should grow at nearly double the rate of the broader global economy in the 10 years to 2033, creating more than 100 million new jobs (World Economic Forum, 2024).

The World Travel & Tourism Council (2023) highlights the crucial contribution of women to the travel and tourism industry worldwide. WTTC figures show that women represent a considerable share of the industry's workforce, making up almost 40% of total employment. Moreover, the WTTC's data points out that female participation in the travel and tourism workforce exceeds the global average in other sectors. Particularly in regions such as the Americas, women occupy a higher percentage of

the industry's jobs compared to their overall participation in the workforce (Travel and Tour World, 2024). The global travel and tourism sector is projected to create 126 million additional jobs between 2022 and 2033 (WTTC, 2022). A significant portion of these new employment will be based in China (25.5%), India (20.4%), and the Asia-Pacific region (64.8%). The travel and tourism industry's contribution to the region's GDP is predicted to rise 4.1% above its pre-pandemic level in 2024, surpassing the performance of the sector in 2019 (WTTC, 2022). In 2023, the industry is expected to contribute €1.44 trillion to the economy, which is very near to the pre-pandemic high of €1.47 trillion in 2019. Additionally, WTTC had projected that the travel and tourism industry would generate over 687,000 new jobs by 2023, making up nearly 90% of the jobs that were lost as a result of the Covid-19 pandemic and reaching over 22.4 million, with one in nine workers in the EU employed in this industry. Travel and tourism is a key economic growth sector and driver of jobs in the EU, where its importance is recognised in many countries, such as Germany, Italy, Spain and France (WTTC, 2023). In the longer term, the GDP of travel and tourism is anticipated to increase at an average annual rate of 8.5% in Asia-Pacific between 2022 and 2032, while the regional economy is expected to increase at a rate of 4%. Furthermore, this estimate exceeds the 5.8% growth rate for the travel and tourism industry worldwide. Based on estimates, the industry will generate 76.9 million new jobs in the same period, accounting for 64.8% of all new jobs related to travel and tourism worldwide (WTTC, 2023). Between 2022 and 2032, the sector's involvement to the Middle Eastern economies is expected to increase at an average annual rate of 7.7%, compared to an estimated 2.5% growth in total regional economic output. Saudi Arabia is expected to have the highest average annual growth in the region over the next ten years, at 11%. Travel and tourism will generate 3.6 million new jobs by the end of 2032, up from 2022 (WTTC, 2022). The growth of travel and tourism's involvement to African GDP was projected to decline to 20.5% in 2022, and it is projected to return to the 2019 levels in 2024. The sector is expected to grow at an average annual rate of 6.8% over the next decade, surpassing the overall regional economy's estimated growth of 3.3%. It is also predicted to generate 14 million new jobs in the region by 2032 (WTTC, 2022).

The travel and tourism sector in South Africa is important as it contributes toward the attainment of critical socio-economic development outcomes, including the provision of employment to individuals of varying skills levels, women and rural communities

and ensuring the geographic spread of economic benefits (National Department of Tourism, 2023). Jobs created or maintained within the tourism industries can help counteract economic decline and contribute to employment and economic growth (Ferrari et al., 2022). In 2021, there were close to 1.08 million jobs in the travel and tourism sector in South Africa. This was a growth of 1.9% compared to the prior year, when the sector contributed approximately 1.06 million jobs. The loss of jobs in the previous year can be associated with the results of the Covid-19 pandemic (StatsSA, 2024). The first and second quarter South African Performance Report for 2022/23 from the Department of Tourism workshop reported that in the first quarter, the department achieved 82% of its targets and in the second quarter, it achieved 78%. At the conference, the department was commended for achieving a 40% spend on women-owned businesses. However, there was concern that this percentage had remained stagnant for quite some time. The significant role of women was also highlighted, especially in rural areas, where they are often employed in small and medium-sized enterprises and income-generating tourism projects. Referring to the work opportunities created, the commendable cumulative total was acknowledged, but questions were raised as to why the department was able to secure only 475 work opportunities in the second quarter (National Council of Provinces Committee Trade & Industry, Economic Development, Small Business, Tourism, Employment & Labour, 2023). South Africa experienced a large inflow of tourists between January and September 2023, with over 6,1 million visitors, 58.4% more than the 3.8 million arrivals during the same period in 2022. African travellers accounted for 4.6 million of all arrivals to South Africa during this time, with a 60% increase in land arrivals and a 35% increase in air arrivals. From January to September 2023, South Africa received over 862, 000 European visitors, a 50.9% increase from 571 000 arrivals in the same period in 2022. In the first nine months of 2023, over 148,000 visitors from Asia came to visit, representing an 82.6% rise over the 81 000 arrivals during the same period in 2022. Notably, compared to 2022, China's visitors in South Africa rose by 247% in 2023 (National Department of Tourism, 2023). The increase in tourists raise the demand for goods and services from businesses, which lowers poverty, creates jobs and increase revenue (Truyols, 2023).

#### **2.4.4 Contributions of hospitality firms to competitive advantage and innovation**

The competitiveness of the tourism sector in each country determines the strength of its activities, its capacity to attract flows of visitors, and ultimately, its ability to generate wealth. Therefore, the degree of different countries' competitiveness is key to the growth in the tourism industry (Guaita, Martín & Salinas, 2020; Worldbank, 2022). The past Covid-19 pandemic widened the gap between nations, while all developed better tactics for surviving and remaining competitive. Tourism competitiveness refers to the ability of destinations to be more attractive and satisfying the potential tourists' demands. It is the ability of tourist destinations to maintain market position, share and keep improving it in the long term (Wardhani & Widodo, 2020). The attractiveness and satisfaction with the destination, economic dimensions, dimensions related to the well-being of the local population, and sustainability are considered when evaluating a firm's competitiveness in the hospitality industry. Whereas it is important to consider most effective techniques to increase competitiveness, it is also crucial to pinpoint the factors that promote it (De Castro, Fernández, Guaita & Martn, 2020). The academic literature has identified numerous factors that influence competitiveness, such as basic resources and attractions, culture and the historical-artistic heritage, geography, leisure events, tourism destination accessibility, transport and accommodation infrastructures, services for tourists, strategic management of the destination, human resources, service quality, marketing policies, religious matters, language, and many more (Fernández, Martínez & Martín, 2022). A hospitality firm has to develop specialised innovative skills and strategic resources that produce higher customer satisfaction to gain a competitive advantage (Nikolskaya, 2020).

Digitisation has become a strong enabler of business in tourism and hospitality. For years, the sector has increasingly incorporated digital technologies and made the necessary investments to support this growth. Digitisation has enabled the sector to enhance its offering to consumers and its opportunities for employees (WTTC, 2023; Amrullah, Kaltum, Sondari & Pranita, 2023). The Ministry of Tourism and Creative Economy of the Republic of Indonesia stated that 63% of travelling activities are currently searched for, ordered, and sold online and 50% of online travel sales use more than one gadget. This is very important, especially considering that total number of online users increased globally by 4% in 2022, with 62.5% of the world's total population being active internet users (Serang, 2020; Global Overview Report, 2022;

WTTC, 2023). Digitisation is an innovative approach that is becoming increasingly important for business growth and for firms becoming competitive in the tourism sector. Tourism firms in China provide many rich landing and application scenarios for technological innovation, involving the whole economic and social development of food, accommodation, transportation, tourism, shopping, and entertainment. The penetration of information is empowering the tourism industry with full-scene, multi-temporal, and high-frequency characteristics. Technological innovation is increasingly playing a key part in improving the competitiveness of tourism organisations and place of visit, and continues to shape the tourism market (Velea, Udristioiu & Gallo, 2022; Zimeng, Wei, Qiuxia & Xiaoting, 2023). According to Zimeng, Wei, Qiuxia and Xiaoting (2023) information technology is revolutionising the distribution channels, lowering entry barriers, boosting price transparency and competition, optimising costs, and boosting productivity in the tourism sector. Innovation is a tool for competitiveness, environmental sustainability, and economic success. Given how quickly rivals can imitate winning concepts, innovation in the tourism industry is significant as it gives destinations a sustainable edge over the others (Giotis & Papadionysiou, 2022). Hospitality firms hold an essential position in enhancing their competitive advantage by directing human resources toward innovation, which leads to increased differentiation in the products and services provided and thus makes a firm more advanced than its competitors (Marchiori et al., 2022; Okun, 2022). By enhancing the production procedures and eliminating waste, hospitality firms offer goods and services at lower rates than those of various competitors, resulting in a competitive advantage (Wang, 2022).

A key source of competitive advantage and survival in South Africa's dynamic, competitive hospitality industry is the ability to innovate (Senbeto & Hon, 2020). Tourism businesses have been observed to be highly innovative, and they are also expected to engage in innovation strategies to survive the industry's intense competition. The adoption of innovative strategies gives firms the much-needed competitive advantage (Chipunza, 2020). The tourism sector provides opportunities for developing countries like South Africa to create productive and inclusive jobs, grow innovative firms, finance the conservation of natural and cultural assets, and increase economic empowerment, especially for women, who comprise the majority of the tourism sector's workforce (World Bank, 2021). The following aspects are taken into

account when analysing tourism's competitiveness and, consequently, when evaluating a country's position: Economic aspects, features associated to the welfare of the local population, sustainability, and aspects of destination appeal and satisfaction (Fernández, Martínez & Martín, 2022). Hotels in South Africa are adopting technology at a faster pace in order to satisfy the industry's customer-driven demand. However, the hospitality sector was severely impacted by the Covid-19 pandemic. On the other hand, this promoted technological advancement and introspection in the business world. Hotels are now introducing technological innovations that are revolutionising the guest experience. There are significant advantages and cost savings associated with specific technologies in the hospitality sector and the most significant developments in this market are unquestionably the use of advanced near-field communication technologies, infrared technologies, and robots (Mordor Intelligence Industry Reports, 2024).

A competitive advantage can arise from tourism, which encompasses elements, such as climate, landscape, minerals, history, music, artwork, and special events. In addition, the wide range of outdoor and nature-based activities in South Africa makes the country's climate (weather) a major attraction for travellers. Travellers often base their decisions about where to travel to on the local weather (Cronjéa & du Plessis, 2021). South African hospitality businesses operate in a dynamic environment that is distinguished by fierce competition and innovation (Chipunza, 2020; Senbeto & Hon, 2020). According to Bigne, Amaro and Palomo (2020), competition in numerous hospitality firms brings about service innovation that results in customer satisfaction; therefore, innovation has transformed into a significant assertion in responding to the varying worldwide tourist and traveller expectations and is implemented in most hospitality businesses. In essence, by attracting international tourists, tourism contributes to generating foreign exchange earnings that generate employment, reduce poverty, contribute to the economy's GDP and create a competitive advantage and innovation. Despite its several contributions, the hospitality and tourism sector still faces several challenges. The next section will discuss in-depth the challenges faced by hospitality firms and the whole hospitality and tourism sector.

## **2.5 CHALLENGES FACED BY THE HOPITALITY AND TOURISM INDUSTRY**

The efficient management of hospitality and tourism facilities is made difficult or impossible by challenges the whole industry faces. Some of these challenges include natural disasters and crises, insecurity, tourism insecurity, poor infrastructure and wildlife poaching (Kariru, 2023).

### **2.5.1 Natural disasters and crises**

Natural disasters are harmful events occurring in nature that are mostly beyond human control. Natural disasters, such as earthquakes, hurricanes and tsunamis, cyclones, diseases/pandemics, drought or flooding, volcanic eruptions, or bushfires pose a particular threat to tourism (Praveen & Rajesh, 2021). Natural disasters have historically been caused by both human activity and changes in the environment. Regardless of the cause, once they occur, the effects of natural disasters on human productivity and business operations are immense. The tourism industry is particularly vulnerable to natural disasters because of its heavy reliance on natural resources. Natural disasters frequently cause destruction to travel destinations, access roads and traveller traffic, and individual traveller intentions, resulting in an immense negative effect on the management of travel-related businesses (Chen et al., 2022). These disasters cause severe physical and economic damage, as well as rapid declines in tourism demand and the collapse of tourism-related industries (Zhang, Seyler, Di, Wang & Tang, 2021). The impacts are more severe in mountainous and coastal regions, given their topographies and higher economic reliance on tourism (Fountain & Cradock-Henry, 2020). The repercussions of natural disasters have significantly increased in recent years. This can be attributed to the escalating effects of climate change, as well as the growing complexity of socio-ecological systems in an increasingly interconnected and globalised world (Rosselló, Becken & Santana-Gallego, 2020).

Natural disasters not only inflict immediate harm to communities, but they also set off a series of long-term issues. These issues could include years of reconstruction, home displacement, job losses, crop damage or losses, mental health difficulties, and unstable finances (Messina, 2022). Studies indicate that the global frequency and severity of natural disasters, as well as the extent of the harm they cause, have

increased due to a combination of elements comprising urbanisation, industrialisation, and climate change (Rosselló et al., 2020). Crises in tourism include a small or large-scale incident that interferes with a smoothly running business and has unidentified causes and consequences that will affect the tourism industry's stability (Casal-Ribeiro, Boavida-Portugal, Peres & Seabra, 2023). Numerous crisis events, such as terrorist attacks, wars, disease outbreaks, and threats to food safety and biosafety, have recently affected global tourism. Additionally, as a result of the globalisation of tourism and industrial development, crises are being experienced more extensively, making it almost certain that any destination that attracts tourists will at some point in the future experience a disaster of some kind (Duan, Xie & Morrison, 2022). Natural disasters are unpredictable and unforeseen events, whereas crises are characterised as predictable, if unexpected, events (Çakar, 2021).

The study conducted by Rossello (2020) reveals that tsunamis, floods and volcano eruptions constituted substantial negative motivators for prospective visitors, while wildfires, earthquakes, industrial accidents, and storms presented mixed effects on arrivals. In Spain, the Cumbre Vieja volcano erupted on 19 September 2021 lasting until the middle of December 2021. During the 85 days it was erupting, the volcano emitted daily between 600 and 11,000 tonnes of sulfuric dioxide (Leoni & Boto-García, 2023). Despite this, the airport at La Palma, Spain, remained operational for 90% of the volcanic eruption time. The eruption resulted in significant environmental pollution and extensive damages worth approximately €842 million (Gobierno de España, 2022). The frequent occurrences of natural disasters have caused numerous fatalities and economic tolls. Earthquakes, floods, epidemics, and other natural disasters have disastrous impacts on human life, disrupting normal socio-economic activities (Chen, Xu, Wang & Škare, 2022). For instance, in 2020, the hospitality and tourism sector suffered losses because of the Covid-19 pandemic. The outbreak led to a drop in business turnover and profits, a decrease in government tax revenues, a decrease in the number of customers, a decline in staff numbers, with layoffs resulting from a decrease in tourist arrivals, and a reluctance on the part of domestic and foreign entrepreneurs to invest (Jyoti & Mishra, 2022). Effects of the pandemic on tourism and hospitality in India led to higher unemployment rates. The potential job loss in India's tourism and hospitality sector has been estimated at 38 million, which is 70% of the industry's workforce (Radhakrishna, 2020; Kaushal & Srivastava, 2021).

According to the Kenya Private Sector Alliance (KEPSA), the Covid-19 pandemic had an impact on Kenya's domestic and international tourism source markets, resulting in a decrease in tourist arrivals (KEPSA, 2020). In March 2020, food service establishments, including restaurants, were urged to limit their offerings to deliveries and takeout, and hospitality facilities across the nation were compelled to cease operations (Standard Newspaper Kenya, 2020). Travel for business purposes, including conferences (KEPSA, 2020) and events such as weddings, funerals, and festivals, were prohibited and cancelled (Jyoti & Mishra, 2022).

In South Africa, the pandemic not only disrupted the tourism sector itself, but also had a negative spill-over effect on the entire South African economy, particularly on South Africa's economic growth trajectory expressed by the GDP. The effect of the pandemic was unexpected and underestimated in the beginning. The sector had a great decrease in the number of tourists with the volume of tourists dropping by 72.6% from 10,228,593 in 2019 to 2,802,320 in 2020 and declining by 19.5% between 2020 and 2021 (De Lille, 2023; Redda & Surujlal, 2023). This happened as South Africa implemented one of the strictest lockdown restrictions during the pandemic. The travel restrictions, lockdowns, and fears of infection led to a dramatic decline in both international and domestic tourism, which impacted tourism income (Redda, 2022; Redda & Surujlal, 2023). This caused a significant decline in South Africa's international tourist arrivals and foreign earnings, loss of jobs and cessation of employment creation and devastated local economies, which substantially depend on tourism (Kourentzes, Saayman, Jean-Pierre, Provenzano, Sahli, Seetaram & Volo; Liu, Vici, Ramos, Giannoni & Blake, 2021). To better respond to these occurrences when they arise, it is crucial for the sector and its stakeholders to identify and comprehend the geographical distribution of crises that can affect tourism. The prevention of natural disasters, wherever possible, is important, while natural disasters are uncertain as to when and where they will occur, and they are often inevitable.

### **2.5.2 Insecurity**

Insecurity is a major challenge in the hospitality and tourism industry. Insecurity in hospitality and tourism could be in the form of crime, terrorism, war, and corruption. Robberies, hijackings, human trafficking, drugs, online fraud, corruption and bribery are crimes that pose threats to the industry (Kariru, 2023). Insecurity incidents are defined as those that result in tourists suffering harm from the deliberate actions of others (Senoamadi, 2022). The insecurity challenge keeps taking on new dimensions and has posed as a threat to the development of businesses, especially those in the tourism and hospitality sector. This then results in people being scared to travel to South African destinations and 'even residents flee for their safety' (Ajayi, Ojo, Jimoh & Chinansa, 2022). Security concerns influence travel decisions on an individual basis, as well as on a larger scale through their impact on political and economic confidence. These factors then impact the broader context in which the tourism industry functions and the perception of whether specific destinations are safe to travel to or not (Senomadi, 2022).

According to Cró, De Lurdes Calisto, Martins and Simões (2020), tourists are rational consumers of tourism services. Consequently, the most crucial consideration when planning a trip is their assessment of the risks, particularly those pertaining to security (Fourie, Rosselló-Nadal & Santana-Gallego, 2020). Specifically, inadequate crime prevention prevents many nations from developing their tourism industries, in spite of their potential for cultural and environmental benefits. A location's likelihood of being visited rises with guaranteed security, which, in turn, affects how competitive the tourism industry is (Shchokin, Maziychuk & Tymoshenko, 2023). In the tourism industry, crime is an action that violates written or case laws in the nation that generates the tourists. Crime is an adverse externality of tourism that arises from three main factors: motivated offenders, appropriate targets, and inadequate protection against violations (Zhang & Xiang, 2021). Over time, tourism has grown, giving criminals more freedom to move around and create novel prospects for criminal activities and businesses (Norio, 2021). Nevertheless, rising crime rates have a detrimental effect on the travel and tourism sector since travellers avoid risky destinations due to illegal immigration, drug smuggling, terrorist attacks, and other crimes (Shchokin, 2023). Tourists are more likely to suffer from crime than are local residents, and citizens are relatively more likely to experience crime when on vacation

than when at home. This association is especially evident with property crime, in particular, burglary (theft) from tourist accommodation (Vakhitova, Mawby, Helps & Alston-Knox, 2023).

High levels of crime are an ongoing concern in South Africa. This concerns centres both on visitors' safety and its perceived adverse impacts on the continued growth and development of tourism as a main growth sector (Chaturuka et al., 2020; Mulamaba, 2021). Studies reveal that crime leads to immediate costs to residents, tourists and the host country, and may also imperil the destination's image with a potential to deter future first time and return visits (Recher & Rubil, 2020). An increase in crime is making travellers wary of travelling to or visiting the perceived dangerous places (Linda & Nzama, 2020). Murder, rape and assault committed against tourists often make international media headlines as tourists' fear of crime may be derived from various sources, such as the media, word-of-mouth comments spreading quickly when travellers depart the nation (Malleka, Booyens & Hoogendoorn, 2022). South Africa remains a popular destination for travellers due to pull factors, such as great value for money (against all major currencies), wine farms, heritage and culture, edu-tourism, health tourism, community-based tourism, and eco-tourism. Nonetheless, the possibility of unfavourable opinions caused by negative and crime-related incidents deters prospective travellers from visiting South Africa. These perceptions include perceived potential health problems, as well as the danger of safety from crime and unstable political environments (Linda & Nzama, 2020).

A war is an armed hostile conflict between two or more states or nations that is typically declared and open (Webster, 2023; Brake & Razum, 2024). Effects of different insecurity threats, such as terrorism and war, tend to slow growth in the travel and tourism service sectors (Akamavi, Ibrahim & Swaray, 2023). For instance, UNWTO (2022) reports that a prolonged conflict between Russia and Ukraine could translate into a loss of US\$14 billion in tourism receipts globally in 2022. Furthermore, Koch (2022) contends that the Russian war on Ukraine had a global ripple effect across travellers, travel agencies, airlines, and cruise operators. War has devastating consequences not only on tourism but on humanity, regarding the loss of lives and livelihoods. For instance, terrorist activities have had a substantial effect on tourism in Pakistan. The international community viewed Pakistan as unsafe following 9/11 due

to an increase in terrorist activity. Pakistan's tourism industry and the economy grew slowly in the face of regular bombings, targeted killings, drone attacks, and carnage. Due to Pakistan's problems with law and order, visitors from all over the world were reluctant to travel to Pakistan (Baker, 2020; Khan, Ali, Zada, Saeed, & Zada, 2022). The same dilemma can be found in other war-torn regions and countries, such as Ukraine, Yemen, Gaza/Israel, the DRC and others. The tourism sector is forced to focus its efforts on increasing awareness of the hazards, potential physical dangers and risks that travellers may encounter when embarking on their travels in such countries as protection and security are the most significant elements of tourism.

### **2.5.3 Tourism seasonality**

Many tourist destinations experience seasonal swings. Tourism seasonality describes how demand and supply in the travel industry fluctuate because of people temporarily moving due to various factors, including the weather, public holidays, and school and climate conditions (Kariru, 2023). The cyclical fluctuations in the demand for travel-related goods are known as seasonality. Seasonality is acknowledged as a significant obstacle for the hospitality industry and has been identified as the cause of a great deal of the problems the sector faces (Khairy, Elzek, Saeed & Hashad, 2023). Xie and Tveteraas (2020) define seasonality as the variations in demand caused by institutional and climatic factors, as well as other factors, such as business cycles, travel expenses, and socio-demographic traits, on a regular time horizon and at regular frequencies. Seasonal variations in traveller demand tend to negatively impact hotels' financial and operational performance, which, in turn, weakens the competitive edge and efficiency. The hotels situated within a specific tourist destination can run a higher risk of going out of business if there is a significant variation in occupancy rates (Zhang & Xie, 2023).

Seasonality is also significantly influenced by the age of visitors, their reasons for travelling, and social trends for a given tourism destination. The nature, location, reception level, special events, tourism resources, and destination types are the dominant factors shaping the distribution pattern of tourist flow in the time series (Vergori & Arima, 2020; Qiang, 2020; Wu, Hu & Zhang, 2020; Zhang 2022). Nearly every travel destination in the world has to deal with a seasonal influx of tourists. The locations that are most affected by seasonality are plagued by an

inefficient use of resources during 'off-season' times, a near-broken supply chain, and staff unemployment during the off-season travel period. During the peak season, travellers experience price hikes and a drop in service quality, which lowers their satisfaction (Zhang, Yu, Miao, Li & Qiao, 2022). An overabundance of tourists can quickly lead to environmental issues like, such as inefficient waste management, ecological degradation, and problems with water supply. The local residents' well-being also declines due to traffic congestion and rising living costs during the high-season periods (Caponi, 2022; Zhang et al., 2022). The characteristics of tourism seasonality create many negative side-effects for tourism destinations. From an economic perspective, fluctuations in visitor numbers result in wasteful use of fixed assets, wasteful tourism investments, and erratic employment in the tourism industry. On the ecological side, the temporal polarisation of tourism flows results in spatial polarisation, whereby the peak season's tourist influx surpasses the carrying capacity of the local ecological environment, leading to various consequences, such as traffic congestion and ecological degradation (Su et al., 2022). Regarding community progress, the busiest time of year results in higher costs and more tourists using the public resources available, which can lower the standard of living for locals (Su et al., 2022), combined with significantly rising costs of residential rental properties.

Seasonality is detrimental the financial state of tourism and the social and personal costs associated with seasonality, such as reduced quality of service provided during peak periods and overcrowding of customers in tourist areas. From an economic standpoint, seasonality is a problem since reduced demand causes resources to be inefficiently used, and thus revenues to decline, the workforce to decrease, and turnover increasing (Khairy et al., 2023). Seasonality has a significant impact on how sustainably tourism develops. It puts tremendous pressure on the balance between supply and demand in the tourism market (Qiang, 2020). It has the potential to concentrate short-term tourism flows, which lower the quality of travel experiences for customers on the demand side of the industry and. It also puts more strain on the environment and resource availability in tourist destinations on the supply side of the industry (Su, Wen, Zeng, Ye & Khotphat, 2022). Therefore, local governments have attempted to manage seasonality by adjusting prices during the off-peak season, diversifying tourism and developing new tourism products that attract tourists throughout the year (Kariru, 2023).

#### **2.5.4 Poor infrastructure**

Poor infrastructure has curtailed the growth of tourism and the attractiveness of the sector to international visitors. The absence or lack of basic infrastructure, such as good roads, would make tours to and around any destination unsafe and difficult and tourists would not experience the quality tourism services they require according to their needs and wants (Odeku, 2020). Important tourist destinations may be difficult for visitors to reach due to inadequate infrastructure and this may result in fewer tourists travelling to these locations. This results in potential income and employment being lost for local businesses. Travellers may encounter several challenges because of inadequate infrastructure, such as trouble accessing essential services, trouble with transportation, and worries about safety. These problems have the potential to discourage travellers from travelling to a country, a region or a specific location. It would also make their stays unpleasant, even if they managed to reach their destination (Chowdhury, 2020; Mohiuddin, 2023). Some tourist destinations and attractions have become inaccessible due to poor infrastructure, such as neglected or damaged roads and bridges. Inaccessibility has always been a challenge for hospitality and tourism development. Remote areas, such as national parks, game reserves and beaches are often inaccessible due to lacking or poorly maintained roads and bridges, especially during harsh weather or the rainy season, when the regions flood (Kariru, 2023).

The tourism demand equation was discovered to be complex due to these infrastructural obstacles as well as other variables such as distance, costs, and the economic status of travelers (Khan et al., 2022). According to a study by Mohiuddin (2023), Bangladesh struggles to offer its people the most fundamental services due to severe infrastructure problems, which range from a lack of dependable roads and bridges to a crumbling healthcare system. Tourists may also be seriously impacted by this lack of infrastructure, as they may find themselves in hazardous or challenging situations if they are unable to move around with ease. Pakistan's transportation and road infrastructure worsened due to corruption and limited funding. Many potential tourist destinations are still inaccessible. The northern regions of Pakistan have the theoretical capability to draw millions of tourists from around the world, but these regions are still undeveloped and will not reach their full tourism potential due to poor

infrastructure (Khan et al., 2022). The road infrastructure and facilities in Nigeria are also inadequate, which has a negative impact on the growth and development of the local tourism industry (Odeku, 2020). In Lake Bosomtwe, Ghana, the majority of the existing hotels, lodge facilities, and road networks leading to the lake site are in poor condition, and cruising facilities, such as canoes or kayaks and life jackets, are either unavailable or of poor quality. The ongoing deterioration of these infrastructural facilities has created numerous economic, environmental, and social problems in the area and surrounding communities, negatively affecting the tourism industry (Bonsu, Mensah, Attah, Frimpong & Ewusi, 2021). As visitor satisfaction comes from the attractions they see and this depends on the tourism facilities and infrastructure they can use and enjoy (Sugiama & Tirani, 2021), several strategies have to be used to improve the infrastructure to support tourism growth. South Africa also struggles with poor infrastructure in many regions, although it has developed an excellent road network. There have been several instances of people cancelling trips to Coffee Bay, Centane, and Mbotyi in the Eastern Cape and other provinces, such as Limpopo and Mpumalanga, because of the poor state of the roads. These two provinces have one of the country's highest rates of unemployment and poverty, and one would expect national government and local authorities to pursue any economic opportunity that addresses these hardships (Sihlobo, 2023). Deteriorating or not maintained infrastructure in South Africa is working against the positive effects of the excellent promotion efforts being made by the tourism industry. Factors, such as inadequate or poorly maintained road conditions, ineffective public transportation, poor connectivity between urban and rural areas, a lack of internet access, and a lack of dependable transportation options can deter travellers, both domestic and foreign, from visiting different regions of the country. Tourists may also find it difficult to efficiently plan their travels due to limited connectivity, which could cause frustrations and other problems (Mohiuddin, 2023; Slabbert, 2023). In addition, the tourism sector in South Africa faces challenges that include the energy crisis, shortages and suspect water quality in some regions, an ineffective e-visa system, and insufficient roadways (Fourie, 2023). The tourism industry will only attract increasing numbers of visitors if it addresses these problems and finds solutions, which should, in turn, eventually lead to the creation of jobs and economic growth.

### **2.5.5 Poaching**

Poaching has been rampant in the country and has negatively affected the wildlife tourism industry. Poaching is the illegal killing of wildlife, such as elephants and rhinoceroses, for their teeth, horns or hide, which are then sold (Lucas, 2022). Poaching has led to the decline and extinction of some wildlife and the reduction of tourism activities in the affected regions (Kariru, 2023). Poaching is a worldwide problem that has led to localised extinctions of certain wildlife species and population declines of others (Matungwa & Wawa, 2021). Poachers employ various means and strategies (timing, networking, traps, nets, gunning down, poisoning, bombing) to trap, kill and sell the wild animals, and some convert the parts of the wild animals into finished products (statues and ornaments, or in powder form), and sometimes paint them to hide their observable identity to be able to sell them in the open market (Naveen et al., 2021; Rana & Kumar, 2023). Raising significant funds to support biodiversity conservation involves trying to save some of the most iconic species, such as rhinoceroses and elephants. They are also associated with priceless trophies, rhino horn, and elephant ivory, all of which have historically been in high demand throughout Asia and other continents for a variety of purposes. Since 1989 and 1977, respectively, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) has prohibited the commercial international trade in rhino horn and elephant ivory. However, poachers are still primarily targeting African elephants and rhinos for their ivory and horns (Di Minin, Selier, Louis & Bradshaw, 2022; Rana & Kumar, 2023).

Illegal hunting and unsustainable use of wildlife resources continue to be the biggest threats to wildlife diversity in the world. In addition to causing some wildlife species to decline or go extinct, poaching in the wildlife-rich African countries reduces foreign exchange earnings from wildlife tourism (Matungwa & Wawa, 2021). Romeo Muyunda, a spokesman for the Ministry of Environment, Forestry and Tourism (MEFT), said that 87 rhinos were killed in Namibia in 2022 due to poaching for their horns, an alarming 93% increase from 45 rhinos killed in 2021. Of greatest concern was that 46 of the rhinos that were poached were in the renowned Etosha National Park (Somerville, 2023). South Africa has been grappling with the merciless slaughtering of wild animals by poachers for monetary reasons for several years. Rhinos have been the most targeted by poachers. South Africa recorded 499 rhinos poached in 2023, which was 51 more than the previous year, despite efforts to protect

the animals (Reuters, 2023). South Africa is home to nearly half of the critically endangered black rhino population in Africa and to the world's largest population of near-threatened white rhinos. Rhinos are poached for their horns, which are used in East Asian countries for producing traditional medicines and jewellery. This loss of the great numbers of wildlife led to a decrease in wildlife tourism (Reuters, 2023). The hospitality and tourism industry faces not only the highlighted challenges, but also important environmental challenges. The following section will address the environmental challenges that hospitality businesses face.

## **2.6 ENVIRONMENTAL CHALLENGES ASSOCIATED WITH HOSPITALITY FIRMS**

The hotel industry is one of the major sectors of the tourism industry and is growing at a rapid pace. However, linked to such growth rate is the negative consequence, according to which the hotel industry imposes numerous impacts on the natural, social, and economic environment, contributing negatively to climate change, noise and environmental pollution, the energy crisis, and waste generation, among other factors, such as environmental, economic and social problems. These challenges may diminish the hotel firms' performance and lead to poor business sustainability (Hoang, Yang & Luu, 2023). According to Khatter (2023), the hospitality industry can be distinguished by its extensive use of energy and natural resources to meet the demands of customers, while it is facing the effects of climate change and the resulting loss of wildlife. Given that future events are unknown by nature and the climate is ever-changing, assessing the risks, viability, and financial consequences of running a hospitality business can be quite difficult (Legrand, Chen & Laeis, 2022). The hotel sector is regarded as one of the primary sectors that has a negative influence on the environment, since it produces about 1 kg of waste per night and per person, and around 180 kg of carbon (CO<sub>2</sub>) for each square metre. The sector is also known for its high level of water consumption, which averages at 320 litres per night and per person (Malheiro, Sousa, Liberato & Liberato, 2020). Diverse problems, such as the greenhouse effect, air, water and soil pollution, extinction/loss of species, and exhaustion of natural resources stand a major danger to the environment and its sustainability. The problems are mostly relevant to environmentally irresponsible human behaviours (Wang et al. 2020; Hopkins, Han, 2021). The tourism industry has a negative impact on the environment, resulting in local ecological damage, as well as

increased greenhouse gas emissions. In the hospitality industry, intensive energy, water, and detergent usage in the daily operations has a negative impact on the environment (Kusa, Suder & Duda, 2023).

Tourism is dependent on water resources. Studies of water issues in hotels have indicated that water demands vary tremendously, owing to numerous variables, such as patterns of accommodations, tourist activities during their stays, geographical locations, and seasonality (Antonova, Ruiz-Rosa & Mendoza-Jimenez, 2022; Ricart, Villar-Navascués, Reyes, Rico-Amorós, Hernández-Hernández, Toth, Bragalli, Neri & Amelung, 2024). Water resources are typically overused by the tourism sector for the purposes of the hotels' swimming pools, irrigation of golf courses, and visitors' personal use. Using more water than normal households may lead to water shortages and the deterioration of water sources (Hu, Ying, Lovelock & Mager, 2023). Tourism also uses water for hotel operations, restaurants, and leisure activities. Ski and golf tourism in mountainous areas relies heavily on water supply for generating snow and the cultivation of golf course turf. The adverse effects that tourism consumption and activities can have on local water resources includes the locals' reduced ability to access water, the failure to maintain water quality, and severe water scarcity during drought periods (Hu et al., 2023; Xin & Day, 2023). The water crisis experienced on Zanzibar, Tanzania, represented an example where the local population did not have the same right to water as the visitors (Tanzania Tourist Board, 2021).

Air pollution is described as the presence of hazardous and toxic solid, liquid, or gaseous substances, as well as their mixtures, in a particular layer of the atmosphere at quantities that are burdensome to humans or negatively affect their quality of life and health (Bogalecka & Grobelna, 2023). According to the World Health Organization (WHO, 2022), in many of the world's largest cities, air pollution levels are significantly increasing. The WHO data shows that 99% of the global population breathes air that exceeds the recommended limits. The Organization for Economic Cooperation and Development (OECD, 2022) reports that by 2050, air pollution, just in cities, will have become the leading environmental cause of mortality in the world. This also applies to the EU, where air pollution constitutes the greatest threat to people's health (Eusébio, Carneiro, Madaleno, Robaina, Rodrigues, Russo, Relvas, Gama, Lopes, Seixas & Borrego, 2021). Visitors travelling in cities, particularly during an air pollution episode,

are more vulnerable to its high concentration; additionally, they may lack the necessary adaptations, safety precautions, or advice on how to reduce the associated health risks (Vilcassim, Callahan & Zierold, 2021). The exposure to air pollution will have a negative impact on the travellers' cardiovascular system (Bogalecka & Grobelna, 2023).

Waste pollution also affects the tourism industry negatively. The waste produced by the hospitality industry can be classified as either hazardous or non-hazardous waste. Hazardous waste produced in hospitality is mainly composed of frying and mineral oils, paint and solvent residues, flammable material, fertilisers and chemicals, cleaning chemicals, batteries, fluorescent lights and other electric and electronic materials. Non-hazardous waste, on the other hand, is composed of food waste, cardboard, paper, plastics, metal, glass, cloths, wood and other organic waste (Diaz-Farina, Díaz-Hernández & Padrón-Fumero, 2023). Tourists not only contribute to such waste, but they can also be exposed to it and these practices degrade the environment. According to Juvan, Grün and Dolnicar (2023), each visitor generates about 1.6 kg of waste every day. Globally, the tourism and hospitality industries waste produce 37%-72% organic waste, 6%-40% paper and cardboard, 5%-15% plastic, and 3%-14% glass. Carbon emissions are one of the critical problems, which emphasise the threat to sustainable growth for any industry. Conference of the Parties (COP) is a committee that was created and signed the United Nations Framework Convention on Climate Change (UNFCCC). The COP27 summit of the UNFCCC has taken decisions that all countries, including South Africa, are required to make an extra effort to address the climate crisis. A ground-breaking agreement was reached at COP27 to provide loss and damage funding for vulnerable nations that have been severely affected by floods, droughts, and other climate disasters. Countries reaffirmed their dedication to keeping the increase in global temperature to 1.5°C above pre-industrial levels at COP27 (Ullah, Raza & Mehmood, 2023).

The tourism industry depends heavily on energy, as well as its byproducts and goods. Certain economies depend more than others on the tourism industry, for example, Greece, Iceland, Cyprus, Spain, Mexico, Portugal, Nigeria, and South Africa (Menegaki & Poutakidou, 2023). Tourism has not traditionally been regarded as energy-intensive compared to other economic sectors. However, increasing electricity

consumption by tourism establishments in destinations experiencing tourism growth leads to the expansion of the sector's ecological and environmental damage (Khan & Hou, 2021). Most studies have found that electricity accounts for the largest proportion of total energy consumption in hospitality firms (Shao et al., 2020; Xu & Dan, 2023).

Over the past few years, South Africa has been experiencing electricity shortages, resulting in loadshedding. Loadshedding is the action from an electricity supplier (Eskom) of rolling power cuts that intend to lessen the load on the power supply system when Eskom is not able to supply a high electricity demand. The potential return of loadshedding remains one of the country's most critical challenges as it affected day-to-day hospitality business activities, leading to some firms closing their operations (Mabunda, Mukonza & Mudzanani, 2023). The South African tourism and hospitality sector is negatively impacted by the ongoing power outages, which lowers the number of both domestic and foreign tourists (Mokwena, 2021). Businesses are suffering as a result of Eskom's ongoing power outages throughout the nation, particularly those in the hotel and restaurant industries. Most of these companies lack the financial reserves necessary to cover the losses brought on by loadshedding; thus, they frequently had to take drastic measures to stay afloat and competitive (i.e., layoffs and company closures). While some businesses may choose to use alternative power sources, such as solar energy or generators, the long-term costs associated with these options are typically unsustainable (Banda, Garry & Patson, 2020; Bay, 2022; Van Niekerk, 2020). These challenges can also result in damage to lodging and tourism facilities and deter people from travelling to the affected areas. Therefore, strategies must be implemented to overcome these obstacles, one of which has to be finding solutions for environmental sustainability. The following section deals with the development of plans and strategies used in the hospitality and tourism industry to lessen the environmental challenges.

## **2.7 GREENING PRACTICES AND STRATEGIES ASSOCIATED WITH TOURISM AND HOSPITALITY FIRMS**

Faced with numerous challenges, the tourism industry needs to make significant changes to meet the prescribed environmental standards. These changes and strategies are known as sustainable strategies or green strategies (Rodríguez-García, Ferrero-Ferrero & Fernández-Izquierdo, 2023). Businesses are embracing green practices, and the hospitality industry is seeing a rise in the use of non-toxic or low-toxicity cleaning and pest control products as well as a decrease in the massive amounts of waste produced daily in their facilities. These methods have repeatedly been shown to enhance revenues for operators who use them effectively. Various changes are unfolding due the speed in which the hospitality industry is adapting. The need for reliable, high-quality products in a friendly, caring atmosphere is greater than ever (Khatter, 2023; Patwary, Mohamed, Rabiul, Mehmood, Ashraf & Adamu, 2022). Greening is an important part of the tourism and hospitality industries. Green business refers to an organization's efforts to lessen its adverse environmental effects (Lin et al., 2021; Ha and Thanh, 2022; Dang & Wang, 2022). In addition to reducing environmental effects, green practices can provide both financial and commercial added value. Green hotels are eco-friendly establishments that are willing to implement water and energy conservation programmes, minimise solid waste, recycle and reuse durable items, and save costs to contribute to the preservation of the planet (Green Hotel Association, 2021). According to Leyva and Parra (2021), a green hotel is a lodging establishment that saves water, electricity, and reduces solid waste. A number of factors contribute to greening of hospitality firms. These include a commitment to the environment, resource conservation, waste reduction, chemical reduction, the use of green food and non-food products, customer information practices, the adoption of ISO 14001, eco-label certification, and employee motivation (Kusa et al., 2023). Arun, Kaur and Brescriani (2021) state that implementing green initiatives can save cost, it can also become a significant capital outlay in terms of new technology and labour. Green hotels aim to reduce their environmental impact by conserving energy through measures, such as energy-efficient appliances and renewable energy programmes. They also seek to reduce water usage, consider installing water-efficient devices, creating a linen and towel re-use programme, and implementing a recycling programme (Ioannidis, Chalvatzis, Leonidou & Feng, 2021;

Salama & Abdelsalam, 2021). Zareh, Nassar, Barakat and Ramzy (2023) assert that utilising low-flow faucets and showerheads, recycling towels and sheets, and replacing central air conditioning with personal air conditioning are all ways to conserve energy and water. The survival of hotels depends heavily on guest satisfaction. Guests are more satisfied with green hotels when they receive excellent service, and guest satisfaction rises when green hotels implement green initiatives that benefit even the community (Zareh et al., 2023). Green hotels prioritise safety, health, and environmental friendliness, and advocate for green operations, green consumption, environmental protection, and resource efficiency in operations. Guests that stay in eco-friendly rooms adhere to these standards (Wu, 2021). Green hotel practices have the potential to greatly increase guests' environmental purposes (Nelson, Partelow, Stähler & Graci, 2021). Travelers who are more aware of a hotel's sustainability and who seek out information about its corporate social responsibility (CSR) initiatives are more likely to pay a higher price to stay in a sustainable hotel (Navarro, 2020).

Greening in hospitality firms helps not only to protect the environment, but it also improves the hotel's reputation, attracts environmentally concerned candidates, fosters customer loyalty and decreases costs, which ultimately increases profits and enhances firm performance and protects the nature for the upcoming generations (Ren & Hussain, 2022; Umrani, Channa, Ahmed, Syed, Pahi & Ramayah, 2022). Greening can enhance the success of a business by investing in its employees, who not only improve performance, but they also promote and implement green practices (Ali Qalati, Barbosa & Iqbal, 2023; Singh, Del Giudice, Chierici & Graziano). Adopting environmentally conscious strategies helps businesses stay competitive in green markets, improve financial outcomes, firm value, and innovate green products, while also enabling them to hold social responsibility and conduct positive practices toward the environment (Li & Liao, 2020; Wu & Liu, 2022; Elshaer, IAzazz, & Fayyad, 2023). According to Arun et al. (2021), the hotel sector expends immense quantities of resources to operate energy and water; and generates greater amounts of waste. Arun et al. (2021) assert that the hotel industry produces more waste and uses enormous amounts of resources to run its water and energy systems. Hotels have been compelled to abide by COP and green standards, leading to the emergence of green hotels. These hotels endeavour to conduct their operations in a more environmentally conscious manner by incorporating green practices and implementing

ecological programs to address the concerns of major stakeholders regarding organizations environmental sustainability (Elkhwesky, 2022). Stakeholders have begun to recognise and value the environmentally conscious actions of tourism and hospitality firms (Yousaf, Radulescu, Sinisi, Serbanescu & Paunescu, 2021). Rehman and Yaqub (2021) postulate that some factors that influence ecological performance of hospitality firms include green product innovation and green process innovation, which results in a green competitive advantage. As part of the firm's green strategies, managers in the tourism sector can raise awareness of the importance of environmental protection by consistently encouraging tourists to consume sustainably. The environmental impact of tourism-related activities has thus become increasingly apparent to tourists and other stakeholders. As a result, tourists are now prepared to pay a premium for environmentally friendly goods and services and are actively seeking out green certifications and eco-labels (Yousaf et al., 2021).

➤ **Green certificate**

Greening practices are subject to certification (Kusa et al., 2023). By participating in green certification programmes, such as the Leadership in Energy and Environmental Design (LEED), hotels intend to promote and practise energy efficiency, conservation, and waste management, while at the same time providing hotel guests with a sustainable, clean, and healthy products or services (Ding et al., 2020; Zareh et al., 2023). Eco-friendly or green certification programmes are becoming more popular in the hotel industry because they represent the internal values, efficiencies, cost savings, and external marketing, and visibility, incentives of hotels that intend to meet environmental standards (Nelson, Partelow, Stäbler, Graci & Fujitani, 2021). To attract more environmentally conscious tourists, a number of hotels have incorporated green practices into their operations, such as waste reduction and recycling, energy conservation, re-using towels, and environmental education, with others working toward green certifications, such as the Energy Star and Green Seal certification initiatives (Assaker, Assaker, 2020; Assaker & O'Connor, 2023). Qubbaj, Peiró-Signes and Najjar (2023) state that green certifications, which were first created to improve hotels' environmental performance, aim to manage the environmental and green practices of hotels more effectively. Obtaining a green certificate gives hotels access to marketing power that could improve their financial performance. Green certifications may also help hotels by improving and optimizing environmental performance and

ensuring that guests have an environmentally responsible stay (Navarro, 2020). Green certificates for hotels comprise Earth Check, Green Globe, Leadership in Energy and Environmental Design, Green Key, and the Global Sustainable Tourism Council certification, Green Hotel Certifiers, Green Tourism Certifiers and Green Traveller Guides. These certifications show a hotel's dedication to environmentally conscious behaviour and sustainable practices, such as waste minimisation, water management, energy conservation, and community involvement. Additionally, they can draw in travellers, who value the environment and are prepared to make more payments for green lodging. Green certificates enhance the hotel's image as an environmentally and socially conscious facility. Long-term cost savings for hotels can also result from obtaining a green certificate since it can minimise waste, reduce energy, and water consumption, and improve the environment (Nelson, Partelow, Stähler, Graci & Fujitani, 2021; Qubbaj, Peiró-Signes & Najjar, 2023). Environmental certification aims to increase the hotel's profitability, enhance the adoption of sustainable environmental practices, and draw in new business by showcasing the hotel's environmental credentials when making online reservations (Qubbaj & Signes, 2022). In South Africa, tourism environmental certification is regarded as an advantageous tool for promoting the nation and fostering responsible and sustainable tourism development.

The Blue Flag, EarthCheck, Fairtrade in Tourism South Africa, Green Globe Certification, Certified Wildlife Friendly, and the Heritage Environmental Management Company eco-label are just a few of the eco-label certifications that are currently used in South Africa. These certification programmes enable businesses to become more environmentally conscious by lowering waste output and resource consumption, like energy and water use. As a result of these resources being used less, there are subsequently economic advantages (Suchera & Arulappan, 2020). Therefore, in order to minimise environmental damage, green hotels must be managed properly. Hotels must use eco-friendly practices, provide high-quality green services and products to protect the environment and promote sustainable development.

### **2.7.1 Sustainable Development Goals (SDGs)**

The tourism and hospitality sector has implemented sustainability tactics to control its effects on the environment, economies, and societies. At the 70th UN General Assembly in September 2015, the United Nations adopted the 2030 Agenda for Sustainable Development, which established a number of Sustainable Development Goals (SDGs). The SDGs framework promotes a safe and sustainable business model for the tourism industry and supports its future development (Rasoolimanesh, Ramakrishna, Hall, Esfandiar & Seyfi, 2023; Khizar, Younas, Kumar, Akbar & Poulouva, 2023). The 2030 Agenda for sustainable development is marketed as a strategy for creating a sustainable future for all. The agenda fosters sustainable development by monitoring and controlling natural resource use and conservation efforts, creating employment prospects for local communities while promoting local culture and products, and using marine ecosystems sustainably for greater economic benefits for small island developing states and underdeveloped countries (Richardson & Erdelen, 2020; Santos & Silva Bastos, 2021). The 17 SDGs outlined in it, are applicable to both public and private actions and activities, as well as to both developed and developing nations. The following 17 SDGs are anticipated to revolutionize the world (Berbeka, Alejziak, and Berbeka, 2024):

- SDG 1: No Poverty;
- SDG 2: Zero Hunger;
- SDG 3: Good Health and Well-being;
- SDG 4: Quality Education;
- SDG 5: Gender Equality;
- SDG 6: Clean Water and Sanitation;
- SDG 7: Affordable and Clean Energy;
- SDG 8: Decent Work and Economic Growth;
- SDG 9: Industry, Innovation and Infrastructure;
- SDG 10: Reduced Inequality;
- SDG 11: Sustainable Cities and Communities;
- SDG 12: Responsible Consumption and Production;
- SDG 13: Climate Action;
- SDG 14: Life Below Water;

- SDG 15: Life on Land;
- SDG 16: Peace and Justice Strong Institutions;
- SDG 17: Partnerships to achieve the Goal.

This study fits into SDG 8, SDG, 12 and SDG, 13. This is because, tourism has a precise function to play in achieving “decent work and economic growth” (SDG 8), “responsible consumption and production” (SDG 12), and “Climate action” (SDG 13), (Rasoolimanesh, Ramakrishna, Hall, Esfandiar & Seyfi, 2023). SDG 8 advocates for employment, sustainable growth, and fair labor practices for all people (Küfeoğlu, 2022). It promotes economic growth in all UN member countries by implementing the Decent Work concept (Küfeoğlu, 2022). According to scholars, SDG 8 includes gender equality, fair wages for all parties, and workforce diversity opportunities for all people, including those with disabilities (Khalique et al., 2021). It places a strong emphasis on establishing a secure workplace with equal employment opportunities for men and women (Chigbu & Nekhwevha, 2023) The goal of guaranteeing employment for everyone comprises offering chances and equitable remuneration that support general economic growth (Khalique, Madan, Puri & Parimoo, 2021). SDG8 is considered an important goal for the tourism industry since it contributes significantly to employment.

SDG 12 aims to ensure responsible consumption and production, which is critical to sustaining livelihoods for present and future generations. It reflects a global consensus on the need to fundamentally alter how individuals and hospitality businesses produce and consume (Hales & Birdthistle, 2023). If the goals are met, it will help to achieve social and economic development within global boundaries. The implementation of SDG 12 is linked to achieving overall development goals, increasing economic competitiveness, lowering future environmental, social, and economic costs, and reducing poverty. It aims to provide people and hospitality firms with relevant information and awareness for sustainable development and nature-friendly lifestyles by 2030 (Arora & Mishra, 2023; Van Driel, Biermann, Kim, & Vijge, 2024).

The primary goal of SDG13 is to take urgent action to combat climate change and its consequences. It notes that climate change is a global issue that requires immediate attention and coordinated efforts from governments, businesses, communities, and individuals worldwide. Furthermore, it calls for action at various organizational levels to provide a more comprehensive response to the problem (Arora & Mishra, 2023; Filho, Wall, Salvia, Dinis Mifsud, 2023). Climate action strengthens tourism resilience to respond to and prepare for climatic hazards and their environmental and socioeconomic consequences (Faisal, 2023). Strong cooperation and crucial action from all tourism stakeholders are necessary to maximize the positive impact of the industry on the SDGs and mitigate its negative effects (Khizat et al., 2023). Green dynamic capabilities are part of greening that firms adopt to promote environmentally appropriate performance. The following chapter addresses the theoretical literature of the study and an overview of green dynamic capabilities, which is the independent variable that is discussed in depth.

## **2.8 SUMMARY**

Tourism is the engine for accelerating a country's economic activity, revenue growth, job opportunities, GDP, competitive advantage, innovation and production, quality of life, and poverty alleviation by contributing to the country's sustainable economic growth and development. This chapter focused on the background, adoption and definitions of tourism and hospitality. Additionally, the South African grading system was revealed. This contributes to the growth of profitability, customers and eventually the survival of hospitality firms. The rationale for this is that guests are more likely to book rooms at graded establishments since they can be assured of consistent and high standards of quality. The TGCSA assigns grades to the accommodations in order to guarantee the application of a reliable quality assurance procedure. The chapter also revealed the contributions of the tourism and hospitality sector to GDP, employment, poverty alleviation, competitiveness and innovation in various countries, including South Africa. In the hotel industry, a business's rate of survival, growth, and sustainability is essential. The chapter discussed the challenges faced by the tourism and hospitality sector. The hospitality industry faces a number of environmental issues that necessitate the creation and execution of measures and strategies to achieve business growth and sustainability. Greening was presented in detail as part of the

strategy for addressing environmental challenges and sustainable performance. The study's concept of green dynamic capabilities and its application of greening as a tactic to help hospitality firms operate sustainably will be covered in the following chapter. The theories associated with green dynamic capabilities will also be discussed in depth.

## **CHAPTER THREE**

### **THEORETICAL REVIEW OF GREEN DYNAMIC CAPABILITIES**

#### **3.1 INTRODUCTION**

The preceding chapter (chapter two) covered the background of the global and South African hospitality industry. The current chapter presents a detailed theoretical framework. A well-defined framework facilitates the study of a phenomenon (Luft, Jeong, Idsardi, Gardner, 2022). The theoretical framework explains the relevant theories and how they relate to the current study. The main goal of this chapter is to assess the relevant literature for the research. Given to the extensive and interrelated scope of the research domain, the chapter will concentrate on the theoretical structure and the notion of green dynamic capabilities as a crucial element of the study. The chapter will discuss and assess the resource-based view theory, the natural resources-based theory, and the dynamic capabilities framework. The significance of these theories lies in their ability to explain and direct the major concepts examined in the study. The background of the theories and their significance to businesses will be discussed. These theories are crucial to this research as they clarify key ideas employed in the study and serve as the primary point of reference for the arguments presented in the study. Additionally, green dynamic capabilities will be explored in this chapter. The concept of green dynamic capabilities is an essential component of this study because it establishes the parameters and standards that help businesses adjust to changing capabilities and maximise sustainability. The chapter also provides a view of comprehending of how businesses use green workplace capabilities and utilise green resources to meet environmental objectives. The first theory to be discussed is the resource based theory.

### 3.2 RESOURCE-BASED VIEW THEORY

Understanding and utilising the firm's resources is one way to gain a sustainable competitive advantage (Adam, Abdullah, Maruhun, Anwar & Salin, 2022). This viewpoint relates to the theory of the resource-based view (RBV), which forms the theoretical basis of the study. The resource-based view theory was developed by Birger Wernerfelt (1984) and then significantly redefined by Jay Barney (1991). According to Barney (2001), a business' performance is determined by its resources, which are valuable as they enable the implementation of strategies to increase a firm's effectiveness and efficiency. Among other things, resources are firm-owned productive assets, capabilities, organisational procedures, firm attributes, information, and knowledge that enable the organisation to put strategies into practice to increase productivity and effectiveness (Barney 1991; Costa, 2023; Grant, 2019). The theory states that a firm's capacity to remain competitive is contingent upon its possession of rare, valuable, unique, and non-replaceable resources (Barney, 1991). An organisation's efficacy, profitability, and competitiveness are influenced by its capacity to generate or acquire resources. According to Chahal, Gupta, Bhan and Cheng (2020), the RBV places an emphasis on the organisation's resources and capabilities to determine how to offer superior competitive advantages. As Grant (1991) pointed out, capabilities are what the firm can do as a result of resources interacting together. Competitive advantage is defined as the state of having an advantage in the market that can elevate a business above its competitors (Sukaatmadja, 2020; Costa, 2023). When a business successfully implements its plan and prevents other businesses from using or copying it, it is seen to have a competitive advantage (Yasa et al., 2020). That way, the business can reap the benefits of its investment. A firm can have a variety of resources and capabilities, and the majority of these are directly linked to higher performance (Freeman, Dmytriyev & Phillips, 2021). RBV theory holds a view that resource exploitation produces wealth. To outperform rivals in creating financial value, organisations need to make the best use of their resources (Barney & Wright, 1998). Through the application of RBV's foundations, firms can establish strategies that none of their current or prospective rivals can match, giving them competitive advantage (Kero & Bogale, 2023). Resources can be either material or immaterial. Tangibles are things that are physical and financial (money) that one can touch and easily recognise.

Intangible assets, like patents, brands, culture, and business relationships, are those that are harder to touch and typically have higher value (Costa, 2023). Additionally, two fundamental tenets of RBV are immobility (resources do not transfer from one organisation to another) and heterogeneity (talents, capacities, and other resources differ from business to business) of resources (Alonso & Kok, 2018; Kero & Bogale, 2023). The heterogeneity and unique combination of a firm's tangible and intangible resources enables it to develop strategies that meet market demands while increasing consumer utility (Burvill, Jones-Evans & Rowlands, 2018). These resources are considered as possessions, qualities, capabilities, knowledge, and processes that businesses own, manage, and utilise (El Nemar, El-Chaarani, Dandachi & Castellano, 2022). Moreover, these resources have additional distinguishing qualities, such as being valuable, rare, imperfectly non replaceable and used to increase a firm's competitive advantage (Bertheussen, 2021). Resources must reduce costs and raise profits to be considered valuable. Due to high demand and low supply, rare resources are those that are owned by a small number of businesses, including present and future rivals. Firms need their valuable resources to generate high sales, achieve low operating costs, a high return, and additional financial value. Imperfectly imitable resources refer to strategies that cannot be replicated by competitors due to scarcity, ambiguity, and social complexity. Resources classified as non-substitutable are those that cannot be replaced with another type of resource (Putra, Wiagustini, Ramantha, & Sedana, 2021; Mong, Mohamed, Misnan & Palis, 2021; Costa, 2023).

According to Gibson, Gibson and Webster (2021) and Nagano (2020), RBV is predicated on the idea that internal elements, also known as strategic resources, are the crucial components that help the organisation to plan and surpass its rivals. The primary reason for this is the certainty that while an organisation can willingly control its internal strengths and weaknesses, it cannot control external prospects or threats (Shibin, Dubey, Gunasekaran, Hazen, Roubaud, Gupta & Foropon, 2020). Accordingly, A business's strategic resources and capabilities, which differentiate it from its closest rivals, and how it can organize and apply these resource and capabilities clusters in a way that creates a sustained competitive advantage, allow it to be efficient, successful, and competitive despite the market environment or the goods and services it offers (Nagano, 2020; Malik, 2022). RBV, in short, proposes that businesses can take advantage of market opportunities by investing in and allocating

their distinct, varied, and current resources (El Nemar et al., 2023). For this study, incorporating resources into a single framework, such as RBV, aids in analysing and evaluating the influences of various resources and capabilities on hospitality firms' long-term competitive advantage and performance. Applying this theory in the hospitality industry enables firms to leverage their distinct resources and capabilities to create value in a sustainable manner. Whereas the RBV has a highly firm-centric approach, an important extension of the RBV, namely, the natural RBV (NRBV) assesses the environmental effects of firms' resources and of the processes emerging from these resources. This theory was developed by Hart in 1995. The natural resource-based view (NRBV) differs from the resource-based view (RBV) as it acknowledges the constraints imposed by the environment and functions as a theory of competitive advantage grounded in the firm's interaction with it (Hart, 1995). This theory is discussed further in the next subsection.

### **3.3 NATURAL RESOURCE BASED VIEW (NRBV) THEORY**

The natural resource-based view (NRBV) incorporates environmental voice into resource-based view theory and contends that firms' capacity to effectively manage their natural environment will determine their competitive advantage in the future (Hart, 1995). The founders of this theory, Hart (1995) and Hart and Dowell (2011) define NRBV as the ability to continuously enhance and optimise production processes can lead to lower costs and emissions. Additionally, the NRBV helps in identifying a variety of resources and competencies that support businesses in reaping the benefits of environmental orientation and other pollution prevention strategies. The authors describe in detail how the application of NRBV in addressing environmental issues and concerns results in the development of critical resources. These resources, in turn, lead to competitive advantages in the form of reduced costs, reputation, long-term growth, and the ability to maintain competitive positions in the future (Andersen, 2021; Baah, Opoku-Agyeman, Acquah, Agyabeng-Mensah, Afum, Faibil & Abdoulaye, 2021; Ali, Quaddus, Rabbanee & Shanka, 2022). Academics and businesses have started to pay more attention to environmental problems due to growing global climate change awareness and concerns. Additionally, rapid modifications in environmental protection regulations create uncertain dynamics in competitive market environments (Bresciani, Rehman, Alam, Ashfaq & Usman, 2022).). According to Hart (1995),

environmental problems have the potential to make firms' current capabilities more ineffective and less productive. Consequently, if these capabilities are not brought into compliance with the most recent requirements, any competitive advantage based on the value they create will be lost or significantly reduced. At the same time, approaches associated with capabilities that keep or acquire value in the midst of ecological obstacles, will remain or become competitively relevant to the extent that they match the remaining criterion (Kim, Woo, Balven & Hoetker, 2020).

The NRBV theory suggests that businesses can maintain competitive advantage by utilizing the three environmental capabilities namely, pollution prevention, product stewardship, and sustainable development. The first capability is pollution prevention. Pollution prevention describes organisation's efforts made during the production process to cut down on or avoid emissions and effluents (Hart, 1995; Hart & Ahuja, 1996). The belief is that a reduction of waste translates into suitable input utilisation, which lowers the cost of materials and waste disposal (Hart & Ahuja, 1996; Kero & Bogale, 2023). The goal of pollution prevention aims at reducing excessive pollution in internal operations through a process-based approach. Preventatively and efficiently reducing emissions, effluents, and waste from operations is one of its primary objectives (Johnson-Hall & Hall, 2022). Businesses with pollution-prevention capacity are expected to benefit from Improved efficiency and effectiveness, as well as lower liability costs, allowing for competitive cost reduction by shifting the waste management focus from control to prevention, resulting in a competitive advantage (Kim, Woo, Balven, & Hoetker, 2020; Wagner & MacBryde, 2022).

The second capability is product stewardship. Product stewardship capabilities enable businesses to take a lifecycle approach to addressing social and environmental concerns at each stage of the product and manufacturing process, thereby improving an organisation's product sustainability. It emphasises the importance of taking into account the environmental effects and costs of products throughout their whole life cycle (Olajide, Kamal, Kwak, He & Lim, 2022). By developing completely sustainable, reliable goods and communicating them to consumers and society, the business hopes to benefit both economically and environmentally, as well as gain a competitive advantage through differentiation (European Union, 2020, 2021; Hart, 1995). This is relevant to this study as it examines how hospitality firms' use of environmentally

friendly products and services contributes to achieving long-term performance. Over time, product stewardship may have an increase in a business's positive reputation, which may give an advantage over competitors (Johnson-Hall & Hall, 2022).

The last capability outlined by Hart (1995) is sustainable development. This capability pertains to reducing the environmental impact that a product's lifetime and its production process generate, as well as to enhancing the social and economic situations of the nations that are affected by the business' operations (Kim, Woo, Balven & Hoetker, 2020). A sustainable development strategy calls on businesses to acknowledge how their operations – whether the procurement of raw materials, the operation of labour-intensive enterprises, or the sale of products – are tied to the poverty and environmental problems that exist in emerging countries (Hart & Ahuja, 1996). According to Hart (1995), having this capability requires creating a shared future vision that balances economic prosperity and environmental consciousness on a global scale; therefore, having this capability gives firms a competitive advantage (Carton & Parigot, 2021; Hariram, Mekha, Suganthan & Sudhakar, 2023). By leveraging these three capabilities, the NRBV enhances the systematic examination of the relationship between natural resources and the environment, and business performance. By broadening the definition of resources from what firms own to what firms process or access, this method eventually helps researchers define a bridge between a wider range of resources and strategic outcomes (Wang, Kim, Kim & Koh, 2024).

This theory fits in with the study since it suggests moving away from a competitiveness that is centred on products and instead, it argues that the best chance for competitiveness comes from developing new resources and making the most use of existing ones to achieve environmental performance. The NRBV explores the ways in which organisational resources could support strategic and environmental advantages (Baah et al., 2021; Ma, Ali, Shahzad & Khan, 2022). By confining the NRBV approach, environmentalists and ecologists have argued that dynamic capabilities and green innovation can boost enterprise revenue and long-term success (Shahzad Qu, Zafar, Rehman & Islam, 2020b). In other words, by implementing green resources and utilising green dynamic capabilities, businesses can create an environmentally friendly and strategically green environment. Strategic business capabilities will increase first-

mover rewards and promote more proactive environmental protection (Andersen, 2021). In today's circular and knowledge-based economy, green dynamic capabilities are the best option for innovation and sustainability as they promote national and business growth by utilising natural system regeneration and redesigning concepts (Ma, Ali, Shahzad & Khan, 2022). The Natural Resources-Based View (NRBV) theory advances the idea that firms with a higher-level green capability are more likely to deliver sustainable and green products. From this point of view, an organisation cannot rely solely on its valuable dynamic capabilities to support superior environmental performance. Instead, it must use its green dynamic capabilities to integrate, build, and reconfigure inherent organisational green resources to achieve environmental sustainability.

This study is grounded on the natural resource-based view, a significant theory that expand the resource-based view (RBV) approach and elucidates the association between environmental strategy and competitive advantage in the light of green capabilities, resources and future prospects modelled by the inclusion of the environment in businesses. The next theory to be discussed serving as the background of this study is the dynamic capabilities framework.

### **3.4 DYNAMIC CAPABILITIES FRAMEWORK**

The dynamic capabilities perspective is inspired by Schumpeter's (1934) innovation-based competition theory, which holds that competitive advantage relies on the distinctive blending of current resources to create new operational capabilities. The concepts were further developed in the literature and included features such as configuration competence (Henderson & Cockburn, 1994), combinative capabilities (Kogut & Zander, 1992), and architectural innovation (Abernathy & Clark, 1986). Teece, Pisano and Shuen (1997) expanded on these ideas to develop the concepts of dynamic capabilities and the framework of dynamic capabilities (Teece, 2007; Pavlov & Saway, 2011). The theory of dynamic capabilities pertains to the formation, utilisation, and safeguarding of resource and competency combinations necessary for adjusting to changes in the business environment (Ellström, Holtström, Berg & Josefsson, 2021). According to Teece et al. (1997) a business's dynamic capabilities are determined by its capacity to combine, develop, and reorganize its internal and

external proficiencies to acclimatise quickly to changing environments. Dynamic capability theory is described as how firms can adjust and reorganize their capabilities and resources to obtain a sustainable competitive advantage in a constantly shifting competitive environment (Xiao, Al Mamun, Masukujjaman & Yang, 2023) Wang and Liu (2023) describe dynamic capabilities as the firm's basic ability to successfully adapt to modifications in the business environment through the incorporation, expansion, adaptation, and reshaping of both internal and external resources. According to Yuan and Cao (2022), dynamic capability is integrated into the organisational skills and improves the efficient use of resources, leading to superior results. They use existing resources and information to identify organisational capabilities and innovation (Yuan & Cao, 2022). A business's dynamic capabilities include its potential to change its resource base, take prompt market-oriented decisions, recognise opportunities and threats, and solve problems systematically (Mansouri, Malainine, Souti & Cadimi (2022). Álvarez and Torrecillas (2020) describe it as the business' capacity to adapt and change its current resources through exploration and exploitation. In a dynamic and changing business environment, these competencies are viewed to be crucial for attaining a sustainable competitive advantage (Xiao et al., 2023). Teece et al. (1997) describe dynamic capabilities as a collection of routines, practices, abilities, and assets used by an organisation to achieve a long-term competitive advantage. As a result, a business with innovation and a long-term competitive advantage is linked to one with dynamic capability (Ja, Zhuang, Xie, Wang & Wu, 2023). According to Pundziene, Nikou and Bouwman (2021), the dynamic capability theory was developed as a general framework to compile the knowledge of a firm-level competitive advantage in the face of intense, frequently worldwide competition driven by innovation. The dynamic capabilities approach examines how a firm's diverse resources and capabilities evolve and adapt to changing external factors, based on the assumption that these elements can change over time (Ruiz-Ortega, Rodrigo-Alarcón & Parra-Requena, 2023).

Additionally, they are essential for responding to the current, complicated, unpredictable, and volatile environment (Tabaklar, Sorkun, Yurt & Yu, 2021). Firms can enhance innovative products and sustain competitive advantages through effective resource utilisation, dynamic capabilities, and an organisational environment (Arranz, Arroyabe, Li & Fernandez de Arroyabe, 2020; Shiferaw & Amentie Kero,

2024; Wang, Niu, Mansour, Leong & Yan, 2024). Teece et al. (1997) separated DC's capabilities into three categories: sensing, seizing, and reconfiguring (Ferreira, Coelho & Moutinho, 2020). Teece (2007) also made the point that developing sensing capabilities necessitates a meticulous search for information about what is happening in the business's ecosystem. Sensing capability is related to an organisation's capacity to recognise and take advantage of opportunities related to environmentally friendly features. It includes tasks, such as scanning, producing, learning, and interpreting, and it entails recognition, expansion, co-development, and evaluation of technological prospects in relation to the needs of the customer (Ellström, Holtström, Berg & Josefsson, 2021; Teece, 2014). Seizing a capability pertains to a business's capacity to react to green opportunities through products, processes, and services. Furthermore, it is related to sensing capabilities as opportunities or possibilities that are sensed need to be addressed with new goods, services, procedures, or combinations of these options (Teece, 2007). A seizing capacity enables an enterprise can assess the potential value of new business prospects and identify organizational changes that are necessary to fully capitalize on them (Ellström et al., 2021). Reconfiguring ability has to do with maintaining sustainable alignment, identifying and safeguarding resources, and adapting to long-term environmental changes. Additionally, it involves redistributing or recombining already existing capabilities, as well as transforming them to alter their form, appearance, or shape within the company (Baeshen & Alhothali, 2022; Li, Hassan, Murad & Mirza, 2023; Prester, 2023). Superior dynamic capabilities are essential in many ways to a company's long-term profitability, including the capacity to create and modify business models (Teece, 2018). Pavlou and El Sawy (2011) argued that Teece et al.'s (1997) framework of dynamic capacities was developed on a non-concrete level and lacked appropriate measuring techniques. As a result, Pavlou and El Sawy (2011) identified the four elements of dynamic capabilities which include integration, learning, sensing, and coordinating.

➤ Sensing Capability

Sensing entails observing the environment to identify opportunities and threats (Leemann, Kanbach & Stubner, 2021; Mashingaidze, Phiri & Nyatsambo, 2022). It is primarily determined by market intelligence capabilities, technology, and the effectiveness and efficiency with which market data is gathered and processed (Al Jabri, Shaloh, Shakhoor, Haddoud & Obeidat, 2024). Sensing is the company's

capacity to detect changes in the environment that may have an impact on its operations, based on its current capabilities. Organisations should be aware of weak environmental signals as they can indicate future opportunities (Ritola, Krikke & Caniëls, 2022; Saud, Azeez & Habeeb, 2022). To excel at opportunity identification, a business must meet several requirements. This means that for sensing to be effective, the firm must first understand customer needs, technology, and potential industry stakeholders (Bechtel, Kaufman & Kock, 2023). Firms need to be aware of their entire environment, including threats from new competitors and other competing activities, in addition to their direct competitors and immediate surroundings (Ellström, 2021). According to Yang, Wei, Shi and Zhao (2020), companies that are unable to recognise shifts in the market will be unable to create the appropriate goods and services at the appropriate moment. According to Mashingaidze, Phiri and Nyatsambo (2022), research activity will boost firms' internal knowledge and highlight that organisations must consider pertinent past knowledge when assessing new information. Externally accessible information and resources have been found to have an influence the growth of a business and all innovation-related activities (Teece, 2018). Following this line of reasoning, hospitality firms are likely to use search strategies to improve the innovation and business performance.

#### ➤ Learning Capability

In the contemporary, highly competitive landscape, businesses must enhance their capacity to gather, analyse, disseminate, and preserve knowledge for both immediate and long-term uses. The knowledge that develops during the learning process influences a firm's inclination to innovate and improve its competitiveness (Haile & Tüzüner, 2022). Learning occurs when knowledge and experience are created, transferred, integrated, and continuously acquired by organisations (Aldabbas & Oberholzer, 2024). In other words, organisational learning. The capability to assimilate and implement new knowledge in the business. A company's learning capability is its capacity to learn experiences from its past and disseminate these experiences with others over time. Thus, the experience curve becomes extremely significant to the operations of businesses (Jabeen & Al Dari, 2023). Learning capability is the process by which an organisation makes the best use of its resources to enhance organisational behaviour through knowledge acquisition, knowledge sharing, knowledge application, and knowledge retention to sustain a sustainable competitive

advantage (Chen & Zheng, 2022). Otioma (2023) defines learning capability as the knowledge developed within staff or functional units to enhance their operations and decision-making.

Learning capability is a behaviour and process that can improve an enterprise's long-term adaptability, allowing it to break through the current strategic path and increase its core competitiveness (Dhir, Ongsakul, Ahmed & Rajan, 2020). It is the process by which businesses cultivate long-term, sustainable, breakthrough innovation, ultimately improving organisational performance (Chen & Zheng, 2022). Businesses that are more environment-friendly base their decisions on insights learned from past experiences and are receptive to new ones (Cyfert, Chwiłkowska-Kubala, Szumowski & Miśkiewicz, 2021). Learning capacity is a source of innovation as the creation of novel goods and services requires the application of unconventional concepts and methods (Zia, 2020; Makhoulfi, Laghouag, Ali Sahli & Belaid, 2021). This suggests that in order to improve innovation and performance, and gain a competitive advantage, businesses must establish sufficient procedures for locating, organising, and reconfiguring their resources, such as knowledge, expertise, and skills (Bernal-Torres, Amaya, Gómez-Santos, Mojica-Macias & Sierra-Parra, 2023).

➤ Integration capability

According to Rashidirad and Salimian (2020), integration capability enables businesses to incorporate individual knowledge into their operational capabilities. The efficient and successful transfer of technology and information between and among a firm's various organisational units is the primary focus of this dynamic capability (Teece, 2019). Based on Teece et al.'s (1997) study, integration capability is defined as the capability of the organisation to develop new resources and capabilities by assessing the worth of its existing resource stock and combining them to tackle environmental challenges. Maskhidze et al. (2022) describe integration capability as the business' ability to integrate knowledge of emerging technologies and to integrate with external markets and resources. A firm's capability to continuously use and modify a variety of integration mechanisms is a key component of its integration capability (Saukko, Aaltonen & Haapasalo, 2022). Hernández-Linares, Kellermanns & López-Fernández (2021) state that firms with integration capability that deploy their resources

and activities, realise improved financial (sales, revenue, profit, and return on investment) and non-financial performances in firms.

➤ Coordinating capability

Coordinating capability is defined as the capacity to plan, organise, and implement operations, resources, and actions in the new effective business environment (El Sawy & Pavlou, 2011). While the coordinating capability concentrates on organising individual tasks and activities, the integrating capability builds on fostering collective understanding (Pavlou & El Sawy, 2011). As a result, organisations with coordination capabilities can respond to changes more adaptably and acquire and distribute resources at lower costs, both of which are likely to result in higher returns (Hernández-Linare, Kellermanns, and López-Fernández 2021). Coordination capability is defined by Matarazzo, Penco, Profumo and Quaglia (2021) as the capacity to arrange and allocate tasks, resources, and activities into new, standard capabilities (Shuaib, He & Song, 2021). The ability to coordinate enables the assignment of resources to a task, the selection of the best candidate for a position, the identification of resource and task complementarities and synergies, and the planning of group activities (Bitencourt, Santini, Ladeira, Santos & Teixeira, 2020). This allows a company to dynamically realign and redirect its resource base to manage a business environment that evolves rapidly to stay competitive, to keep customers, and to enhance performance (Nieves et al., 2017; Rashidirad & Salimian, 2020). It takes a diverse group of managers with complementary knowledge and abilities to successfully identify opportunities, understand and manage organisational resources, capabilities and procedures, and support change (Shuaib et al., 2021). Such a transforming process necessitates a variety of new workforce capabilities in order to address sustainability challenges in hospitality firms and achieve a sustainable environment and competitive advantage. The dynamic capability theory theoretically lends support to the study's framework on green dynamic capability and performance of firms. According to this theory, an organisation's core resources and capabilities drive its competitive advantage and long-term sustainability. The next sub-section will examine the construct of firms' green dynamic capabilities.

### **3.5 GREEN DYNAMIC CAPABILITIES**

Researchers and business practitioners have given dynamic capability a great deal of attention. A significant corpus of research across numerous business areas reveals the noteworthy impact dynamic capabilities have on a range of firm outcomes, including business growth and sustainability (Mohaghegh, Blasi & Groessler, 2021; Bari, Chimhundu, & Chan, 2022; Li 2022). Though dynamic capability has been extensively studied by academics, there is limited research that concentrate on green dynamic capability. Scholars have not agreed on its definition or measurement (Li, 2022). Several businesses do not place sufficient emphasis on the growth and promotion of a green dynamic capability. Furthermore, only a few studies have integrated green dynamic capability into green innovation and sustainability (Qiu, Peng, Dong, Wang, Ding, Zhang, Mao, Liu, Quine & Meersmans, 2021; Yu, Tao, Hanan, Ong, Latif & Ali, 2022; Bresciani, Rehman, Alam, Ashfaq & Usman, 2022). In comparison, there is a dearth of studies on how green dynamic capability impacts green innovation and sustainable measures of financial, social, and environmental performance, as well as a green competitive advantage. Since such fundamental concepts and issues are not addressed in the traditional environmental literature, it is imperative that this knowledge gap be addressed.

Notably, researchers and practitioners contend that deforestation and economic stagnation are increasingly caused by the excessive utilization of capabilities and resources (Haldorai et al., 2022; Latif, Gunarathne, Gaskin, San Ong & Ali, 2022; Li, 2022). Green dynamic capability has become an effective tool to mitigate the negative effects of rising degradation of natural resources, environmental damage, and climate change, which pose challenges to global economies and businesses (Guo, 2023; Lin, Ho, Sambasivan, Yip & Mohamed, 2021). An efficient and adequate green dynamic capability can result in a decrease in challenges associated to pollution, climate change, and the quick depletion of natural resources, which will consequently enhance a firm's performance and aid it to acquire a green competitive advantage (Guo & Wang, 2022; Yu, Tao, Hanan, Ong, Latif & Ali, 2022). Green dynamic capability is described as A company's ability to integrate its competencies with the changing market is known as green dynamic capability. Moreover, it is the ability of a business to manage its resources in a way that advances sustainability (Li, Hassan, Murad & Mirza, 2023). Khairy, Mahmoud and Hashsd (2023) define green dynamic capabilities as the resources, abilities, and technologies of the businesses that are used to manage the various ecological demands of stakeholders and customers. It is one of

the resources of the firm that enable it to respond to customers' environmental requirements promptly and effectively. Yuan and Cao (2022) assert that green dynamic capabilities place an emphasis on the creation, integration, and recreation of both internal and external resources allied with environmental protection. Green dynamic capabilities can be defined as Identifying, acquiring, and rebuilding internal and external organizational resources including technological and green resources—to adjust to shifting market conditions i, break free from the constraints of their initial path, and develop new organisational resources and strategic approaches (Zhang, Ouyang, Philbin, Zhao, Ballesteros-Pérez & Li, 2020). It describes a business's all-encompassing ability to identify environment-friendly opportunities, set up environment-friendly resources, and optimise its organisational structures. It motivates businesses to promptly assess outside environment-friendly knowledge sources and respond quickly to stakeholders' demands regarding ecological issues (Qiu, Jie, Wang & Zhao, 2020). It implies that green dynamic capabilities are a business's capacity to effectively respond to external alterations related to the environment through an array of competencies, resources, and capabilities. It establishes which new ones should be investigated in order to address environmental concerns, as well as when, how, and which current resources, competencies, and capabilities should be used (Abrudan, Rafi, Daianu & Kalyar, 2022). These green dynamic capabilities facilitate the construction, adjustment, and reconfiguration of constructs and resources that assist firms in preventing environmental deterioration and ensuring sustainability (Wang & Juo, 2021). Green dynamic capability is the method by which strategic decisions are made taking the environment into consideration with the goal of producing eco-friendly products and processes (Cheng, 2020; Yousaf, 2021). A firm that possesses green dynamic capabilities does well in the long run and outperforms its competitors overall. This is because the business's green innovations have the potential to be sustainable, and they also have intangible value and assets that allow it to leverage its green competencies to meet the needs of different stakeholders quickly and efficiently (Singh, Del Giudice, Chiappetta Jabbour, Latan & Sohal, 2021).

Green dynamic capability is an important tool for businesses to address environmental challenges, such as the rapid reduction of natural resources and environmental degradation. It can also have a major impact on the performance outcomes of their business concerning asset growth, profitability, and reputation (Yu, Yu, Tao, Hanan,

Ong, Latif & Ali 2022; Ali, Danni, Latif, Kouser & Baqader, 2021). Enhancing and growing green dynamic capabilities is crucial as firms can use the resources and knowledge bases to strengthen green organisational capabilities and better adapt to changing market conditions (Xiao, Al Mamun, Masukujjaman & Yang, 2023). One of the primary sources of a firm's competitive advantage is its green dynamic capability, which promotes ecological innovation and active environmental strategies in challenging business environments (Zhang et al., 2020). Therefore, green dynamic capability is an essential component that can be leveraged to create a solid basis for green innovation and to better realise stakeholders' needs. Studies focusing on green dynamic capabilities can offer managerial insights to support sustainable performance and green innovation (Yuan & Cao, 2022). Based on this discussion, the study integrates this construct as an independent variable to explore the impact of green dynamic capabilities on financial, social, and environmental performance, as well as the green competitive advantage, of hospitality firms. In addition, the study incorporates environmental concerns, green self-efficacy, and green innovation as moderating and mediating variables. In the following chapter, these variables are covered in detail.

### **3.6 SUMMARY**

This chapter described the theories based on the study's major variables. The, resource-based view theory, natural resource-based view theory, and the dynamic capabilities framework were included to trace the origin of resources and capabilities and their importance in businesses. Furthermore, the shift of dynamic capabilities to green dynamic capabilities was outlined. The theories gave the essential theoretical foundations for the study's substantial variables. The resource-based view theory points out that firms must use competences, and resources that are precious, rare, unique, and non-replaceable to achieve a sustained, extended competitive advantage, as well as a subset that results in superior long-term performance. The natural resource-based theory expands the application of the resource-based view by recognising the importance of the environment. It highlights how firms can use organisational resources to achieve environmental performance and gain strategic competitive advantages. The dynamic capabilities framework emphasises that for a firm to remain competitive in the market, it needs to develop specific capabilities and

continuously improve its resources. Dynamic capabilities were also discussed in this chapter. The dynamic capabilities' dimensions were examined. However, the focus of this research is on green dynamic capabilities, which meant that the discussion of green dynamic capabilities was emphasised. The literature was discussed by unpacking the need for green dynamic capabilities to resolve environmental issues to enhance firm performance and competitive advantage. Since this construct is rare in literature, the study adopted it as its core independent concept to examine its relationship on firm performance (financial, social, environmental performance; and green competitive advantage), with the integration of green innovation, green self-efficacy, environmental concern, and green competitive advantage. The next chapter covers these constructs in depth.

**CHAPTER FOUR**  
**GREEN INNOVATION, GREEN SELF-EFFICACY, ENVIRONMENTAL**  
**CONCERN, SUSTAINABLE PERFORMANCE AND GREEN COMPETITIVE**  
**ADVANTAGE**

**4.1 INTRODUCTION**

The preceding chapter presented the study's underlying theories. This chapter covers the empirical literature of the study and examines all relevant collected works on the topic of the research. The environmental effect of human activities has become a universal and growing concern for firms; As a result, implementing green practices is crucial for today's businesses. This study has adopted green innovation, green self-efficacy, and environmental concern, financial, social, environmental performance, and a green competitive advantage as strategies to achieve sustainability of firms. This chapter will first look at the definitions and types of innovation as a construct used to achieve firm performance. The introduction of green innovation will be discussed in depth, focusing on the definitions, the forms of green innovation and the importance of green innovation in businesses to achieve a sustainable performance. The chapter will give a broad view of self-efficacy, focusing on the definitions and types. Green self-efficacy will also be discussed in depth. In order for businesses to meet their environmental targets, the management team must have confidence in its abilities to plan and carry out eco-friendly activities. They will thus have green self-efficacy. The topic of green self-efficacy will be expanded upon, with a focus on the diverse definitions proffered by scholars and the significance of green self-efficacy to businesses. Environmental concern as a strategy used by owners and managers of businesses to attain sustainable performance is further explored in depth. This chapter also looks into sustainable performance. In the area of strategy, the concept of sustainable performance is critical. Intriguingly, there are few studies that have applied this strategic measure as a multidimensional construct. Most studies use financial performance as a performance indicator. In addition, the chapter will give an overview of performance and measures used to assess it. Financial performance is regarded as a measure of performance, so profitability, liquidity, and stock market value performance will be discussed as indicators of financial performance. Additionally, the

chapter breaks down the sustainable performance definition, the associated measures, such as financial, social, and environmental performance and the importance of these constructs to firms. Green competitive advantage is a new concept that recent studies are exploring as a measure of sustainable performance, as well as a strategy to achieve environmental sustainability. Thus, the chapter will go into greater detail about the GCA as a new measure of sustainable performance. Green competitive advantage is a state in which the firm has the ability to sustainably benefit from effective environmental strategies. Many studies have focused solely on financial performance as a proxy for long-term performance. This study is unique in that it uses not only financial performance as a measure of sustainability, but also social, environmental, and green competitive advantage. Therefore, this chapter focuses on various constructs that underpin the study. Innovation is covered in the first subsection.

## **4.2 INNOVATION**

Innovation is a core business competency, and substantial research has been conducted to examine its significance in firm performance (Jang & Hyun, 2021). It is very difficult to provide a comprehensive definition of the term and clearly describe its nature. Innovation is a multidimensional concept that includes varied meanings and definitions from the perspective of different disciplines (Morad Ragonis & Barak, 2021). According to Borowski (2021), transforming ideas and concepts into a solution that will bring benefits and specific value to the client is referred to as innovation. Innovation is described as the process of transforming possibilities into innovative ideas, adopting these ideas within the business, and successfully implementing the novelties that arise in a way that benefits the firm (YuSheng & Ibrahim, 2020). Innovation is vital for achieving a competitive advantage in start-ups and established companies (Lichtenthaler, 2020). Innovation can be conceptualised as the potential to create novel and valuable products or knowledge (Saunila, 2020). According to Castaneda and Cuellar (2020), innovation is a process, wherein knowledge is acquired, shared, and assimilated to create new knowledge that embodies products and services, methods and processes. Innovation is described as the use of new or substantially enhanced products, processes, promotion plans, or business techniques in business operations, workplace interactions, or external interactions.

(Dangan, Rafi, Sia & Dilla, 2021; Salfore, Ensermu & Kinde, 2023). Innovation also describes new ideas related to job organisation, marketing strategies, and organisational techniques applied in business operations (Borowski, 2021). Growth is based on innovation, which keeps businesses afloat in the face of market volatility and primes them for sustained development (Fernández, 2023). Chang-Muñoz, Guarín-García, Charris-Sevilla, Gallego-Nicholls, Santos-Rojo and Ortigosa-Blanch (2023) define it as the process of using learning and investment to create or transform new knowledge into goods, procedures, or services that satisfy shifting customer needs. Innovation is the inclination of a business to support experimentation and creativity, as well as to launch new goods and services by seeking technological supremacy in the latest techniques (Garrido-Moreno, Martín-Rojas & García-Morales, 2024). Innovations can also involve the creation of a novel concept or method that requires cooperation between individuals or groups within any level of the business (Do, Budhwar, Shipton, Nguyen & Nguyen, 2022). Firms may develop their innovation skills in a variety of areas, such as structures, services, processes, and products. Furthermore, a company's ability to innovate, create new goods or services, meet customer needs, and meet market targets tends to increase profitability and strengthen its business competencies (Hanaysha, Al-Shaikh, Joghee & Alzoubi, 2022).

Innovation increases the introduction of products and technologies not yet available on the market, and facilitates the creation of a product, technological, or market niche for a company (Borowski, 2021). It is a strategy for modifying a firm, whether it be in response to alterations in the company's internal or external environment, or as a preventative measure to shape that environment (Hermundsdottir & Aspelund, 2021). Innovative companies are resilient and can effectively handle external environmental pressures because of their flexibility and adaptable thinking (Li et al., 2021). Previous research has reported that innovation is a dynamic process that drives a sustainable competitive advantage and economic growth for individual firms and even nations. Due to increased competition, driven by globalisation and the advancement of regional and global economies, innovation is an important element that firms wish to use to remain competitive (Ode, & Ayavoo, 2020; Nimfa, Uzir, Maimako, Lneizan, Latiff & Wahab, 2021). Most studies divide innovation into two groups: process innovation and product innovation (Cho & Linderman, 2020; Kamutando & Tregenna, 2023).

#### **4.2.1 Product innovation**

Product innovation is the process of developing and promoting new products, as well as improving already existing ones (Jang & Hyun, 2021). Product innovation is described as the process of creating a new product to successfully meet consumer needs (Chang-Muñoz et al., 2023). A product innovation is the creation of a product or service that is significantly improved or unique in terms of its features its usage. This includes notable developments in technical performance, materials, integrated software, and other functional areas (European Commission Statistics, 2023). Kamutando and Tregenna (2023) state that product innovation refers to developing and releasing new or substantially enhanced products onto the market. It entails the creation of novel concepts, their translation into tangible goods, and their application in a manner that satisfies changing consumer demands and preferences. This can include anything from modest but significant upgrades to current products, and to ground-breaking technological developments (Blichfeldt & Faullant, 2021). According to Zand and Rezaei (2020) product innovation is the process of creating novel products by utilising innovative machinery, features, and technologies. By inventing new products, businesses find innovative solutions to challenges and generate opportunities to increase revenue and overall performance (Waliuddin & Umar, 2022). Product innovation is the process of creating and introducing novel or significantly improved products to the market. It involves the development of innovative ideas, their transformation into tangible products, and the implementation of these products in a manner that fulfils evolving demands and desires of consumers (Kamutando & Tregenna, 2023). This can encompass anything from ground-breaking technological advancements to small, yet impactful, improvements in existing products (Blichfeldt & Faullant, 2021).

#### **4.2.2. Process innovation**

Process innovation comprises refining existing procedures and initiating new ones (Jang & Hyun, 2021). Process innovation is the development or enhancement of systems and procedures that a business uses to produce and supply its goods and services. The focus of this approach is to optimise the production process's internal operations, workflows, and technologies (Chatterjee, Chaudhuri & Vrontis, 2021; De Giovanni & Cariola, 2021; Waliuddin & Umar, 2022). Aliasghar, Sadeghi and Rose (2020) define process innovation as the system of labor, materials, work, information

flows, equipment for the process, and task descriptions used in the production of an item or service. Process innovation refers to the introduction of novel components into an organisation's production or service operations, such as equipment used in product or service production, work and information flow systems, and input materials, with the goal of achieving reduced costs and improved product quality. Process innovation can be attained by making substantial modifications to the methods, supplies, and/or computer programs employed to lower unit production costs or distribution, enhance quality, or produce and distribute new or significantly improved products (Zand & Rezaei, 2020; Ismanu, Kusmintarti and Riwijanti, 2021). Since environmental degradation has become a serious threat to human survival, many organisations and communities are turning to green innovation with the objective to accomplish both business development and environmental protection (Takalo, Tooranloo, Shahabaldini, 2021; Cisneros, Shamsuzzoha, Kuusniemi, & Jovanovski, 2023).

According to Takalo and Tooranloo (2021) green innovation has emerged as a crucial instrument for firms seeking to sustain survival and grow their market share. Effective green innovation gives a firm a competitive edge, enhances its market position, draws clients, and offers green services (Wang 2022). The next section will explore the idea of green innovation in more detail.

### **4.3 GREEN INNOVATION**

Numerous academics and organisations have defined green innovation from a range of perspectives, but they all emphasise the significance of optimising natural resource use, while reducing adverse environmental effects (Liu, Liu & Feng, 2024). According to Li, Huang and Zhao (2022), green innovation is a technological innovation that takes into account environmental factors and typically combines the benefits of energy preservation, emission reduction, and economic development. Ahmed, Streimikien, and Zheng (2021), define green innovation as the provision of services, products, and processes that improve natural resources without endangering or degrading the environment. It is associated with energy efficiency, the reduction of emissions from carbon and energy sources, improved waste disposal, the development of renewable products, and environmental protection for businesses (Yunzhao, 2022). Green innovation is a creative endeavour that adds value to the market, while it is producing

positive environmental effects or reducing negative environmental effects (Wang, Khan, Anwar, Shahzad, Adu & Murad, 2021). Green innovation can take on many forms, such as choosing more environment-friendly raw materials, cutting waste, creating products with eco-design principles, lowering carbon emissions and footprints, and using less water, electricity, and other raw materials (Novitasari & Agusti, 2022). Batool and Mohsin (2024) postulate that green innovation is the engine underpinning green transformation and high-quality development. Green innovation involves reducing energy consumption and pollution emissions, recycling waste, adopting green materials, creating energy-saving technologies, and eliminating negative consequences of resource exploitation (Takalo, Tooranloo & Shahabaldini, 2021; Li, Tian, Liu, Lu, 2022).

According to Li, Huang and Zhao (2022), green innovation is a strategic corporate initiative that presents excellent chances to meet customers' wants and demands without endangering the ecosystem, but instead, minimising adverse effects on the environment, and producing environment-friendly products. Green innovation in the business sector is primarily concerned with cutting energy consumption, utilising solar-powered devices, switching to more energy-conserving heating systems, and minimising the production of solid waste (Wang & Liu, 2022). Additionally, it entails employees' involvement in the creation of sustainable concepts and initiatives, as well as the knowledge exchange between staff members (Fatoki, 2021; Wang & Jiang, 2021). It is the process of enhancing technology, systems, goods, and management techniques to minimize the release of hazardous substances during the course of a product's life cycle and to minimize the use of natural resources in production processes (Liu, Li, Peng & Lee, 2020). It not only saves resources and reduces pollution, but it also helps companies build a good image and reinvent their competitive advantage (Aron & Molina, 2020). Organisations can boost their performance by implementing green innovation. This is because green practices assist in the development of strategies that minimize resource consumption, lower the risk of harm, and increase the organization's carbon footprint (Muisyo et al., 2022). Research indicates that the notion of green innovation has gained traction in the modern era, coinciding with the growing global importance of environmental concerns and global warming. Therefore, businesses must implement green innovation techniques because sustainability is essential to their survival in the future and is considered a

principal duty of businesses operating in a global marketplace (Ahmed, Akbar, Aijaz, Channar, Ahmed, & Parmar, 2023). Green innovation consists of modifications in energy-efficient product design and production methods that limit waste, prevent pollution, and lessen the firm's negative environmental effects and can be divided into green product innovation and green process innovation (Rehman, Kraus, Shah, Khanin, & Mahto, 2021; Liu et al, 2024).

#### **4.3.1 Green product innovation**

Green product innovation is described as design advancements that lessen the impact of a product on the environment during its manufacture, use, and eventual disposal. In addition, it emphasises the use and recycling of environmentally friendly materials to cut down on energy and material waste during the production process (Khan, Dhir, Parida & Papa, 2021). Green product innovation aims to mitigate environmental transformations and customer preferences by lowering excessive energy and raw material consumption to prevent hazards to the well-being and safety of customers (Wang & Liu, 2022). According to Andersen (2021) green product innovation satisfies consumer demands for environmental protection, aids in the development of new markets, makes it more difficult for rival companies to copy products, and keeps products competitive. Green product innovation is the process of modifying products during the manufacturing and operation phases by using safe and sustainable resources. Additionally, it places more emphasis on using less energy or resources to save money, minimise the use of hazardous materials, and generate new markets to better the economy and the environment (Qiu, Jie, Wang & Zhao, 2020; Ying & Jin, 2024). Businesses can use green product innovation to gain a competitive edge, build consumer confidence, improve their brand, and lower cashflow volatility (Rahman, 2023). Green process innovations primarily consist of integrated cleaner production technologies that minimize pollution emission during the production process and end-of-pipe systems that manage pollution after it has been generated (Liu et al., 2024).

Green product innovation is characterised by its environment friendliness and involves the introduction and enhancement of products made of recyclable or environmentally friendly materials. It also involves product modifications intended to prevent pollution during product use and to reduce energy consumption (Buswari, Setiawan, Nur & Khusniyah, 2021). Dhir Khan, Parida and Papa (2022) state that green product

innovation is the application of concepts to create new products or alter current ones to eliminate the detrimental effects on the environment. It entails the creation of novel, energy-efficient products, as well as the use of recovered or environmentally friendly materials, or both, as inputs in the manufacturing process. Products that promote green innovation provide businesses with new information, tools, and resources to help them adapt to the needs and preferences of customers, as well as to adapt to institutional expectations (Zhang, Zeng, Tse, Wang & Smart, 2021). Environmentally friendly products meet the 3-R criteria, which include (1) Reduce, which means cutting back on anything that generates waste; (2) reuse is the process of repurposing waste that is still capable of being employed for the same or a different purpose; and (3) recycle, by turning waste materials into new goods (Buswari et al., 2022). According to Khan, Dhir, Parida and Papa (2021), the utilisation and repurposing of environmentally friendly materials can help minimise both, material waste and energy consumption during production. Green product innovation satisfies consumer demands for environmental protection, aids in the development of new markets, hinders competitors' ability to copy products, and preserves product competitiveness (Andersén, 2021; Wang & Liu, 2022).

#### **4.3.2 Green process innovation**

Green process innovation focuses on improving the production process through techniques, such as introducing novel green production equipment and green recycling techniques to minimise environment effects (Dugoua & Dumas, 2021). Green process innovations are crucial in enhancing environmental quality and lowering energy and raw material usage, as well as environmental pollution, when compared to traditional innovations (Guo, Lv, Liao, Xi, Zhang, Zuo, Cao, Feng & Zhang, 2020). This innovation lowers production costs and aligns products with environmental regulations, thereby incorporating stakeholders' environmental needs into production design (Wang & Liu, 2022). According to Maziriri and Maramura (2022), green process innovation is a technique of making modifications to the existing working frameworks and processes to produce new or enhanced green products, while minimising harmful environmental effects. It effectively promotes green production design, increases resource utilisation, and positively influences business performance to integrate the concept of green throughout the entire process of developing new products (Ma, Zhang & Yin, 2021). Green process innovations are

widely used by businesses to boost production efficiency, reduce costs, and create prospective markets (Xuemei, Thao & Qiwei, 2022). It is described by Maziriri and Maramura (2022) as modifications to the frameworks and working processes currently in place with the goal of creating new or improved green products to lessen the detrimental impacts on the ecosystem. Green process innovation is the application of processes innovation associated with reduced environmental and human harm, energy conservation, waste re-use, and contamination prevention (Naz et al., 2021). Green process innovation causes radical environmental change, such as the launch of environmentally friendly goods, and it has become a vital component in the development of green innovation (Li, Li, Sarfarz & Ozturk, 2022). By improving existing production processes or introducing new ones, green process innovation lowers production costs and detrimental effects on the environment (Khairani, Susetyo, Yusnaini & Yusrianti, 2021). Green process innovation relates to the production techniques and procedures that minimise negative environmental effects and give environmental sustainability the highest priority (Cheng, Ahmad & Irshad, Alsanie, Khan, Ahmad & Aleemi, 2023). According to Begum, Xia, Ali, Awan and Ashfaq (2022) and Singhal, Singh, Sihag and Srivastava (2022), green process innovation implies the development and implementation of novel structures, technologies, or procedures that aim to minimize the harmful effects of industrial processes and promote environmental sustainability. It ensures the effective use of natural resources, while minimizing waste, pollution, and energy consumption (Kim, An, Kwak, Kim, Jung & Park, 2022).

The principal objective of green process innovation is to maximise the functionality of products and services for consumers and other stakeholders (Takalo, Tooranloo & Shahabaldini, 2021). Through green innovation process, firms become more flexible and cost-effective, which can help reduce environmental risks, maximize resource efficiency, and open up new opportunities for environmentally friendly practices, attain competitive advantages, optimize positive performance within an organization, lower pollution rates, raise recycling rates, and design and create eco-friendly goods and services (Wang & Liu, 2022; Cheng, Ahmad, Irshad, Alsanie, Khan, Ahmad & Aleemi, 2023). As a result, green innovation is an imperative method used to help the society and businesses reach environmental sustainability. It contributes significantly to long-term performance ((Li et al., 2022; Liu et al., 2024). Personality

traits of business owners and managers have been identified as the potential predictors, as some influence firm's performance and growth (Caliendo, Kritikos, Rodriguez, & Stier, 2023). Self-efficacy, which stems from Bandura's (1977) concept, is viewed as an important personality trait in this regard. The concept is further explored in the following subsection.

#### **4.4 SELF-EFFICACY**

The concept of self-efficacy was established by Bandura in his Social Cognitive Theory. The theory is widely used in psychology, education, business, and communication and is based on the Social Learning Theory, which was subsequently refined and renamed Social Cognitive Theory in 1986 (Bandura, 1986). According to social cognitive theory, self-efficacy is the belief in one's capacity to perform and organise the action process (Bandura, 1997). Self-efficacy is the power of an individual to influence their environment and their behaviour, perception, and feelings with reference to future objectives (Bandura, 1977). Self-efficacy is referred to as an individual's judgment of their own capability to formulate and execute tasks in order to achieve optimal performance. Bandura (1977) defined self-efficacy as the confidence in one's capacity to organise and implement the course of an action needed for managing a potential situation. It is determining one's capability to accomplish a specific task. In a study of Hussain, Nazir, Hashmi, Shaheen, Akram, Waseem and Arshad (2021) self-efficacy is described as the power of the person's actions in various situations that an individual believes in to accomplish a task. According to Ahmad, Rosli and Quoquab (2022), It indicates a person's confidence in the potential to perform or follow a plan of action to achieve the desired results. Self-efficacy represents an individual's beliefs and judgements about their ability to succeed at a given task (Bandura, 1997). An individual's self-efficacy for a task can influence behaviours related to the task, including the choice of whether the individual engages in the task, how much effort the individual puts into the task, and how long the individual perseveres at the task when faced with difficulties (Bandura, 1986). Self-efficacy is a belief that affects how well a person completes tasks and succeeds in the future (Wardana, Martha, Wati, Narmaditya, Setyawati, Maula, Mahendra and Suparno, 2024). Self-efficacy is also outlined as a person's confidence in their capacity to meet performance standards and have an impact on their daily activities (Bandura,

1994). Elnadi and Gheith (2021) state that people with the greatest level of self-efficacy would always be on the lookout for opportunities, cultivate reliable relationships, and use self-control at work. It gives people the ability to evaluate opportunities, decide sensibly, and take the initiative on tasks. It represents a belief that one can persevere through challenging and unfamiliar tasks (Caliendo, Kritikos, Rodriguez & Stier, 2023). Understanding self-efficacy is important for comprehending human behaviour, as it impacts an individual's decision-making, level of intensity, and willpower (Arghode, Heminger & McLean, 2021). Individuals who possess greater levels of self-efficacy tend to be more self-assured and driven in their endeavours compared to those who have lower levels (Ndofirepi, 2022). Self-efficacy implies the ability to assess whether an individual is able to succeed in tasks, as well as the ability to handle negative and positive thoughts while achieving goals (Ferreira-Neto, de Carvalho Castro, de Sousa-Filho & de Souza Lessa, 2023; Adeniyi, 2023). People's perceptions of their own performance affect the kinds of situations they can envision, create, and manage. High performers are attracted to effective situations because they provide constructive direction and encouragement for work (Bandura, 1993). According to Shen, Wang, Hua and Zhang (2021), a person with high self-efficacy believes that they can mobilise the enthusiasm, cognitive resources, and courses of action necessary to meet the demands of a given situation. Self-efficacy predominantly stems from the four sources, namely, mastery experiences, vicarious experience, verbal persuasion and physiological states (Bandura & McClelland, 1977; Peura, Aro, Rääkkönen, Viholainen, Koponen, Usher & Aro, 2021; Shen et al., 2021; Bhati & Sethy, 2022).

➤ Mastery experience

Mastery experience is the process by which a person gains confidence from previous accomplishments (Kwarteng, 2021). According to Kabir and Rabby (2023) and Burger (2024), an individual's confidence increases with the number of goals they accomplish, particularly if the work ahead seems to be the work, they have already completed. Mastery experiences help people develop coping mechanisms and exert control over possible dangers (Shorey & Lopez, 2021). Active mastery experiences contribute to people's expectations of their own efficacy, and these can be increased by taking part in professional courses, competing in business competitions, working on firms' training programmes, and engaging in simulated or real business activities (Shen et al., 2021).

Mastery experiences specify the effective completion of a task, which varies depending on experience. Individuals encounter different situations and have different work experiences depending on whether they complete a task successfully or not (Javed, Fatima, Khan, & Bashi, 2020). Successful task completion leads to higher self-efficacy, whereas failure leads to lower self-efficacy. Managers with low efficacy frequently discount their successes rather than changing their beliefs after completing tasks successfully. The most significant influence on self-efficacy is thought to come from enacted mastery experiences, which mirror an individual's perceived success or failure in prior experiences. Recurring successes can reduce the negative effects of infrequent failures by fostering strong efficacy expectations (Macafee, Gilles, & Comeau, 2020).

➤ Vicarious experience

Vicarious experience is how people learn from their surroundings (Bandura, 1997). In this regard, social modelling guides employees to perform by depicting relative knowledge of how to act in difficult situations, serving as an important model for employees who lack knowledge of how to execute a similar task (Bandura, 1982). Vicarious experiences occur when someone views others as role models and interprets their accomplishments as their own. This can increase the observer's sense of self-efficacy (Del Mar Haro-Soler, 2021). Vicarious experience is the idea that one can accomplish a goal by looking at what others have done (Bandura, 1977). People who can see successful problem-solving techniques modelled by role models have vicarious experiences (Ostrem, 2021). Shorey and Lopez (2021) state that vicarious experiences involve individuals observing others who resemble them and effectively engaging in similar behaviours and activities. Seeing successful role models, such as well-known business owners and managers, who are effectively running their enterprises, increases self-efficacy of other business managers (Shen et al., 2021). Vicarious experience Information is obtained through observing the actions of others. Seeing others complete tasks without suffering consequences can boost one's confidence in their own ability to complete comparable tasks successfully (Macafee, Gilles & Comeau, 2020). When individuals witness other individuals successfully completing a task, it may contribute to self-efficacy (Macafee et al., 2020). According to Bandura (1977), people convince themselves that if other people can succeed, they should also be able to achieve at least some improvement in performance.

➤ Verbal persuasion

Verbal persuasion is the term used to describe the positive impact that other people can have on an individual's self-efficacy. A person is inspired to pursue mastery when they receive encouragement from another person because they want to please the encourager (Kabir et al., 2023). They firmly believe they possess the necessary skills and abilities to succeed (Shorey et al., 2021). According to Waddington (2023), verbal persuasion is connected to the evaluations or comments made by other people. It refers to other people's remarks about a person's ability that demonstrate their confidence in that person's ability and encourage that person to have faith in it. Accordingly, verbal persuasion is predicated on the notion that when people have faith in someone else's capacity to complete a task, that person can be encouraged to believe in their own capabilities (Del Mar Haro-Soler, 2021; Bhati & Sethy, 2022). Verbal persuasion is the process of persuading someone through feedback from others. Both positive and negative comments may increase or decrease anticipation for efficacy (Macafee et al., 2020) While efficacy beliefs formed by verbal persuasion are lower than those based on personal experiences, Verbal feedback can convince individuals that they can manage challenging circumstances when they engage in activities that support effective performance (Bandura, 1977). Verbal persuasion, such as encouragement and convincing others, may facilitate self-efficacy by helping managers overcome self-doubt and rather focusing on the task at hand by giving it their best effort; this will consequently result in good business performance (Bandura, 1977; Johnson, 2021).

➤ Psychological state

Physiological and emotional states refer to the way individuals experience and interpret their emotional and physiological states, such as anxiety when engaging in activities (Peura et al., 2021). Those who have greatest level of self-efficacy are more likely to view emotional stimulation as a performance enhancer than those who have low self-efficacy, who view it as a negative factor. Physiology influences self-efficacy, and how a person feels during an activity can have a positive or negative impact toward completing a task (Kabir et al., 2023). People may perceive the emergence of negative physiological states, like fatigue or pain, or negative emotions, like stress or anxiety, as an indication of their incapacity, which lowers their self-efficacy beliefs to

finish the task at hand (Del Mar Haro-Soler, 2021). A person's interpretation of information obtained from their own senses is a matter of physiological and affective states (Waddington, 2023). Physiological and affective states are physical and emotional responses that influence perceptions of personal competency (Macafee, 2020). Physiological states, such as anxiety, emotion, stress, mood states and fatigue, also provide information about self-efficacy beliefs as the fourth sources (Gale, Alemdar, Cappelli & Morris, 2021). These psychological states are also known as aversive somatic or emotional arousal states, in which managers and staff experience low self-efficacy and increased stress due to negative self-perceptions about their potential (Javed et al., 2020). Managers at work experience psychological pressure because fatigue, distress, and anxiety are negative psychological states that lower self-efficacy (Javed, Fatima, Khan & Bashi, 2020). According to Bandura (1977), business owners rely on their physiological states in judging their vulnerability and anxiety reaction to stress. These include physiological cues, such as a racing heart, sweating, blushing and headaches. Javed and Fatima et al. (2020) assert that feelings and symptoms, such as stress reactions, anxiety, excitement and tension, can be interpreted as indications of debility and business failure. Self-efficacy development could assist managers and owners of firms in overcoming psychological barriers in achieving business goals (Lee, Kim & Lee, 2022). The business world is gradually shifting toward green sustainability, so managers and owners of firms must set green environmental tasks and have faith and self-confidence in completing the set green activities. As a result, manager self-efficacy is shifted to green self-efficacy. The following section unpacks the concept of green self-efficacy.

#### **4.5 GREEN SELF-EFFICACY**

In the social cognition theory put forward in 1986, Bandura (1986) claimed that individuals are affected by the surrounding environment through personal perceptions. Bandura believed that in the same environment, different people have different perceptions (Wang, Cao, Zhuo, Mou, Zihao Pu & Zhou, 2021). Bandura (2006) suggested that measurement of self-efficacy should theoretically be combined with the problem studied and the field involved. Consequently, the idea of green business was incorporated into self-efficacy and a new concept of green self-efficacy (GSE) has been developed in this environmental era (Guo, 2022). Green self-efficacy is having

faith that one can contribute to the resolution of environmental issues, which reflects the individual's self-assurance and trust in their own efforts to improve the environment (Wang et al., 2021; Mughal, Cai, Faraz & Ahmed, 2022). According to Nurul Alam, Mashi, Azizan, Alotaibi and Hashim (2023), green self-efficacy is a belief that one can make a commitment to improving a sustainable and high-quality work environment. It speaks to people's confidence in their ability to help solve ecological problems while exhibiting enthusiasm in their attempts to preserve the environment (Guo, 2022). Green self-efficacy is the certainty that a person can succeed in environmentally friendly endeavours and take risks (Ediagbonya, 2023). According to Alshebami (2023), green self-efficacy implies that individuals have the resilience, belief, and ability to tackle environmental issues.

Green self-efficacy is the belief that one can contribute to the solution of environmental problems and reflects one's self-assurance in one's ability to improve the environment (Wang et al., 2021). Mughal, Cai, Faraz and Ahmed (2022) assert that green self-efficacy is a person's conviction to undertake necessary actions to achieve environmental objectives. It is activated by an individual's confidence in taking on and completing ecological tasks (Li, Abdalla, Mohammad, Khassawneh & Parveen, 2023). It can be identified as an individual's confidence in their ability to meet their individual objectives while taking environmental safety into account. The business leader believes that their business endeavors can contribute to positive change (Rivai, Lukito & Morhan 2020; Prodanova, San-Martín & Jimenez, 2021). Green self-efficacy may be seen as the faith that individuals have in their abilities to systematise and implement the green plans necessary to attain environmental objectives (Farooq, Zhang, Talwar & Dhir, 2022). Green self-efficacy is a sign of faith in a person's ability to contribute to the mitigation of environmental degradation in the workplace. It aids in understanding the unique competencies associated with organisational duties that guide and navigate environmental actions, ultimately promoting environmentally beneficial behaviours for the environment (Wu & Chiang, 2023). Additionally, it encourages eco-friendly behaviour by moulding self-assured behaviour and actions, which reduces barriers and improves environmental performance of businesses (Iftikar, Hussain, Malik, Hyder, Kaleem & Saqib, 2022). Alshebami, Fazal, Seraj, Al Marri and Alsultan (2024) posit that self-efficacy is a prerequisite for embracing environment-friendly behaviours, as it may enhance the motivation to embrace innovative or challenging

environmental practices. Individuals with a high level of green self-efficacy are more assured that they can accomplish their green objectives by adopting various behaviours (Wei, Li, Chudhery, Chen & Fang, 2024). They can manage negative emotions more effectively and react well to environmental challenges and problems (Qin, Wu, Bi, Deng & Hu, 2024).

Individuals with greater green self-efficacy believe that producing new environmentally friendly products will lead to better business performance (Zhang, Sun & Xu, 2020). Self-efficacy is a vital component of environmental beliefs and attitudes; this means that green self-efficacy strengthens the responsibility felt by leaders and promotes enterprises to implement various environmental advocacy initiatives, such as improved handling of waste, recycling, conservation, and pollution management (Ying & Mehmood, 2021). Akhtar, Martins, Mata, Tian, Naz, Dâmaso and Santos (2021) posit that green self-efficacy is vital for integrating behavior and personality characteristics with environmental factors. As a result, it continues to be an influential factor in increasing people's desires to enhance green product innovation., competitive advantage and sustainable performance. Environmental concern is significantly influenced by green self-efficacy, which encourages businesses to implement environmentally friendly practices and fosters managerial accountability for operational actions (Wu & Chiang, 2023). Environmental concern will be covered in the following section as a construct used in this research.

#### **4.6 ENVIRONMENTAL CONCERN**

Businesses are becoming increasingly concerned about the growing environmental issues. A feasible approach to address environmental issues is to encourage sustainable and ecologically friendly development through managers' environmental concerns (Li, Wang & Cui, 2022). Scholars offer various perspectives of environmental concern. According to Li, Agyeiwaah and Zhao (2023), having an environmental concern indicates that one is aware of the effects of one's behaviour regarding the environment. The term describes people's degree of worry for the environment and its health. It affects behaviours and attitudes of individuals toward different environmental issues (Tunçel & Buğday, 2022; Wang & Li, 2022). According to Wang and Wu (2024) environmental concern is the level of awareness, support, and

willingness on the part of people to help solve ecological problems. Hosta and Zabkar (2021) describe an environmental concern as a broad strategy for addressing issues in the natural environment, which can include an assessment of environmental flaws that are either positive or negative (Sultana, Amin & Islam, 2022). Concern for the environment is defined as knowing the effects of current environmental issues and being prepared to take action to address them (Handayani, Ariescy, Cahya, Yusnindi & Sulisty, 2021; Dangelico, Nonino, Pompei, 2021). It is the understanding and knowledge of the importance by which individuals or communities come to preserve the sustainability of the environment and ecosystems around them (Pramita, Taufik, Jumailah, Ikal & Subroto, 2023). Yang, Chuang and Chen (2024) describe environmental concern as the consciousness of people regarding environmental sustainability on ecosystems, human health, and socio-economic development. Environmental concern emerges when people realise that the environment is damaged and in turn, they build their ecological attitude and ecological values (Sánchez-Bravo, Chambers, Noguera-Artiaga, López-Lluch, Chambers, Carbonell-Barrachina & Sendra, 2020; Zhang, Luo, 2021). It describes the extent to which people are aware of environmental issues, support attempts to address them, and express a willingness to directly contribute to those solutions (Zhang & Xie, 2022). According to Li, Khan, Qalati, Naz and Rana (2021), it represents the adoption of natural resources and reflects potential influences on viability. In addition, it incorporates the quality of air and water, energy usage, natural resources, hazardous and solid waste, and land use/cover. Ideally, environment-concerned managers should track long-range trends for each of the environmental dimensions to help identify the impacts that a project, policy, or product will have on a business market, or a community (Liu, LI, Hao & Liu, 2020; Chen, Wu & Jiang, 2022).

To evaluate the real level of individuals' environmental concerns, it would be necessary to evaluate their concern or interest in the theme, as well as their past, current and future behaviours and how much they comprehend how their actions affect the environment (Freire, Quevedo-Silva, Frederico, Vils & Junior, 2021). Therefore, environmental concern encompasses a person's emotional views, attitudes, and behaviours regarding environmental issues as well as their implications for the long-term, sustainable growth of the ecosystem and social economy. Promoting sustainable development initiatives, such as encouraging energy-saving practices and lowering pollution levels, requires environmental concern (Kuai, Zhang, Zhang & Li, 2022;

Zhang & Gong, 2023). According to Ye (2022), managers who exhibit a greater concern for the environment are more likely to exhibit environment-friendly behaviours, which can improve environmental performance and foster the firm's growth. Being environmentally conscious requires an understanding of the environment, which is a useful tool for improving sustainable performance and environment-conscious behaviours (Darvishmotevali & Altinay, 2022). It is crucial in raising the environmental awareness of building managers and owners, making them responsible members of a business that values the environment (Handayan et al., 2021). Concern for the environment actively encourages the creation and application of environmental strategies and makes it easier to integrate information resources and knowledge absorption to support green innovation (Yang & Liu, 2023). Because managers make and implement business decisions, their environmental concerns may have an impact on the environmental management strategies employed by in organisations. Additionally, managers' environmental concerns make it easier for environmental practices to be integrated into the sustainability performance of firms (Tan, Siddik, Sobhani, Hamayun & Masukujjaman, 2022). An extremely environmentally aware management team sees reduced environmental damage and mitigated adverse environmental effects as being essential to achieve sustainability (Tan & Zhu, 2022). Overall, firms across various industries need to implement the strategies discussed above in order to attain sustainability. The next sub-section presents a summary of firm performance and its measures.

#### **4.7 PERFORMANCE**

The concept of firm performance has gained importance in research on strategic management and is regularly employed as a dependent variable (Olubeva, 2021). Although it is a widely held belief in the academic literature, its definition and measurement are seldom ever agreed upon (Ali, 2022). However, because there is no universal definition of firm performance, there is inevitably a variety of interpretations by different scholars. Firm performance is described as an economic measure that indicates enterprises' capacity to use both material and human capital to meet the firm's goals. It takes into account how effectively business tools are used in the production and consumption processes (Nguyen, Nguyen, Nguyen & Do, 2021). Firm performance is the input-output situation of a business throughout a specific operation period. In order to

achieve firm performance, the business must aim to produce the most with the least amount of input (Ouyang, 2020). According to Liu and Wang (2022), firm performance is when a firm outperforms its competitors. Business performance is the capacity to efficiently employ available resources to continuously meet firm objectives and cultivate client relationships (Qalati, Barbosa, and Iqbal, 2023). A study by Salamé, Leroy, Saidani and Nicolai (2021) states that a firm's performance depends on its business objectives, goals, and strategies. Performance is assimilated to the achievement of objectives characterised by their internal coherence and relevance (Sudiyatno & Suwanti, 2022). Firm performance measures how well a business uses its material and human resources to accomplish its goals. Additionally, it takes into account the effectiveness of employing commercial methods in the course of production and consumption (Nguyen, Nguyen, Nguyen & Do, 2021). In order to manage the performance objectives, businesses have a system in place for measuring performance (Samad, 2022). The majority of businesses use performance indicators that include both financial and non-financial elements, such as quality, operation efficiency, market or customer, human resources, internal business processes, and external environmental indicators (Duric & Topler 2021; Samad & Ahmed, 2021).

Business performance is described as the functional capacity to meet the desires of the company's primary shareholders, and it must be evaluated to assess an organisation's success (Latifi, Nikou & Bouwman, 2021). Firm performance is the operating effectiveness and efficiency of a business throughout a specific time of operation. Additionally, profitability, asset operations level, ability to repay debt, and the capacity for sustainable expansion are the major indicators of an enterprise's operating efficiency (Ouyang, 2020). For every enterprise, it is important to gain the best possible performance. As a necessary condition to achieve that, managers must be able to effectively assess and evaluate business performance through various performance measures (Papulová, Gažová, Šlenker & Papula, 2021). Most research studies have examined financial performance as an indicator of performance. To ensure business sustainability, recent studies have shifted their focus from performance to sustainable performance by integrating and finding a balance between financial, social and environmental aspects of a firm. Nowadays, sustainable business performance is presented in an integrated way, combining these three aspects (Malesios, De, Moursellas, Dey & Evangelinos, 2021; Saihi, Ben-Daya & Almulhim,,

Almubarak & Aljabr, 2023). Other performance metrics of tourism in the hospitality industry includes; customer satisfaction, customer loyalty, staff turnover, employee behaviour and satisfaction, internal process quality, profitability performance, productivity and efficiency, However the focus of this study is on financial, social, environmental performance and green competitive advantage The following section goes into detail about how businesses can achieve sustainable performance using financial, social, and environmental performance measures.

#### **4.8 SUSTAINABLE PERFORMANCE**

The concept of sustainable performance has drawn a lot of attention recently, and researchers have proposed many definitions of sustainable performance. According to AlNawafleh, al-sharari, Alsheikh, Al-Ghalabi and Hamdan (2022), sustainable performance refers to an organisation's ability to meet the needs of its stakeholders over time by incorporating economic, environmental, and social factors into its business strategies (Vieira, Viviani, Espuny, Homem, Isaksson & José, 2021). Sustainable performance is the arrangement of the objectives of an organisation concerning economic, social, and environmental performance while executing core business functions with the aim of increasing the enterprise's value (Vale, Miranda, Azevedo & Tavares, 2022). Henao and Sarache (2022) describe sustainable performance as business's ability to function in a way that meets current demands without affecting the capacity of future generations to satisfy their own needs. The idea of sustainable performance was created to act as a balance between the primary factors that are typically involved in balancing social, environmental, and economic performances at various levels (Khan, Yasir, Shah & Majid, 2021; Ullah, Wang, Bashir, Khan, Riaz & Syed, 2021). A study of Al-Abbadi and Abu Rumman (2023) describes sustainable performance as an organisation's capacity to meet its objectives and boost value for shareholders, while accounting for its long-term economic, environmental, and social responsibilities. Sustainable performance is achieved by businesses through the proportionate implementation of a business strategy that prioritises the ethical, social, cultural, environmental, and economic aspects of conducting business (Farchi, Touzi, Farchi & Mousrij, 2021). Sustainable performance is about meeting the demands of stakeholders, as well as those of the business in the long run, while protecting, preserving, and enhancing the natural and human resources that will be

needed in the future (Saulick, Bokhoree & Bekaroo 2023). It can be described as the degree to which a business generates economic value without endangering the environment in which it operates and simultaneously advances social well-being (Akhimien & Adekunle, 2023; Ma, Zhang & Dong, 2023). Dana, Rounaghi and Enayati (2021) elucidate that dependable, superior items can be produced at reasonable prices to attain sustainable performance. Additionally, Rounaghi, Jarrar, and Dana (2021) note that time, quality, and pricing all play crucial roles in fostering the sustainability of business operations and activities. Its primary goal is to satisfy consumers' immediate financial commitments and social requirements, while avoiding environmental pollution from emissions, hazardous waste, and other materials that endanger the environment and future generations (Akhimien & Adekunle, 2023). The term is derived from the triple bottom line (TBL) method, which is still the most applicable framework for comprehending, assessing, and putting into practice a company's performance management strategy from a sustainable viewpoint. Elkington (1998) created the TBL, which combines a business's social, environmental, and financial aspects to measure its sustainable performance. The TBL adds a firm's social and environmental values to its financial value to assess a firm's sustainable performance and guide organisations in their commercial operations. All the components of a firm's sustainable performance are covered below:

#### **4.8.1 Financial performance**

Researchers from different countries have conducted research on how sustainability disclosure affects the financial performance of businesses (Abbas, Mehmood, Ali & Aman-Ullah, 2023; Carvajal & Nadeem, 2023; Remo-Diez, Mendaña-Cuervo & Arenas-Parra, 2023). Financial performance is a regular flow of income sufficient to pay for the business's ongoing expenses, as well as those of its future endeavours (Akhimien & Adekunle, 2023). According to Meshack, Owa Nwadiolor and Chiedu (2022), firm performance refers to the idea that an organisation's finite resources are used effectively to pursue its stated objectives to take advantage of both current and future opportunities. This could be accomplished by employing ratios derived from financial statements, particularly the comprehensive income statement and the statement of financial position. Financial performance is employed to assess an organization's current state and prospective growth. While there are numerous measures estimating financial performance, the selection of the suitable ratios is dependent on the features of the studied objects and study purposes (Kim &

Duvernay, 2021; Juma & Maseko, 2022). Obembe, Jacob and Edheku (2022) state that the financial performance of the firms contains the businesses' complete components of the financial operations, including conventional measures used in financial management and accounting, and additional intangible aspects, which are normally not measured in financial terms. It is the effectiveness with which businesses utilise resources to generate income that evaluates an organisation's financial stability. In addition, it directs management's adoption of initiatives and policies that will increase the organisation's sustainability (Etale, Boloumbele & Yalah, 2022; Juma & Maseko, 2022). Financial performance refers to the achievement of the firm's financial goals within a specified time frame. It includes the choice and allocation of capital, based on variables, such as profitability, leverage, solvency, efficiency, and sufficient capital (Saddam, Nizar, Ariffin & Abas, 2023). Schiemann (2021) indicates that organisational performance is measured through the financial performance measures, namely, profitability, liquidity and stock market performance. Business measures are one of the primary tools of financial analysis and they are important variables of a firm's performance and financial status (Ismail et al., 2022). These are discussed below.

### ➤ **Profitability**

Profitability is one of the most synthetic ways to express the effectiveness of the enterprise's entire economic and financial activity, or of all the production factors from all the stages of the economic circuit (Hada & Mihalcea, 2020). It is regarded as a firm's capacity to manage its resources and produce outputs with greater economic value (Arbelo, Arbelo-Pérez & Pérez-Gómez, 2020). Profitability is when the business generate revenue by using complete services and resources, such as capital, sales, cash, number of workers, and the number of branches (Umar, Hussaini & Halad, 2023). Profitability of a firm can be measured by different ratios, which are helpful to calculate a firm's ability of achieving earnings (Hussein, Saeed & Ahmad, 2023). Profitability is the excess of revenue over costs, which generates a higher internal rate of return and subsequently, leads to the business's good financial performance (Mandipa & Sibindi, 2022). Tudose, Rusu and Avasilcai (2022) state that profitability describes the point whereby the use of a firm's resources and funds generates income. The profitability ratio is a ratio that aims to determine the company's ability to generate

profits during the current period and provides an overview of the effectiveness of management in implementing its operational activities (Puspita, Wiwiek & Daryanto, 2021). Profitability ratios include the net profit margin, return on assets, and return on equity (Puspita et al., 2021).

The net profit margin (NPM) indicator shows how much net income after taxes relates to revenue and sales (Astuti, 2021). In addition to indicating the issuer's more profitable performance, a higher NPM ratio draws investors' attention and may persuade them to make an investment in the company (Tudose et al., 2022). The ability of the business to generate net income from sales is correlated with the NPM, and a higher NPM indicates greater effectiveness and efficiency (Handayani & Srihadi, 2020). This ratio demonstrates that the larger the ratio, the better, as an effective company's performance might result in a sizeable net profit from its sales activities (Supriyadi & Terbuka, 2021). To calculate profits from the standpoint of shareholders, return on equity, or ROE, is utilized. This ratio illustrates the amount of net income the business makes after shareholder investments (Harinurdin, 2022). Furthermore, the business's decision regarding the appropriate investment type is also impacted by the amount of profits it makes. ROE demonstrates the efficiency of own capital use. Return on Assets (ROA) aims to measure the amount of net profit obtained from total assets, so that the return value on total assets is obtained (Sukenti, 2022). The ROA ratio shows the return on the amount and type of assets used by the company. This metric holds significant importance for internal stakeholders, particularly company managers, as it facilitates an analysis of the issuer's effectiveness and efficiency in utilising the company's overall assets (Habbe, 2023). The better the ratio, the more effectively the organisation can use its resources to generate a profit, implying that with a similar asset base, the business can generate higher profits (Supriyadi & Terbuka, 2021).

### ➤ **Liquidity**

Liquidity is regarded as the capability of a firm to convert an asset to cash quickly. It is also defined as the capacity of a firm to settle off its short-term obligations (Hu, Jin, W, Yang & Hu, 2022). Liquidity ratios primarily focus on the cashflows; it is an indicator to measure a business's ability to meet its short-term liabilities (Sholaeman, Rinofah & Maulida, 2021). Liquid assets include treasury bills, notes, and securities such as stocks and bonds (Ismail et al., 2022). According to Ismail et al. (2022), liquidity is the

capacity of an organization to meet its short-term financial activities and operating needs with cash or its equivalents. Liquidity is measured by a number of ratios, such as current ratio, quick ratio and cash ratio (Hendiarto & Fauzan, 2024). Liquidity ratios are also used to measure the organisation's ability to pay the debts on time and cover certain liabilities (Adusei, 2022). Lalithchandra (2021) postulates that the liquidity ratio helps one to identify the ability of the company in paying its bill in due course of time. Investors often take a close look at liquidity ratios when performing a fundamental analysis of a firm. Since a company that is consistently having trouble meeting its short-term debt is at a higher risk of bankruptcy, liquidity ratios are a good measure of whether a company will be able to comfortably continue as a going concern (Djohan, 2023). The set of financial liquidity metrics that are frequently used to assess financial performance can predict bankruptcy, whether utilized individually or in different ratio combinations (El Deeb & Ramadan, 2020; Ismail et al., 2022). As the market value grows, so does the business's capacity to meet its short-term obligations. Maskami, Putra and Pondrina (2022) state that a lower liquidity ratio is a sign of a business' financial difficulties.

➤ **Stock market value performance**

Stock market value performance refers to the share price in the market. The financial asset, such as the shares of a firm, should fetch value in the market (Mousa, Nosratabadi, Sagi & Mosavi, 2021). Market value is also commonly used to refer to the market capitalisation of a publicly traded company and it is obtained by multiplying the number of its outstanding shares by the current share price (Bibi, Khan, Zaman Sriyanto Sasmoko & Khan, 2022). The stock market is one of the primary sources of expanding capital for the companies. By giving space to issued shares, which parts the ownership of the company among shareholders, required capitals are gathered (Chikwira & Mohammed, 2023). For the purpose of issuing shares, the firm first needs to be listed on the stock exchange. The stock market consists of several stock exchanges (Liyanapathirana & Ranasinghe, 2020). While investors make the decision to invest in stock market, they should first evaluate the financial information of current, past, and future performance to examine the maximum returns of a firm (Kalyani & Annamalai, 2024). The better financial performance of a company, the higher the expectations of investors (Sholichah, Asfiah, Ambarwati, Widagdo, Ulfa & Jihadi, 2021). Great performance causes the stock to be more attractive and the stock price

to be higher. Conversely, if the financial performance of a company is not good, then investors' expectations will be low, so investors are not interested in investing in these shares, which reduces the stock price (Aini, Minanurohman & Fitriani, 2023).

Antwi-Boateng (2023) states that financial performance measures an organisation's long-term operating value, cost effectiveness, output, retributions, return on investment, and market value. These factors all contribute to the organisation's ongoing profitability and financial survival. Financial performance is gauged by how much the shareholder has gained or lost over the course of a given period. This can be accomplished by utilizing data on stock market prices or ratios derived from financial statements, particularly the income statement and balance sheet (Khan, Wu, Saufi, Sabri & Shah, 2021). According to Tudose, Rusu & Avasilcai (2022), financial performance can be evaluated using various financial metrics, such as earnings per share, profit after tax, ROE, ROA, and any other commonly accepted market value ratio. The higher the ROE, the better the firm's performance. The greater the debt-to-equity ratio, the more dependent the firm is on outside parties, or creditors, and the greater the amount of debt (interest costs) that must be incurred. The higher cash ratio implies that the business is better able to meet its current obligations, resulting in higher profits and attracting investors (Kusumawardani, Haat, Saputra, Yusliza, Muhamma & Bon, 2021; Khan et al, 2021). The capacity of businesses to generate output, enhance customer service, expand their product offerings, and effectively penetrate and establish new markets all depend on how well they utilise the resources at their disposal (Akhimien & Adekunle, 2023). The greater a business's income, the more unlikely it is to proclaim bankruptcy, insolvency, or be unable to pay debt and finance future operations. In order to ensure the sustainability of a business, financially stable firms ensure sufficient cashflow to meet capital liquidity at all times and provide continuous returns to stakeholders (Ma, Men, Li & Li, 2021). This ensures the long-term effective profitability of the firm's financial performance. Antwi-Boateng (2023) contends that the primary goal of financiers and owners of businesses is to improve the financial performance of their respective firms through rapid and simple approaches. A firm can be said to be performing well financially if it makes greater use of its assets than its rivals or competitors (Mandipa & Sibindi, 2022). Okewale and Sibindi (2021) opine that firms with strong financial performance adds value, attracts

employees, fosters innovation and social responsibility, and benefits the economy as a whole by generating income, paying taxes, and fostering economic growth.

#### **4.8.2 Social performance**

According to Archana (2024), social performance is centred on community involvement, customer needs and the work environment. Social performance typically addresses concerns about the public and stakeholders in the external business environment, as well as issues pertaining to the internal business environment, such as employees' health and safety, and human resource practices (Ma et al., 2021). Social performance of firms is described as the extent to which it creates value through contributions to society, public employment, and social service provision (Khan et al., 2021). Social performance corresponds with the outcomes of the business, which impact the social structures within which the enterprises operate. An assessment of the enterprise's effects on different stakeholders at the local, national, and international levels is used to measure social performance (Muangmee, Dacko-Pikiewicz, Meekaewkunchorn, Kassakorn & Khalid, 2021). According to Borah, Iqbal and Akhtar (2022), social performance in organisations is directly related to the recent concern about how an organisation's actions affect the society. Social performance is a business matter that deals with managerial and enterprise policies that are in line with the societal goals and values. It is mostly used in regard to concerns for stakeholders, and the welfare of the state (Battaglini, 2021). A wide range of social and environmental factors are taken into account when measuring social performance, including indicators that quantify employees' working conditions, hazardous emissions, relationships built with key stakeholders, relations between the business and the community, the range of social programmes it offers, employee relations, the company's impact on the environment, its human rights policy, and the extent to which its goods adhere to social and environmental norms are all factors to consider (Crişan-Mitra et al., 2020).

Social performance calls on businesses to respect human rights, ensure product quality, adhere to legal requirements, and give consideration to local charitable endeavours (Archana, 2024). Antwi-Boateng, Mensah and Asumah (2023) postulate that social performance examines business decisions that benefit humanity in ways that go beyond following norms, laws, and standard operating procedures. Firms that

give beyond the scope of social laws through corporate social responsibility increase the organisation's value (Serfontein-Jordaan & Dlungwane, 2022). Corporate social responsibility (CSR) is when managers of businesses try to lower the harmful effects of their operations on stakeholders, the environment, and society at large, while concurrently creating beneficial outcomes (Licandro, Vázquez-Burguete, Ortigueira & Correa, 2023). In essence, CSR refers to ideas and methods that allow businesses to willingly incorporate social and environmental issues and solutions into their firms' operations and collaborations with stakeholders (Serfontein-Jordaan & Dlungwane, 2022). CSR explains how a business oversees its sector and accepts accountability for its effects on stakeholders. It includes a range of attributes, such as reliance on the economic growth, adherence to the law, moral obligations, and social impacts (Chen, Khan, Hongsuchon, Ruangkanjanases, Chen, Sivarak & Chen, 2021). Barauskaite and Streimikiene (2021) assert that CSR aims to bring about long-term business opportunities, shift societal expectations and needs, allocate resources for social problem-solving, uphold moral commitment to socially responsible activities, develop human and intellectual capital, and ensure reputation and security. Corporate social responsibility represents a firm's general, coherent approach toward preserving society's resources and providing the surrounding community with a higher quality of life and enabling businesses to voluntarily take full responsibility for the development of society (Crişan-Mitra, Stanca & Dabija, 2020). In order to improve social performance, businesses carefully analyse how the CSR programmes affect both the firm's performance and stakeholders' activity (Taran & Mirkin, 2020). Stakeholders, such as community, customers, and employees, are crucial to enterprises' sustainability and can affect the business's social performance (Ting et al., 2020). CSR initiatives can enhance employees' organisational commitment and organisational social performance and most of the workers can attract more potential employees for an organisation that has an excellent reputation for being socially responsible (Sameer, 2021). Napier, Knight, Luo and Delios (2023) proclaim that social performance places a direct and concentrated attention on organisational circumstances and actions, such as environmental protection, working and labour conditions, product safety, and problems pertaining to women and minorities, in order to achieve performance objectives. A study conducted by Ting, Azizan and Bhaskaran (2020) postulates that investors represent the potential sustainable development of an enterprise. Social performance not only represents added value to shareholders, but

it also improves investors' valuation through better impressions that lead to enhanced social performance of the business (Kurt & Peng, 2021). Social performance is crucial in determining the sustainable performance of firms.

### 4.8.3 Environmental performance

Since the Brundtland Commission report (1987) defined sustainable development, the formalization of environmental issues has gained prominence. Environmental performance was introduced to qualify the green contribution of an organisation to its surrounding environment (Mansour Salamé, Leroy, Saidani & Nicolai, 2021). Environmental performance is a diverse construct, and scholars define it in varied contexts. It is defined as lowering greenhouse gases and dangerous waste, using eco-friendly materials, collaborating with suppliers who practice sustainability, and adhering to environmental standards (Haq & Huo, 2023). According to Hussain (2022), environmental performance is the business's willingness to cut back on waste, the use of resources and chemicals, and activities that harm the environment. It highlights how devoted organisations are protecting the environment. Environmental performance is associated with how businesses affect the natural assets of the environment, which include the land, atmosphere, water, and ecosystem (Alraja, Imran, Khashab & Shah, 2022). Environmental performance is the extent of implementing an eco-friendly environment and cleaner production policies that are central to safeguarding the natural environment for future generations and preventing the destructive effects of climate change (Uche, Egolum, Nestor, Amahalu & Chinyere, Juliet, 2021). In studiesw by Obeidat, Al Bakri and Elbanna (2020), and Yousaf, Radulescu and Haffar (2022), environmental performance is described as continuous recycling of waste products, the reduction of energy use, and continuous reduction in carbon credits and emissions in operations, as well as saving energy by changing machines or equipment or replacing their energy resources from fuel to renewable energy resources. Akhimien and Adekunle (2023) describe it as the extent to which organisations implement ecologically friendly environment and cleaner production policies, which are central to safeguarding the natural environment for future generations and preventing the destructive effects of climate change. Ahmad, Scholz, AIDhaen, Ullah and Scholz (2021) and Carroll (2021) attest that environmental performance is all about the actions and procedures that a company takes to protect the environment and its resources, including water, air, and soil.

According to Salamé, Leroy, Saidani and Nicolai (2021), a firm's environmental performance encompasses the environmental efficacy and efficiency of all environmental initiatives and actions implemented within the organisation. The term environmental effectiveness refers to the results of planned environmental actions, programmes, measures, and other environmental initiatives on the environment. Conversely, environmental efficiency encapsulates the entirety of the organisation's endeavours to execute ecological initiatives and attain optimal environmental outcomes with minimal resource allocation (Duric & Potočnik Topler, 2021). Khan et al. (2021) state that a variety of indicators, including the use of fewer hazardous materials, a reduction in CO<sub>2</sub> emissions and waste production, the mitigation of environmental risk, and the reporting of environmental compliance, are used to evaluate the environmental performance of the companies (Ma, et al., 2021). Environmental performance can be a parameter of the success of production activities, as it describes an efficient level of production with high safety standards and emphasises costs in avoiding the costs of environmental damage from the impact of production activities (Eksandy, Murtanto & Arsjah, 2021). Additionally, a firm's environmental performance sets expectations for a firm to take advantage of opportunities from new investors because of the business's excellent track record for maintaining an environmental balance throughout the industrial operations that go beyond maximising company profits. A firm's environmental performance creates a good environment, which builds a positive image in the eyes of stakeholders (Ngubdo & Ibrahim, 2023). Environmental performance can also be a parameter of the success of production activities, and it describes an efficient level of production with high safety standards and one that is emphasising costs in avoiding the costs of environmental damage from the impact of the production activities. In addition, good environmental performance provides expectations for the business to seize the opportunity of new investors because the good image of the company is able to maintain environmental balance amid production activities that are not merely pursuing company profits (Eksandy, Murtanto & Arsjah, 2021).

Adopting sustainable development activities and reporting on their operational impacts provides numerous benefits to the company, including maintaining and expanding economic growth, increasing competitiveness and shareholder value, enhancing the corporate reputation, customer satisfaction and loyalty, retaining the quality

employees, achieving an increased employee motivation, lower costs, and legitimacy (Alsayegh & Rahman, 2020; Antwi-Boateng; Ozkan & Cek Eyupoglu, 2023). Researchers have extended sustainability measures by introducing the competitive advantage as a measure of sustainable development (Sun, Sarfraz, Khawaja, Abdullah, 2022; Jiao, Zhang, He & Li, 2023). The next section unfolds the notion of a competitive advantage and a green competitive advantage as a new measure of sustainable performance.

#### **4.9 COMPETITIVE ADVANTAGE**

Achieving and maintaining a competitive advantage is the outcome of a business's strategic decisions to take advantage of market situations (Friesenbichler & Reinstaller, 2022) A business strategy, also known as a competitive strategy, is typically created at the divisional level and focuses on enhancing a business's product or service's competitive position within the market or industry that the division serves (Sanchez-Henriquez & Pavez, 2021). The division may choose to concentrate its business strategy on increasing revenue from the invention and sale of products and services (Agustia, Muhammad & Permatasari, 2020). The success of a business in a competitive market is largely dependent on its competitive advantage (Zhang & Zhang, 2022). An organisation's competitive advantage stems from the value or advantages it can offer to its customers. A business can acquire a competitive advantage if it can generate an advantage through its strategies (Farida & Setiawan, 2022). According to Farida and Setiawan (2022), a firm's competitive advantage can be observed by examining the various activities it engages in during the design, production, marketing, delivery, and sales support phases. Consequently, having a competitive advantage means that the organisation aims to outperform its rivals. Dagnino (2021) defines competitive advantage as a set of traits or proficiencies that provide a business with a consistent edge over its rivals in terms of profitability. Competitive advantage can result from creating high-end niche products and services that are hard to find elsewhere, or from a company's ability to cut costs dramatically below those of its rivals, enjoying larger profit margins (Thomran, Alshallaqi Al-Mamary & Abdulrab, 2022). Competitive advantage is a strategy that can be applied by a business to achieve its goal and improve company performance to generate profits (Patrisia & Abror, 2022).

Mukarto, Gatot, Ari and Wiwi (2020) describe competitive advantage as the capacity to regularly generate investment returns that are higher than the industry average. According to Abbasi Kamardi, Amoozad Mahdiraji, Masoumi, and Jafari-Sadeghi (2022), a firm's competitive advantage is its capacity to generate greater economic value than its competitors. The study of Lee, Wu and Jong (2022) further supports this statement as it describes competitive advantage as the assortment of different products that provide businesses with a distinct and superior position to set them apart from competitors in the market. Competitive advantage is the capacity of a business to perform in a competitive market and it is largely dependent on its ability to create advantages or value for its customers (Zhang & Zhang, 2022). It is attained by flowing from the numerous tasks a business performs with the objective to plan, create, market, deliver, and assist with sales (Farhikhteh, Kazemi, Shahin & Shafiee, 2020; Guo & Lu, 2021).

According to Barney's (1991) resource-based view theory, a party has a competitive advantage when other parties are unable to replicate it. Competitive advantage may develop if the business has diverse resources and immobility. Special resources must add value to the firm, possess distinctive or uncommon qualities, be challenging to duplicate, and be irreplaceable by other kinds of resources (Buswari, Setiawan & Nur Khusniyah 2021). To gain a competitive advantage, a business needs to establish and maintain positive values that are on equivalent with or better than those of competitors (Hossain, Hussain, Kannan & Nair, 2021). Customer retention and satisfaction are also key to a capacity ability to create a competitive advantage, and the company's capacity to position itself as a responsible corporate citizen is a key differentiator. As a result, organisations must incorporate customers' needs into their overall business strategies to gain a competitive advantage (Fatoki, 2021; Friesenbichler & Reinstaller, 2022). To obtain a competitive advantage, businesses need to be able to integrate internal elements, especially resources, and consider external industry structure when selecting the business models and concepts to be employed (Okhayati, Sholihin, Supriyadi & Nahartyo, 2021). Over the past decade, environmental issues have gradually gained more attention in business research and practice due to the depletion of natural resources at an accelerated rate and the necessity of businesses to gain a green competitive advantage (Yusoff, Kee, Amran, & Nejati, 2020; Rista, Yadiati,

Zarkasyi & Tanzil, 2023). The next section examines the green competitive advantage as a new measure of sustainable performance.

#### **4.10 GREEN COMPETITIVE ADVANTAGE**

The concept of a green competitive advantage (GCA) was first introduced by Chen (2011) by exploring a competitive advantage with green innovation or environmental management. This led in the notion of green competitive advantage being defined as the state in which a firm holds multiple positions concerning green innovation or environmental management strategies, thus resulting in the organisation reaping long-term rewards from the effective environmental management strategies (Chen, 2011, 2013). Other researchers explored various definitions of the green competitive advantage. Astuti and Datrini Astuti and Datrini (2021) describe a green competitive advantage as a position where a business holds certain environmental protection positions that are challenging for competitors to imitate. The adoption of an environmental strategy generally prevents the organisation's rivals from copying it, resulting in the attainment of sustainable goals and benefits (Bintara, Yadiati, Zarkasyi & Tanzil 2023). Businesses that invent environment-friendly products can benefit from a green competitive advantage by improving their environmental reputation, retaining and luring in new clients, expanding their market share, and performing better (Fatoki, 2021). The concept of a green competitive advantage has been described as the conditions of the firm that cannot be imitated by others, and under which the firm holds a position regarding ecological management or sustainable innovation (Alam & Islam, 2021). Muisyo and Ho (2021) state that a green competitive advantage is a condition whereby an enterprise has a position on environmental management and green innovation that rivals cannot duplicate or copy, which ploughs in sustainable benefits to the firm. Kuo Fang and LePage (2021) describe a green competitive advantage as an environmental strategy that successfully develops environmental practices that rivals cannot imitate. A business's capacity to have a unique position in the environmental era is deemed to be a green competitive advantage (Hossari & Elfahli, 2023). Certain environmental variables, like product innovation and a green public image, have also been shown to foster competitive advantages (Benevene, Buonomo, Kong, Pansini & Farnese, 2021; Afum & Li, 2022). These factors can be utilised by firms to meet their customers' needs and expectations concerning environmental

problems (Benevene, 2021). This notion of green competitive advantage is integral for a business to succeed by utilising various resources at its disposal to enhance its performance and surpassing its competitors (Hendratmoko, 2023; Baah, Agyabeng-Mensah, Afum & Lascano Armas, 2024). According to Ahmad, Shafique, Qammar, Ercek and Kalyar (2022), the term green product describes the creation and introduction of environment-friendly goods, services, and procedures that meet consumers' needs, while having the least negative effects on the environment. It takes environmental factors into account at every stage of the product development process, from conception right through to market launch. Implementing this approach will yield a green competitive advantage and put it into practice. It is evident from the definitions that GCA is a crucial goal that a business must attain by using a variety of resources to outperform rivals (Bintara, Yadiati, Zarkasyi & Tanzil, 2023). Innovative firms use ecological strategies to shape their ability to compete favourably in the green market to achieve a green competitive advantage (Alam & Islam, 2021). Although there are risks associated with environmental activities, environmental solutions give businesses a green competitive advantage (Bintara, Yadiati, Zarkasyi & Tanzil, 2023). To maintain a green competitive advantage, the business needs to continuously reinvent itself to better meet both its internal and environmental goals and needs (Ribeiro & Steiner, 2021). By implementing eco-friendly practices, firms can enhance their environmental reputation, reduce waste production, and use resources more efficiently than their rivals. This gives them a distinct green competitive advantage (Zhu, Zhang, Siddik, Zheng & Sobhani, 2023). In conclusion, gaining a green competitive advantage is becoming increasingly important for businesses seeking to differentiate themselves in an environmentally conscious market. The specific factors that contribute to a green competitive advantage, as well as their impact, must be examined. A better understanding of these relationships will be critical in allowing businesses to effectively strategize and optimise their performance, while promoting environmental sustainability. The following chapter will look at the relationships of the variables discussed.

#### **4.11 SUMMARY**

Green innovation, green self-efficacy and environmental concern as strategies to achieve sustainable performance were reviewed in this chapter. The constructs were discussed in detail. Green innovation as a construct was defined by different researchers and it was identified that researchers explain green innovation through the various types, namely, green product innovation and green process innovation. Additionally, self-efficacy was examined, and the various types of self-efficacy were discussed in detail, including mastery experiences, vicarious experiences, verbal persuasion and physiological states. Green self-efficacy as a new environmental strategy was further explored using various definitions from scholars and highlighting that the green self-efficacy strengthens the responsibility of leaders and promotes enterprises to adopt and adapt to various pro-environmental activities. The chapter also thoroughly examined the environmental concerns that businesses have, emphasising the definitions, and the necessity of environmental concerns in reducing adverse environmental effects to promote sustainable development. This chapter further discussed the term 'performance' of firms. According to various studies, there is no universal agreement on the definition of firm performance. Despite this, numerous studies concur that there is inevitably a variety of interpretations of firm performance by different scholars. The chapter also provided measures of performance, which indicated that financial performance is used by several researchers to measure performance. The chapter covered performance constructs related to sustainability, specifically financial, social, and environmental performance. The Brundtland Commission Report (1987) is where the idea of sustainability originated. This concept highlights the importance of natural resources and examines preservation tactics for these resources. The financial, social, and environmental dimensions are the three interconnected parts of sustainability. These elements interact in co-evolutionary, unpredictable ways that lead to further development and unanticipated outcomes. A green competitive advantage was adopted as a novel measure of performance as it's an approach to resolve the tension between environmental issues and business performance. In essence, environmental strategies are key to the sustainable development of firms. The next chapter will discuss the relationships between green dynamic capabilities and performance (financial, social and environmental performance); the relationship between green

dynamic capabilities and green innovation (green product innovation and green process innovation); green innovation and performance; green innovation (green product innovation and green process innovation) as a mediating variable; and environmental concern and green self-efficacy as moderating variables of the study.

## **CHAPTER FIVE**

### **HYPOTHESES DEVELOPMENT**

#### **5.1 INTRODUCTION**

The empirical literature examined relevant factors, such as green innovation, green self-efficacy, environmental concern, financial, social, and environmental performance, as well as the green competitive advantage, was the main focus of chapter four. This chapter covers the study's empirical objectives, which are the relationships between the variables in the conceptual research model. A quick summary of the previous chapters helps to identify the theoretical topics that have been covered thus far. This chapter aims to explore the hypotheses among the primary variables studied. The existing debate is whether green dynamic capabilities can enhance the sustainable performance of firms. This chapter builds hypotheses that will be tested during the data analysis stage, reviews the relevant research, and integrates all of the constructs that have been reviewed thus far into a comprehensive conceptual model. Owners and managers' green tasks and decisions can enhance or worsen financial performance, social performance, environmental performance, and the green competitive advantage. There is a dearth of research on the relationship between GDC and sustainable performance. In an attempt to unravel this enigma, it is within the purview of this chapter to examine the relevant empirical literature. The first section of the chapter covers the GDC as well as the financial, social, environmental, and green competitive advantages. It further examines literature on GDC and (a) green product innovation and (b) green process innovation. The chapter will analyse the effect of green product innovation and green process innovation on (a) financial performance, (b) social performance, (c) environmental performance, and (d) the green competitive advantage. These factors interact to influence one another in certain ways, which results in improved sustainable performance. The mediating effect of green innovation, (a) green product innovation and green process innovation on GDC and sustainable performance measures and green competitive advantage will be discussed, followed by the moderating effect of green self-efficacy and environmental concern on GDC and (a) green product innovation and (b) green process innovation. The conceptual model of the study will also be illustrated. The

hypotheses for the study are discussed below. The next subsection discusses the study's green dynamic capabilities and performance.

## **5.2 GDC AND PERFORMANCE**

This section examines the effect of GDC and four measures of performance, namely, financial performance (FP), social performance (SP), environmental performance (EP), and green competitive advantage (GCA).

### **5.2.1 GDC and FP**

Prior research has focused on dynamic capabilities and financial performance as literature on how green dynamic capabilities will affect not only the financial performance, but the social performance, environmental performance, and green competitive advantage in hospitality firms is sparse. To the researcher's best knowledge, this is the first study that examines the relationship between green dynamic capability and the multidimensional concept of sustainable performance and green competitive advantage. GDC must have an impact on financial performance because a business's economic success relies significantly on its ability to generate substantial revenue. GDC lowers the costs related to environmental risk while increasing the business's profits. With the goal of achieving economic growth for the firm, the GDC will improve organizational ecology and support strong financial performance (Sarfraz, Sarfraz, Ivascu, Belu, Artene, 2021; Davies, Bustinza, Parry & Jovanovic, 2023; Li, Rasool, Cavus & Shahid, 2024). Green dynamic capabilities help businesses access scarce resources, implement internal and external innovation initiatives increase firm's productivity, lower expenses, and enhance product quality, and providing a competitive edge in the green market (Li, 2022). Incorporating green dynamic capabilities can lead to a firm's better reputation, increased working efficiency, lower costs, improved innovation, and better risk management, all of which can contribute to improved financial performance (Vorontsova, 2022; Roffé, & González, 2024). Return on equity (ROE) and return on assets (ROA) are metrics that managers, creditors, and investors use to assess a firm. If these executives implement GDC in their organisations, there will be efficient ways for the company to utilise its resources and green assets to generate a profit. Moreover, turnover on equity will increase. A company's return on equity determines its capacity to convert equity

financing into profits (Saddam et al., 2023). Green dynamic capabilities help the business take advantage of new market opportunities, increase market share and sales, and achieve significant cost savings, all of which increase profit margins (Agyabeng-Mensah, Ahenkorah, Afum, Nana Agyemang, Agnikpe & Rogers, 2020b; Agyabeng-Mensah & Tang, 2021).

Sarfraz, Ivascu, Belu and Artene (2021) assert that green dynamic capabilities have an essential effect on the firm's financial performance by bringing about cultural change. Green dynamic capabilities have a significant impact on a company's financial performance by altering its culture. The ability of the business to turn a profit is crucial to its financial success. The GDC lowers the costs related to environmental risk while increasing the firm's profits (Davies, Bustinza, Parry & Jovanovic, 2023; Li, Rasool, Cavus & Shahid, 2024). The success of today's businesses rely heavily on sales, market share, and the highest returns on investment as they are adopting new strategies to support their financial performance (Anwar & Shah, 2021). This financial aspect motivates firms to achieve their financial goals. In green businesses, competitiveness drives the financial performance of green businesses (Nguyen, Tran, Nguyen & Truong, 2021). The GCA results in long-term profitability. The green competitive advantage is what drives the business's financial success. As a result, firms are under pressure to increase their profits. In this regard, green competitive advantage and green capabilities have appeared to be strategic tools for firms to improve their financial performance (Li et al., 2024). A knowledge gap remains in the relationship between green dynamic capabilities and financial performance of hospitality firms in South Africa; therefore, the study hypothesises that:

*H1a: There is a significant positive relationship between GDC and financial performance.*

### **5.2.2 GDC and social performance (SP)**

Social performance is described as the extent to which environmental strategies adopted by a business contribute to meeting environmental regulations and safeguarding the health and safety of its workers and societal members (Agyabeng-Mensah et al., 2021). Green dynamic capabilities increase societies' preparedness for environmentally friendly and energy-efficient processes to achieve firms' social

performance (Yu et al., 2022). According to the theory of dynamic capability, green dynamic capability is a crucial capability that exhibits how employees' behaviour, actions, attitudes, skills, experiences, commitment, and knowledge are oriented toward the environment (Huang, Chau, Chien & Shen, 2020). As such, it is supportive of human resource management, which promotes environmental initiatives and long term development, such as hiring and training (Yu et al., 2022). Firms can attain social performance through green dynamic capabilities by showing socially responsible behaviour. This can be applied through corporate social responsibility (Malik, Hayat Mughal, Azam, Cao, Wan, Zhu & Thurasamy, 2021). Corporate Social Responsibility (CSR) is essentially viewed as concepts and approaches that enable corporations to voluntarily assimilate social and environmental distresses in the commercial activities and stakeholder contact to promote a social performance of the firm (Chitimira et al., 2022; Serfontein-Jordaan & Dlungwane, 2022). It emphasizes self-regulation in integrated firms and cultivates a sense of social responsibility among stakeholders, including suppliers, customers, investors, and workers (Barauskaite & Streimikiene, 2021). Business survival depends on CSR practices, which also give different stakeholders a competitive advantage (Ramzan, Ramzan, Amin & Abbas, 2021). CSR practices are essential to promote GDCs as they enhance social performance. Businesses that apply CSR practices can obtain the diverse resources needed for green development which promotes green dynamic capabilities of the firm (Aftab, Abid, Sarwar, Amin, Abedini & Veneziani, 2023). Firms that engage in CSR will choose environmentally conscious suppliers who follow environmental regulations with the aim of minimising negative environmental effects. Furthermore, a company possessing robust green dynamic capabilities can swiftly obtain information from suppliers, competitors, and customers that is pertinent to generating green opportunities, adjusting technology processes, product and service structures, and strategic frameworks to align with green business models (Khan et al., 2021; Aftab et al., 2023).

Customers' green consumption behaviour, strict environmental regulations and changes in production technologies and materials force firms to acquire new green knowledge, green capabilities and to reconfigure current resources and internal knowledge to reduce pollution, waste and environmental degradation to achieve sustainable performance and care of the environment (Singh et al., 2022). GDC stimulates firms to implement green practices that anticipate customer preferences,

market demands, and specifications (Chari, Niedenzu, Despeisse, Machado, Azevedo, Boavida-Dias & Johansson, 2022). Green dynamic capabilities serve a purpose in the social environment as they enable organizations to support their staff members' participation in environmental and social activities, such as protecting the environment, promoting ethical business practices, developing the local community, and safeguarding the well-being of employees, reducing energy consumption, minimising waste, promoting recycling and preserving natural resources, improving working conditions for employees, and engaging closely with the local community (Davis, 2021; Harris, 2022; Li, Hassan, Murad & Mirza, 2023; Wojtaszek, Miciuła, Gac, Kabus, Balcerzyk, Będźmirowski & Kowalczyk, 2023.) All these activities will not only benefit the environment, but they will contribute positively to the firm by promoting the brand's reputation among consumers and other stakeholders. Businesses that assist employees in acquiring the necessary skills, knowledge, abilities, and attitudes regarding the environment foster green innovativeness between employees, which in turn serves as the basis for social performance (Agyabeng-Mensah et al., 2021). Achieving social performance through GDC implementation entails improving the working conditions for employees, reducing harmful emissions, building positive relationships with stakeholders, workers, and the community, reducing ecological effects, offering a variety of social programmes, as well as ensuring that products meet social and environmental standards (Rehman, Bresciani, Yahiaoui & Giacosa, 2022). Therefore, the study hypothesises that:

*H1b: There is a significant positive relationship between GDC and social performance.*

### **5.2.3 GDC and environmental performance**

Promoting green dynamic capabilities can achieve a differentiating environmental performance advantage to the firms. By enabling firms to match green resources, processes, and capabilities with environmental goals, GDC may improve a firm's environmental performance, while promoting innovation (Huang & Xiao, 2023; Qui et al., 2020). Green dynamic capabilities aim to promote desired environmental actions by assuring environmental performance connected to and linked with the business's processes, such as energy conservation, pollution control, recycling waste, ecologically friendly product design, and business environmental management (Bresciani, Rehman, Alam, Ashfaq & Usman, 2022). Integrating and fully utilising

resources and capabilities within businesses improves green dynamic capabilities. Consequently, firms that possess greater GDCs are more likely to accomplish environmental innovation (Ma, Ali, Shahzad & Khan, 2022; Yu, Tao, Hanan, Ong, Latif & Ali, 2022). Nassani et al. (2022) postulate that firms depend on green dynamic capabilities to enhance environmental performance, as dynamic capabilities provide the capabilities and resources necessary to achieve environmental goals and enhance business performance. To attain environmental performance, businesses also have to minimise risks and environmental effects by removing pollutants, becoming a responsible supplier, green designing and labelling, and certifying environmental management systems (such as ISO 14001), and producing sustainability reports (Yu et al., 2022). Green dynamic capabilities have an impact on businesses' environmental values and encourage them to take an active role in sustainable initiatives like green innovation and the distribution of environmental resources (Yu et al., 2022).

The term environmental performance describes an organisation's efforts to lessen the negative impacts of its operations on the environment through the adoption of environment-friendly practices, goods, and policies. These include cutting back on the use of energy, reducing waste, and using sustainable green resources and implementing an environmental management system (Dzikriansyah et al., 2023). According to Zameer, Wang, Yasmeen and Mubarak (2022), environmental performance enhances energy and resource utilization efficiency and minimize environmental effects. Additionally, it provides the following advantages: lowering production costs, raising output, strengthening the firm's image and drawing in environmentally conscious customers. To enhance environmental performance, firms must allocate green resources, knowledge, and technologies to effectively handle the diverse environmental requirements of customers and interested parties (Khairy, Mahmoud & Hashsd, 2023). The goals of environmental performance include producing environment-friendly products, cutting down on CO<sub>2</sub> emissions and hazardous materials, making the workplace more environmentally friendly, raising employees' satisfaction, and enhancing the business's reputation. These can be accomplished by facilitating and utilising green dynamic capabilities (Guo, Wang & Chen 2020; Makhoulfi, Laghouag, Meirun & Belaid, 2022).

A key element of the changing market is driving businesses to adopt environmental practices that protect the ecosystem. Organizational leaders and managers place a high value on fostering employees' abilities and coming up with novel ideas and strategies for eco-friendly business operations (Nassani, Javed, Radulescu, Yousaf, Secara & Tolea, 2022; Luu, 2023). According to Tuan (2023), firms that possess greater resources and competencies are more inclined to use green dynamic capabilities to improve environmental performance and embrace ecological changes. Managers and organisational leaders prioritize developing employees' abilities and generating innovative concepts and solutions for ecologically sustainable business operations. Green dynamic capabilities can help firms with more resources and capabilities adopt ecological changes and improve environmental performance (Luu, 2023; Tuan, 2023). To enhance environmental performance, organisations need to manage the various environmental demands by utilising the resources, knowledge, and technologies. Firms tend to rely on their green dynamic capabilities to boost environmental performance and management since these capabilities offer the tools and resources required to meet the environmental objectives and improve environmental practices (Khairy et al., 2023; Nassani et al., 2022). Attaining environmental performance is a key objective that will make businesses understand the significance of green dynamic capabilities (Li, Rasool, Cavus & Shahid, 2024). Given the discussion above, and noting that there is a scarcity of literature on the relationship between GDC and environmental performance, therefore the study postulates that:

*H1c: There is a significant positive relationship between GDC and environmental performance.*

#### **5.2.4 GDC and green competitive advantage**

The concept of a green competitive advantage highlights how unique a business's green practices and tactics are, strengthening its position in the market and enhancing its financial gains over competitors. The business's ability to support environmental sustainability with its resources and capabilities determines its green competitive advantage (Agyabeng-Mensah & Tang, 2021). Green firms implementing green dynamic capabilities will yield a green competitive advantage. This is because GDC enable businesses to find environment-friendly opportunities that enhance firms'

performance (Ahmad, Shafique, Qammar, Ercek & Kalyar, 2022; Sarfraz, Ye, Banciu, Dragan & Ivascu, 2022). GDC results in businesses providing environmentally friendly products that differentiate the firm from its competitors. Businesses can comply with environmental regulations and gain a green competitive advantage by showcasing their dedication to these green capabilities (Qiu, Jie, Wang & Zhao, 2020; Yousaf, 2021). Gaining an advantage in the green market can be achieved by businesses through collaboration, learning, resource reorganization, inventiveness, and cooperative strategy in the development of GDC. Furthermore, through effectively addressing environmental challenges and grasping feasible prospects, businesses can set themselves apart in the industry, draw in environmentally aware customers, reduce costs, improve their reputation with clients, and support environmental sustainability, which fosters green competitiveness. By identifying the firm's capabilities and acting upon change signals, GDC will have effective management that will be highly inclined to take on the opportunities and challenges required to establish a competitive advantage in the green market (Chari et al., 2022; Niedenzu, Despeisse, Machado, Azevedo, Boavida-Dias & Johansson, 2022; Zhu, Zhang, Siddik, Zheng & Sobhani, 2023; Witschel, Müller & Voigt, 2023). Businesses with strong GDC can be differentiated from their competitors and achieve a competitive advantage by providing ecological sustainable products, effectively addressing environmental challenges, satisfying customers' needs for sustainability, and obtaining a green competitive advantage in the green market (Qui et al., 2020). In addition, GDC will craft a green competitive edge if managers of the enterprises utilise the environmental system to enhance environmental benefits, leading to increased product diversification and reduced costs (Zameer, Wang & Yasmeeen, 2020; Yousaf, 2021). Green dynamic capabilities are a firm's commitment to the environment, community, and sustainable development, culminating in success and competitiveness. As such, transforming green ideas into green dynamic capability practices will enhance the gained green competitive advantage (Kuo, Fang & LePage, 2022). The green competitive advantage is a distinct position firms achieve when they provide more environmentally friendly products and services than their competitors. Environmental concerns about greener performance and competition make GDC an intriguing path for accomplishing ecological objectives (Benevene, Buonomo, Kong, Pansini & Farnese, 2021; Wu, Yan & Umair, 2023; Li et al, 2024). In the hotel sector, adopting environmental ideas and practices modifies newly created green resources

and capabilities, which affects differentiated green competitive advantages (Kuo, Fang & LePage, 2022).

Firms that use green dynamic capabilities as a reactive or proactive approach to satisfy customers' environmental requirements are likely to win over more new customers and keep current customers by outselling competitors in the marketplace (Agyabeng-Mensah et al., 2021). GDC permit firms to create and rebuild their organizational capabilities and resources to accomplish green competitive advantage. To reach a green competitive advantage, firms can create and rebuild organisational assets, resources and competencies by the utilisation of green dynamic capabilities. These dynamic capabilities push businesses and their management to find creative solutions to environmental problems in order to draw new clients and maintain their competitiveness in the green market (Singh et al., 2022; Li, Hassan, Murad & Mirza, 2023). Therefore, firms that develop adaptable green dynamic capabilities are more likely to achieve a sustainable green competitive advantage. Therefore, the study hypothesises that:

*H1d: There is a significant positive relationship between GDC and green competitive advantage.*

### **5.3 GDC AND GREEN INNOVATION**

This section will examine the effect of GDC and two measures of green innovation, namely, green product innovation and green process innovation.

#### **5.3.1 GDC and green product innovation**

Literature on the relationship between GDC and green innovation is limited. Prior studies have focused on dynamic capabilities and GI and there remains a big gap between literature on GDC and GI types, namely, (a) green product innovation, and (b) green process innovation. Thus, this study indents to fill the basis of this gap. A green dynamic capability is the capability to prevent environmental deterioration and to identify creative ways to create environmentally friendly solutions for products, which frequently stimulates green innovation (Sun, Tang & Li, 2022; Wang & Sun, 2022). In the process of developing green product innovation, enterprises with green

dynamic capabilities will have a stronger capability to adapt to the environment. This is because businesses are more adept at analysing how the environment is changing, recognize Consumer preferences towards green products and technologies, and seize new opportunities to enter emerging green markets (Li, 2022). Enhanced green dynamic capabilities can have a direct effect on the effectiveness and accuracy of green programs, resulting in a quicker investment in green products and the encouragement of green innovation (Singh et al., 2021). Businesses can use green dynamic capabilities to reorganize resources and carry out green process upgrades quickly when faced with market opportunities for green innovation (Yousaf, 2021). Green dynamic capability lowers risk and uncertainty by providing managers and employees with the knowledge and abilities they need to improve green product design and sustainable entrepreneurship (Yu et al., 2022). A firm that has a stronger green dynamic capability can educate, promote, and spread knowledge about eco-friendly activities inside its own walls. This could enable it to overcome convention and alter the scope of its conventional business to adaptably handle issues associated with green product innovation (Guo, 2023). Firms with higher levels of GDC can more effectively transform green knowledge into green product innovation and realise low-carbon economic development. A firm possessing a strong green dynamic capability can quickly identify the needs of consumers for environmentally friendly products and services and evaluate the ecological innovations of its competitors through various techniques, such as market research. This enables the business to make any necessary adjustments and improvements to its own green products and development plans (Yuan & Cao 2022; Xiao, Mamun, Masukujjaman & Yang, 2023).

By employing GDC, there will be enterprise's reduction of pollution emissions and raw material consumption by using environmentally friendly raw materials, consuming fewer raw materials or choosing eco-design principles when designing products (Guo, 2023). As such, businesses will develop and acquire the resources required for eco-innovation by rearranging internal resources and absorbing and assembling new external knowledge (Huang & Xiao, 2023). Stakeholders' environmental needs are met by green dynamic capabilities, which will positively affect green product innovation. Specifically, such approaches detect and use technical expertise, promote the adoption of new resources, technology, and productivity features to accomplish green innovation (Singh et al., 2022; Yu, Tao, Hanan, Ong, Latif & Ali, 2022). By

adding eco-friendly elements to design, packaging, and production processes, green dynamic capabilities help businesses create in-demand green products and services. By creating new green products and altering existing production processes, businesses can use these capabilities to manage and counter unstable market conditions quickly (Mao & Lu, 2023). Thus, green dynamic capabilities allow businesses to optimize operations for long-term sustainability and proactively address environmental demands to promote innovation. Businesses that have a strong GDC are well-positioned to devote resources to the creation of environmentally friendly products (Qiu et al., 2020; Mao & Lu, 2023). Therefore, by utilizing resources and creating new cross-functional teams for the development of green products, businesses can effectively respond to market prospects associated with green innovation (Singh et al., 2022). Green product innovation not only helps businesses expand into new markets, but it also meets consumer demands for environmental protection, hinders competitors from replicating products, and keeps products competitive. A firm can attain competitive edge through successful green product innovation, which also increases the efficiency with which resources and green capabilities are used (Andersén, 2021; Wang & Liu, 2022). Therefore, in order to ensure environmental sustainability and successfully add value to green product innovation, green dynamic capability must be adopted. The study therefore hypothesises that:

*H2a: There is a significant positive relationship between GDC and green product innovation.*

### **5.3.2 GDC and green process innovation**

The goal of green innovation is to create novel approaches for creating green processes. The green innovation process is made easier by implementing a variety of organisational practices, such as choosing more environmentally friendly raw materials, designing products with fewer materials, and creating them with eco-design principles in mind (Singh et al., 2022). The implementation of green practices is associated with improvements in the environmental performance of the business. Consequently, businesses should adapt to business product processes to incorporate environmental considerations. Green dynamic capability is one of the features that allows businesses to modify its green innovation practices. This ability will give the

business a competitive edge in the green market and improve the firm's performance (Bernadeta, Patworo & Prapti, 2022). By advancing technologies used in areas of pollution control, energy conservation, green product design, waste recycling, and corporate environmental management, green dynamic capabilities ensure green process innovation. The utilisation of businesses' green dynamic capabilities will aid in the efficient use of energy and fuel, allowing firms to acquire green process innovation (Yousaf, 2021). Green dynamic capabilities react to alterations in the external environment by leveraging firms' actions to build organisational green capabilities and use green process innovation. Thus, green dynamic capabilities are advocated as a predictor of green innovation. Firms should have the necessary resources and abilities for learning, integration, and reconfiguration to implement green process innovation (Magistretti, Ardito & Messeni, 2021; Abrudan, Rafi, Daianu, & Kalyar, 2022). The green innovation process influences the growth of green dynamic capabilities, which, in turn, help firms identify and take advantage of opportunities for green innovation. Both of these factors will have an impact on the creation and execution of successful sustainability strategies, which will help firms thrive in a dynamic and evolving business environment (Yousaf, 2021; Yu et al. 2022;; Xiao et al, 2023). Furthermore, green process innovation can assist a firm in developing environmentally friendly products, increasing the size and quality of its output, enhancing its brand, gaining a larger market share, and achieving sustainable development(Xie et al., 2019; Wang & Liu, 2022).

Green dynamic capabilities guide efforts to improve green process innovation by encouraging organizations to react to the environment and promote sustainable development (Yuan & Cao, 2022). Green process innovation, such as recycling, waste minimisation, energy conservation, and raw material enhancements, can be supported by green dynamic capabilities. Additionally, businesses possessing GDCs can take advantage of market opportunities for green innovation by reorganising green resources, resulting in the creation of green process innovation (Singh et al., 2022; Tian, Li & Zhang, 2022). Green dynamic capabilities are a sign of strategic decision-making aimed at achieving green processes and products. Additionally, GDC reduce environmental deterioration and make new discoveries about how to make products and processes more environmentally friendly, which frequently leads to green

innovation (Sun, Tang, Li, 2022; Wang & Sun, 2022). Consequently, GDC raises awareness of sustainability, encouraging businesses to allocate more resources to green processes and products. As such, it is hypothesised that:

*H2b There is a significant positive relationship between GDC and green process innovation.*

## **5.4 GREEN INNOVATION AND PERFORMANCE**

Most of the studies on green innovation have examined the effect of green innovation on environmental performance, economic performance, and competitive advantage (Bhatia, 2021). Few studies have also taken green product innovation and green process innovation as single latent variables and studied how green innovation impact financial and environmental performance. To the best of the researcher's knowledge, there is limited literature on the relationship between green product innovation, green process innovation and sustainable performance of hospitality firms (financial, social, and environmental) and a green competitive advantage. This section examined the effect of green innovation measures and performance measures. The next section will examine the impact of green product innovation on financial performance, social performance, environmental performance and green competitive advantage.

### **5.4.1 Green product innovation and financial performance**

Previous literature on the relationship between green product innovation and a) financial performance, (b) social performance, (c) environmental performance, and (d) green competitive advantage is limited. In-depth research on this relationship is needed. Employing innovative green products innovation can help firms acquire rare, valuable, incomparable, and irreplaceable resources. Firms can also outperform other firms in terms of earnings and markets, which will lead to enhanced financial performance (Li, 2022). Green products innovation has a positive effect on market values and profit margins for businesses; the more inventive a new green product is, the more profitable the business will be. They consist of lower costs, more revenue, a stronger operating margin (OM), more profits, a better price/earnings ratio (P/E), a higher market value (MV), and higher returns on investment (ROI), total assets (ROA),

and equity (ROE) (Chen & Ma, 2021; Farza, Ftiti, Hlioui, Louhichi & Omri, 2021; Ren, Sun & Zhang, 2021; Qing, Chun, Dagestani, & Li, 2022).

Businesses that are at the forefront of green product innovation can enhance the firm's reputation by offering eco-friendly products or services and can even open new markets to gain a competitive advantage (Li, 2022). Energy-saving practices as a component of green product innovation decrease costs and lead to reduced waste discharge which has a great benefit for the enterprise's financial performance (Chege & Wang, 2020; Majali, Alkaraki, Asad, Aladwan, & Aledeinat, 2022). Green innovation has an impact on businesses' financial performance as investment in green product innovation improves customer retention, sales growth, productivity, yield on investments, and overall business performance (Singh, Del Giudice, Chierici & Graziano, 2020). According to Singh, Del Giudice, Chiappetta Jabbour, Latan, and Sohal (2022), green innovation can assist firms in breaking into new markets, introducing new green products, and launching profitable eco-friendly products. Investing in green product innovation can help businesses evade penalties and lawful costs. Firms that generate green innovation products can gain a green competitive advantage and improve enterprise returns, both in the short- and long-term period (Nsiah, Danso, Charles & Raphael, 2022). Positive market perceptions increase a firm's likelihood of being rewarded by investors, and businesses that portray a green image might draw in a wave of new customers who are willing to pay extra for environmentally friendly goods (Piwowar-Sulej, 2022). Financial performance is a crucial metric for investors to evaluate a firm's success as they anticipate returns on their investments. Return may be obtained if a business is able to produce exceptional results from the green, innovative products (Yuniarti, Soewarno & Isnalita, 2022). Green product innovation persuades the effective use of raw materials, which lowers costs and helps businesses come up with novel ways to turn waste into products that can be used, thereby increasing profitability (Qui et al., 2020; Ahmed et al., 2023). Therefore, it is hypothesised that:

*H3a: Green product innovation is significantly positively related to financial performance*

#### **5.4.2 Green product innovation and social performance**

Green product innovation satisfies consumers' demand, while minimising adverse effects on the environment over the course of a product's lifetime (Abbasi, Daneshmand-Mehr & Ghane Kanafi, 2021). According to Li et al. (2023) employees' creative thinking is crucial to guaranteeing the advancement of green products. Sustainable production necessitates environmentally conscious employees' actions to foster firms' socio ecological performance (Turi & Sarfraz, 2022). Firms that exhibit a stronger sense of social responsibility tend to have more recognizable identities and a positive reputation, which inspires greater dedication from all parties involved, including workforce (Padilla-Lozano & Collazzo, 2021). CSR initiatives have the potential to lower operating costs while also enhancing the development of green products. Businesses that care about the environment and combine CSR initiatives with green management strategies will achieve increased operational efficiency. Firms that produce innovative and novel environment-friendly products or services will contribute to all social and environmental activities (Kraus, Rehman & García, 2020; Li, Bhutto, Xuhui, Maitlo, Zafar & Bhutto, 2020; Hesari, Shadiardehaei & Shahrabi, 2021). This indicates that staff members of the firm will make novel contributions by endorsing concepts focused on environmental conservation (Hesari et al., 2021). Managers with green product ideas will also be committed to protecting the environment over the long term with the aim to enhance social performance (Setyaningrum, Kholid & Susilo, 2023; Setyaningrum & Muafi, 2023). Organisations that engage in green innovation practices apply significant consideration to the success of new green products or services. Green innovation effectively motivates businesses to adjust to shifts in the marketplace, in technology, and in the level of competition by, among other things, producing green products and services (Nuryakin, 2022).

New environmentally friendly products that are safe for consumers, or that encourage energy conservation, are made possible through green innovation. Once businesses meet the needs of the customers, they may outperform their rivals in these domains by building their own brands, erecting obstacles to competitors' growth, or drawing in new clients by developing new channels for distribution. Ultimately, these strategies may help businesses enhance social performance and gain a competitive advantage (Hu, Qiu, She & Wang, 2021). Businesses can obtain a wealth of information about green products through customers' knowledge (Awan, Nauman & Sroufe, 2021). The

social and environmental performance of the business will be enhanced by customers who provide suggestions to the company about how to modify the products to ensure environmental sustainability. The application of green product innovation can also improve and deepen the business's relationship with financiers, consumers, investors, and distributors (Liang et al., 2023). Green product innovation will serve the society with higher-quality, unique green products and increase the likelihood that individuals will follow the government's green rules and regulations. It also fosters pleasure among the firm's various stakeholders (Novitasari, Alshebami & Sudrajat, 2021; Alshebami et al, 2023). Thus, the following hypothesis is proposed:

*H3b: Green product innovation is significantly positively related to social performance.*

#### **5.4.3 Green product innovation and environmental performance**

The aim of green product innovation is to improve energy efficiency and prevent waste from production and consumption. To accomplish this, the production process employs non-toxic substances and disposable components (Sarfraz, Ivascu, Abdullah, Ozturk & Tariq, 2022). To create new environmentally friendly products, businesses need to look at the whole life cycle of the product, from production to distribution, usage to ultimate deployment, or reuse and recycling. According to Hang, Sarfraz, Khalid, Ozturk and Tariq (2022), green product innovation involves extending a product's lifespan or simplifying the recycling process, using raw materials that are better for the environment, and eliminating hazardous components. Organizations should adopt green products to elevate their performance through innovation, creativity, and resource efficiency. Green innovation leads to customized customer-centric production that yields superior firm performance (Ahmed, Akbar, Aijaz, Channar, Ahmed & Parmar, 2023). As a result, hospitality firms that generate significant environmental pollution should implement innovative greening products and services to control environmental waste (Ahmed, Streimikiene, Qadir & Streimikis, 2023). According to Ahmed et al. (2023) energy efficiency, waste recycling, pollution evasion, and green product design belong to green product innovation. Utilisation of green product innovation leads to lower emissions and pollution, reduction in energy consumption, improvement in material efficiency, and a reduction in production cost, while it enhances economic efficiency (Fatoki, 2021). Environmental initiatives are

therefore essential to long-term economic performance (Imran, Arshad & Ismail, 2021).

By putting green product innovations into practice, businesses can grow faster and persuade suppliers, employees, and capital savers to keep supporting their businesses and thus, ensure their continued existence. Firms that innovate green products or services will be able to maximise resource utilisation, which will impact their process efficiency and lead to improved environmental performance (Helmi & Widiastuty, 2023). Amir, Iqbal, and Tahir (2021) state that improving ecological attainment can be achieved through the adoption of energy-efficient products and practices. Reducing the production's environmental legitimacy investment through the adoption of green product innovation can help a firm perform better environmentally. It is linked to long-term advancements in ecological restoration, resource preservation, and pollution control (Wang, Cheng, Li, Li & Cuan, 2020; Wang, Li, Li & Wang, 2021). Hence, the study postulates that:

*H3c: Green product innovation is significantly positively related to environmental performance.*

#### **5.4.4 Green product innovation and green competitive advantage**

The notion of green competitive advantage can be described as a firm's distinct set of situations that enable it to stand out on issues including managing the environment or sustainable innovation (Alam & Islam, 2021). Green competitive advantage can also be defined as the effective environmental and sustainability strategy that competitors cannot replicate (Kuo, Fang & LePage, 2022). Businesses seeking a green competitive edge need to be involved in the development and implementation of new, green goods. Having a green competitive advantage is demonstrated by a company's above-average competitiveness from an environmental standpoint (Muisyo, Qin, Ho & Julius, 2021; Wysocki, 2021; Zameer, Wang, Yasmeen & Mubarak, 2022). Green product innovation endorses the development of a green competitive advantage by bringing about significant changes in businesses' ecological operations. This fosters businesses to use innovative business procedures in order to accomplish sustainable development (Muangmee, Dacko-Pikiewicz, Meekaewkunchorn, Kassakorn & Khalid, 2021; Hu, Sarfraz, Khawaja & Mariam, 2022; Sarfraz, Ivascu, Artene, Bobitan, Dumitrescu, Bogdan & Burca, 2023). To take advantage of green opportunities and

gain a competitive edge in emerging green markets, firms must be driven to innovate green products and offer eco-friendly products. Green product innovation boosts firms' competitiveness by potentially mitigating the negative effects of environmental vulnerabilities, while also having a positive impact on society at large (Hang, Sarfraz, Khalid, Ozturk & Tariq 2022). To be more successful in the consumer market, businesses must grow the distinctive qualities through creating environment-friendly products that appeal to consumers. The development of green products is essential to enhancing a business's green competitive advantage and overall business performance (Nuryakin & Maryati, 2022).

Green innovation strategies combine green concepts throughout a product's life cycle, reducing environmental damage and adhering to green environmental laws. This can assist firms by delivering a solution that leads to profitability, social benefits and competitive advantage (Tu & Wu, 2021). According to Fatoki (2021) and Zameer, Wang, Yasmeen and Mubarak (2022), green innovation helps a business to reduce expenses, increase operational effectiveness, build a green status, and ultimately strengthen its green competitive advantage. Businesses use green energy goods to improve consumer satisfaction and outperform competitors. Promoting the environmental advantages of all these green and high-quality products, outstanding customer service, and environmental awareness initiatives contributes to higher customer satisfaction, resulting in a green competitive advantage (Kuo, Fang & LePage, 2022). Businesses may find ways to reduce costs, comply with legal requirements, draw in new clientele, and encourage stakeholder involvement by utilizing green product innovation. Through assessing the impacts of these initiatives, firms can effectively coordinate sustainability programs to achieve economic success and competitiveness in a changing business environment (German, Redi, Ong & Liwanag, 2023). Green product innovation helps firms to offer environment-friendly goods, which helps them seize green opportunities and gain a competitive edge in developing markets. By potentially mitigating the negative effects of environmental vulnerabilities with the advantages for society and communities, green product innovation improves the competitiveness of a business. This suggests that firms can increase earnings and obtain a green competitive advantage over rivals as a result of consumers' increasing desire for environment-friendly goods (Khan, Dhir, Parida & Papa, 2021; Hang, Sarfraz, Khalid, Ozturk & Tariq, 2022). Consumers' demand for

environment-friendly products has increased, and if a business can provide greener products than its rivals, customers who care about the environment will value such company's products and services more. In addition, providing green products can help a business stand out from the competition and improve its reputation as an environmentally conscious business (Andersen, 2021). Green product innovations should become an even more significant source of a green competitive advantage because of the utilisation of resource configurations associated with green product innovation, which are likely to allow firms to maintain differentiation advantages, based on their ability to develop green products (Andersen, 2021; Khan, Dhir, Parida & Papa, 2021).

Enterprises engaging in green product innovation will improve productivity and resource utilisation across the entire product life cycle, while also reducing production costs, minimising raw material inputs, and avoiding the waste of resources. Firms should also utilise alternative resources to develop innovative, eco-friendly products. This approach can help address the shortage and high cost of raw materials, achieving differentiation, while satisfying consumer demands for sustainability and creating a green competitive advantage (Qiang & Yang, 2023). Ultimately, this will result in enhanced overall performance of the enterprise. A gap remains in understanding the relationship between green product innovation and green competitive advantage; hence, the study hypothesises that:

*H3d: Green product innovation is significantly positively related to green competitive advantage.*

This sub-section examines the relationship of green process innovation on financial performance, social performance, environmental performance and a green competitive advantage.

#### **5.4.5 Green process innovation and financial performance**

Financial performance is a key indicator of performance that has shifted from a financial performance model to a social and environmental performance model as measures of sustainability (Yuniarti, Soewarno & Isnalita, 2022). Green processes innovation can effectively decrease waste and costs, thereby improving the financial

performance of a business. According to Tian and Wang (2020), firms can enhance their sustainability and competitiveness by implementing green innovation processes, thereby validating the significant impact of green innovation on financial performance. A business that can stand out from the competition and project a positive social image is likely to be favoured by customers. Consequently, this aids businesses in achieving increased returns on their investment, demonstrating that the pursuit of green process innovation can yield advantages for the environment and financial performance (Qing, Chun, Dagestani & Li, 2022). The attainment of elevated levels of green process innovation leads to significant long-term advantages, such as reduced expenses associated with environmental compliance, heightened assistance by governmental, and enhanced green perception of firms (Xie et al., 2019a, 2019b).

Green process innovation can assist businesses in enhancing the financial performance by reducing costs, enhancing quality (allowing for higher pricing), and boosting efficiency and productivity. Green innovation processes include redesigning production procedures to produce less pollution and, as a result, less toxic and hazardous waste, ultimately helping to protect the environment. This strategy can effectively increase energy utilisation efficiency, lower the rate at which waste is generated, and ensure that the business's production processes comply with environmental regulations in order to avoid penalties for environmental pollution and also improve the organisation's financial performance (Bhatia, 2021; Li, 2022). According to Nasir, Wen, Nassani, Haffar, Igharo, Musibau and Waqas (2022), green innovative businesses have the potential to both mitigate the financial impact of regulations and improve the business's bottom line. In addition, innovative green businesses practices can 'make more money', while offsetting regulatory costs. Since resource waste and energy loss are frequently the root causes of pollution, increased green process Innovation can reduce operating costs for businesses by recycling waste and conserving energy (Rehman, Fareed & Shahzad, 2022; Xie, Hoang & Zhu, 2022).

Businesses that exhibit a high degree of green innovation enjoy a far more positive green image, reduced environmental compliance costs, and increased government support (Du, Razzaq & Waqas, 2023; Fatima & Mukhtar, 2023). Businesses that use green processes normally employ cost-cutting measures to conserve resources,

which increases cost effectiveness and strengthens the financial performance of the firm's positioning (Muangmee, Dacko-Pikiewicz, Meekaewkunchorn, Kassakorn & Khalid, 2021; Yun, Liu, Jeong, Kim & Kim, 2022). Green process innovation can help improve the financial performance of a business by enhancing the efficiency of how factors are allocated, which can lead to lower production and operating costs, increased production, a larger market share, the acquisition of green technology patents, and other financial gains (Wang, Li, Li & Wang, 2021). There is sparse literature on the relationship between green process innovation and financial performance, therefore, this warrants further in-depth exploration. Hence, this study hypothesises that:

*H4a: Green process innovation is significantly positively related to financial performance.*

#### **5.4.6 Green process innovation and social performance**

Implementing green innovation processes benefits businesses financially as well as socially and societally (Alshebami, Seraj, Elshaer, Al Shammre, Al Marri, Lutfi, Salem & Zaher, 2023). To improve firms' green innovation processes, employees can be encouraged to find new and more efficient ways to reduce waste and hazardous emissions from business operations using superior green practices, ongoing investments in environmental protection, and the sharing of best green practices and experience (Jirakraisiri, Badir & Frank, 2021). Firms with green practice innovation strive for maximizing customer loyalty and employee satisfaction, while retaining both and giving themselves the opportunity to produce green products (Muangmee, Pikiewicz, Meekaewkunchorn, Kassakorn & Khalid, 2021). Green innovation practices enable businesses to raise awareness about their recruitment procedures and level of social responsibility (Alshebami et al., 2023). Employing green innovation practices in businesses will allow employees to fully participate in organizational activities, thereby enhancing the business's public image (Liang, Li, Zhang & Chen, 2022). Additionally, employees who work for firms that practice green innovation can learn new skills and knowledge and discover new methods to reduce environmental pollution (Fazal-e-Hasan, Ahmadi, Sekhon, Mortimer, Sadiq, Kharouf & Abid, 2023). Employees' engagement in CSR strengthens the bond between workers and the company, which greatly boosts workers' loyalty, leading to green product innovation (Su, 2023). Solid

business ties with eco-conscious clients may spur an organisation to develop innovative green processes to meet the needs of these green customers. Partnerships with environmentally friendly suppliers may also enable a business to obtain environmentally friendly technology that promotes and encourages green process innovation. Moreover, working with environmentally conscious stakeholders can assist a firm in cutting waste and energy use, which will improve its green innovation process (Jirakraisiri, Badir & Frank, 2021). A green innovation process meets the demands of stakeholders, encouraging the creation of environmentally friendly products. It also benefits the society by delivering better products and services (Li, Li, Sarfarz & Ozturk, 2023). According to Wang, Li, Li and Wang (2021) and Yang and Liu (2023), the market reputation of businesses is enhanced by the quality of ecologically friendly goods and the production using sustainable methods, this result in improved social performance. A firm's application of green process innovation behaviours facilitates greener and more environmentally friendly production processes. This will align with the principles of environmental responsibility, national policies and stakeholder demands, contributing to environmental protection, generating widespread social recognition and boosting the business's social performance (Qiang & Yang, 2023). In light of the above discussion, the following hypothesis is proposed:

*H4b: Green process innovation is significantly positively related to social performance.*

#### **5.4.7 Green process innovation and environmental performance**

Green process innovation is a useful strategy for creating sustainable competitive advantages, as well as an environmentally responsible business approach. The use of innovation in production practices that are new to businesses is what reduces environmental degradation in comparison to suitable alternatives (Sheikh & Hassan, 2023). Innovation in green processes can lower production waste. Furthermore, it looks at the end-of-pipe technology utilizing equipment for pollution prevention to guarantee compliance with legal environmental standards (Ahmad, Shah & Kakakhel, 2022). These innovations result in increased energy conservation and the removal of waste from landfills (Hang, Sarfraz, Khalid, Ozturk & Tariq, 2022). For these reasons, firms that regularly adopt green process innovations will enhance productivity, save money, create new market opportunities, and enhance the firm's environmental performance (Makhloufi, Vasa, Rosak-Szyrocka & Djermani, 2023). Through green

process innovation, the current sustainability problems resulting from carbon emissions, inefficient use of energy, air emissions, frequency of landfill disposal and natural resources can be mitigated. In addition to helping the environment, it gives businesses a competitive edge through resource efficiency, recycling and the effective use of renewable energy sources (Baeshen & Soomro, 2021; Cheng et al., 2023).

Businesses that reduce waste production, carbon dioxide emissions, and the use of hazardous chemicals are considered to have good environmental performance (Muangmee, Dacko-Pikiewicz, Meekaewkunchorn, Kassakorn & Khalid, 2021). Green process innovation improves production efficiency, waste treatment levels, and resource utilisation of businesses by overhauling the production process and establishing a waste utilisation mechanism. It can also generate additional revenue by recycling and converting waste into by-products that are then sold on the market. Incorporating recycled materials and alternative resources and raw materials can reduce pollutant emissions, minimize the negative effects on the environment and reduce the use of energy and resources (Li, Xu, Li, Du & Ye, 2021; Qiang & Yang, 2023). This approach also ensures that the business's production processes comply with environmental laws, avoiding fines for harmful environmental emissions and improving the business's financial results and environmental performance. Through green process innovation, businesses can lessen the detrimental effects of industrial processes, develop innovative biodegradable and sustainable materials, such as bioplastics or recyclable packaging (Moshood, Nawanir, Mahmud, Mohamad, Ahmad, AbdulGhani & Kumar, 2022). Furthermore, renewable energy sources, such as solar, wind, and hydropower, can lower greenhouse gas emissions. Water preservation and consumption can be enhanced by sustainable water management systems, like rainwater harvesting and treatment of waste water (Xue & Wang, 2020; Awan, Arnold & Gölgeci, 2021; Cheng et al, 2023; Wei & Sun, 2021). As such the following hypothesis is developed:

*H4c: There is a significant positive relationship between green process innovation and environmental performance.*

#### **5.4.8 Green process innovation and green competitive advantage**

Green innovation process reinforces firms' objectives to go greener as green product innovation surpasses competitors in the competitive market (Naz, Jamshed, Nisar & Nasir, 2021). Green competitive advantage is an effective ecological and sustainability strategy that competitors are unable to imitate. In organisations, differentiation and cost competitive advantages depend on daily operating costs that address the unnecessary generation of waste and resource savings, such as energy and labour that can be reduced through green innovation processes (Wang et al., 2020; Kuo et al., 2022). Creating green process innovation involves a corporate commitment strategy, knowledge acquisition for the business, integration of multiple functions, and enhancement of employees' competencies. To achieve a sustainable competitive advantage, businesses can create distinctive resource structures and patterns that are impossible to duplicate (Novitasari & Agustia, 2023).

By implementing green innovation practices, a hotel can make a commitment to reduce or even minimise waste, conserve water and energy, and move toward a competitive advantage. Additionally, by using eco-innovation strategies, green practice innovation can stand out from the competition and increase sales. A firm's green competitive advantage stems from the fact that customers are more likely to support establishments with strong environmental practices and sustainability records (Kuo, Fang & LePage, 2022). The mitigation of pollution and hazardous toxic waste can enhance ecological efficiency. It can also lower the expense of hazardous waste elimination, improve regulatory compliance, better respond to customers' environmental pressures, and enable the development of a product that is more suited to societal pressures, all of which will increase the competitiveness of a business. Therefore, to create and preserve a green competitive advantage, organisations need to incorporate green process practice innovation into their business strategies (Ribeiro & Steiner Neto, 2021). Businesses can lower resource consumption and emissions by adopting the lead in substituting cutting-edge environmental protection and green innovation processes for conventional high-pollution production modes (Tu & Wu, 2021). Customers and investors will favour environmentally friendly process innovations over non-green ones, giving rise to a significant green competitive advantage. Therefore, the study postulates the following hypothesis:

*H4d: There is a significant positive relationship between green process innovation and green competitive advantage.*

## **5.5 MEDIATION EFFECTS OF GREEN INNOVATION**

This section examines the mediation of effect of green product innovation and of green process innovation on the relationship between GDC and financial performance, social performance, environmental performance and a green competitive advantage.

### **5.5.1 Green product innovation mediates the relationship between GDC and FP**

There has been no in-depth research conducted on the relationship between different types of GI, namely, green product innovation and green process innovation, and of sustainable performance and a green competitive advantage in South Africa. In the context of sustainable business, understanding the relationship between GDC, financial performance, social performance and environmental performance and a green competitive advantage is a crucial field of study. Green product innovation is referred to as the development of products that reduce adverse environmental effects over the course of their entire life cycle (Huang & Chen, 2021). Green product innovation is crucial for businesses as it can lower expenses by utilizing recycled materials that are both affordable and environmentally friendly. Additionally, it can improve the image of a business and distinguish its products from rivals, which enables businesses to charge premium prices for services resulting in increased sales (Singh et al., 2020; Huang & Chen, 2021; Kiranantawat & Ahmad, 2023). Environmental considerations for green product creation and profitability make a green dynamic capability a promising alternative to accomplishing environmental goals. Green dynamic capabilities, as an environmental endeavour, enhance the firm's green product creation (Benevene et al., 2021). Green product innovation represents a rise in green skills and competencies, which benefit the company's environmental and financial performance (Li et al., 2024; Zhu et al., 2023).

An organisation can solve the pollution issues caused by its own emissions and gain a competitive edge by implementing continuous green dynamic capabilities that enhance the greenness of product innovation, achieve the greening of the entire production life cycle, and increase business sales and profitability of the firm (Wang et

al., 2021). Firms with strong GDC can take advantage of these benefits to obtain a competitive advantage, hold onto market share, and see long-term financial success. A business that invests in green product innovation may be able to avoid fines from authorities and negative publicity from the public, as well as create new avenues for sales and improve the general performance of its green products. The development of green dynamic capabilities is inextricably linked to the introduction of eco-friendly products. This is because environment-friendly practices are essential to a business's profitability and the growth of environment-friendly product development (Wang & Ahamad, 2024). Innovation in products that are environment-friendly aids in the creation of new, more efficient, and low life cycle products. Green product innovations also help businesses in growing the revenue through new market entry, improved legitimacy, and product differentiation (Menon, Wang & Lui, 2020). By encouraging environment-friendly practices, green innovation increases the profits of a business and provides external stakeholders with a wide range of green products. Thus, the development of new products enhances sales for the business and raises production process efficiency (Sarfraz, Ozturk, Yoo, Raza & Han, 2023). Businesses can benefit from adopting green dynamic capabilities and green product innovations by cutting costs, which can lead to the creation of favourable opportunities, such as lower labour costs, lower capital costs, and reduced material usage, energy, and services costs (Shuwaikh, Benkraiem & Dubocage, 2023). Considering these discussions, it should be noted that there is still a gap on green product innovation mediating the relationship between GDC and financial performance. Therefore, the study hypothesises that:

*H5a: Green product innovation mediates the relationship between GDC and financial performance.*

### **5.5.2 Green product innovation mediates the relationship between GDC and SP**

Green dynamic capability reduces uncertainty by providing managers and employees with the abilities and expertise they need to improve the design of sustainable green products (Yu et al., 2022) Acquiring new customers, advancing one's market position, and achieving a competitive edge are all necessary steps in the process of elevating green product innovation (Takalo & Tooranloo, 2021). The business can enhance its green dynamic capability by motivating employees and suppliers to adopt a proactive stance in product design and management during the

green product innovation implementation. This can be done when green businesses place a high value on developing symbiotic and win-win relationships with internal and external stakeholders. Examples of this include motivating staff members, clients, investors, and suppliers to participate in green initiatives, such as green product design (Li, 2022). Due to increased awareness of the value of environmental preservation, green products are now the preferred choice for consumers. In order to adapt to this, businesses must change with the market and prioritize environmental protection. Green innovation and green product delivery result from responding to shifting market behaviour, which helps businesses expand their customer base while generating revenue. The adopting green dynamic capabilities is essential to achieving this as it enables the business to innovate, respond, and adjust to the shifting market for green goods (Kiranantawat & Ahmad, 2023).

Strong green dynamic capabilities enable a firm to quickly determine consumer demand for environmentally friendly products and measure competitors' eco-innovations through market research and other approaches, allowing it to further develop and modify its own eco-friendly designs and products (Cao & Yuan, 2022). Green integration capability, as a component of green dynamic capability, is a business's capacity to promote the absorption and internalisation of environment-friendly knowledge, which constantly enriches its knowledge repository and allows it to make more accurate judgements about market and customer information related to environmental protection (Zahra et al., 2020; Guo, 2023). As a result, firms with green dynamic capability will create innovative green products, based on information collected from customers about environmental protection, and then satisfy the needs of customers and the society and enhance the business's social performance. Therefore, the study postulates that:

*H5b: Green product innovation mediates the relationship between GDC and social performance*

### **5.5.3 Green product innovation mediates the relationship between GDC and EP**

Green product innovation is the outcome of businesses utilising green dynamic capabilities to integrate environmental elements at each phase of the product's life cycle, including sourcing, design, production, sale, and recycling. Businesses with

green dynamic capabilities are more likely to launch eco-friendly products that use renewable resources, minimise resource consumption, integrate eco-design principles, and reduce environmental impacts to enhance environmental performance (Zhu et al., 2020; 2023). According to Shuwaikh (2023), innovation in green products aids in the development of a business and enhancement of its ability to capitalise on its special resources, which dictates its future environmental performance. Redesigning production processes and creating innovative green products can lower carbon emissions and energy use, which improves firms' environmental performance. Firms with greater capabilities and resources are prone to embrace green changes and use green dynamic capabilities to improve performance. Furthermore, to achieve the intended level of environmental success, green dynamic capabilities ensure environmental performance through the operations of the business, such as waste recycling, energy savings, the creation of new green products, and pollution prevention (Bresciani et al., 2022; Tuan, 2023).

Green dynamic capabilities are regarded as a critical base for businesses to conduct green innovation, and improving green dynamic capabilities can have a direct impact on the accomplishment and precision of environmental performance, resulting in more swiftly investment in green products, process practices and the growth of green innovation (Singh et al., 2021). Moreover, firms that successfully implement and integrate green dynamic capabilities can minimise negative effects on the environment, cut down on resource consumption, and improve their overall environmental performance (Mamani, Manrique, Madrid, Herrera, Acosta, Rivas-Diaz, Arias-González, Maquera & Ramos, 2022; Zhu et al., 2023). Green innovation processes, such as energy-efficient appliances, chemical-free food preparation, clean serving equipment, and appropriate waste disposal will enhance the quality of firms' green products and services and, consequently, people's health, which is essential to good environmental performance (Asadi et al., 2020; Mamani et al., 2022). Green dynamic capabilities allow businesses to discover and capitalize on prospects for green product innovation, while green product innovation contributes to developing green dynamic capabilities, and both create and put into practice sustainable strategies that help businesses thrive in a constantly shifting and expanding environment. Firms that use green processes are more likely to create innovative green products, which will strengthen their market position in the environmentally

friendly market (Yousaf 2021; Yu et al., 2022; Zhu et al., 2023). Despite the benefits of green product innovation on GDC and environmental performance, there is still only limited literature available on green product innovation mediating the relationship between green dynamic capabilities and environmental performance. Therefore, the study postulates that:

*H5c: Green product innovation mediates the relationship between green dynamic capability and environmental performance.*

#### **5.5.4 Green product innovation mediates the relationship between GDC and GCA**

A competitive advantage can be obtained by creating new green products, facilitated by the firm's GDC (Zhu, Zhang, Siddik, Zheng & Sobhani, 2023). Businesses that have a higher GDC are more likely to create innovative green products, giving them competitive advantage in the green market. Businesses can stand out from the competition, draw in eco-aware customers, and gain a long-term competitive advantage through implementing GDC and investing in new green products. Businesses should, therefore, prioritize developing green dynamic capabilities and foster an innovative practice in order to drive green product innovation and gain a competitive advantage in the growing green economy (Qiu et al., 2020; Zhu et al., 2023). Green product innovation essential to sustainable development as it promotes economic expansion with the least amount of negative environmental effects. It facilitates resource conservation, waste reduction, and energy efficiency and also gives businesses a competitive edge by lowering ecological costs and enhancing brand recognition (Abid, Ceci, Ahmad & Aftab, 2022; Frare & Beuren, 2022). GDC is an important basis for creating a competitive advantage, and its importance relies on how effective and adaptable an entity is. A firm with green dynamic capability has a better chance of identifying possible new opportunities as it can stay abreast of changes in the business environment (Guo et al., 2021). Therefore, the adoption of GDC will help firms to launch green products into the market and minimise the risk of failure in the practice of green innovation, which results in a green competitive advantage (Guo, 2023). A green dynamic capability is acquired to achieve a competitive advantage, and it is essential for overseeing efficient business operations. Businesses must achieve continuous environmental education in business processes

and strategic management to gain essential knowledge and fundamental resources, such as key green competencies. This will give them a competitive advantage in the green market (Kiranantawat & Ahmad, 2023).

Singh et al. (2021) assert that firms possessing a green dynamic capability react to competitor initiatives more quickly, understand customer needs better, and create new products. By creating unique and differentiated green products, firms can enhance their market competitiveness and enhance their corporate image (Kiranantawat & Ahmad, 2023). GDC includes the business's capacity to recognize and take advantage of green business opportunities, incorporate environmental factors into the process of developing new products, and manage its own resources and competencies for the development of green products. Firms with strong GDCs are agile, flexible, and responsive when developing environmentally sustainable products, giving them a green competitive advantage (Yousaf, 2021; Zhu et al.2023). Based on the discussion above, the study hypothesises that:

*H5d: Green product innovation mediates the relationship between green dynamic capabilities and a green competitive advantage.*

### **5.5.5 Green process innovation mediates the relationship between GDC and FP**

Scholars have analysed how environmental strategies and dynamic capabilities affect green innovation (Yousaf, 2021; Yuan & Cao, 2022; Singh et al., 2022). However, few studies have examined how green process innovation affects GDC and sustainable performance. Therefore, this research examines and analyses the green process innovation mediating the relationship between GDC and financial performance, social performance, environmental performance and a green competitive advantage. Green process innovation benefits businesses as it drives technological advancement, resulting in lower expenses and greater efficiency through using fewer resources (Li, 2022). Firms that invest in process innovation tend to experience growth in terms of sales, productivity, and market share (Akhtar, 2023). As pollution is frequently the result of resource waste or energy loss, firms can reduce operating costs by recycling waste and conserving energy by implementing more advanced green process innovation. Furthermore, attaining high levels of green process innovation has significant long-term benefits for businesses in terms of reduced environmental

compliance costs, increased government initiatives, and an enhanced green corporate reputation (Xie, Hoang & Zhu, 2022). Green process innovation can lessen firms' costs through reduced inputs usage, pollution prevention, and the recycling and reusing of products. It reduces waste and expenses, improving a company's performance on a financial level (Menon, Wang & Lui, 2020; Shuwaikh et al., 2023). Yang et al. (2022) point out that green process innovation causes a rise in financial gains that include decreased environmental expenses, a decrease in potential environmental liabilities, a rise in market share and new business prospects, and a positive environmental reputation. Green process innovation effectively boosts resource efficiency, advances green production design, and favourably influences corporate's financial performance. It does this by integrating the idea of green dynamic capabilities into the whole product innovation process (Wang & Liu, 2022).

According to Singh et al. (2022), green process innovation improves a business's competitiveness in fast-paced markets, while also lowering expenses. Firms that use green dynamic capabilities and support green process innovation always favour using recycled materials in the introduction of new products as they are more affordable and environmentally friendly. Green process innovation also enhances new markets, increases sales, ROI, and leads to a competitive advantage. Positive public perceptions enhance green dynamic capabilities, which are likely to fetch higher premiums from market investors, and these businesses may also be able to draw in a significant number of prospective customers, who are prepared to pay more for green products (Xie et al., 2022). Green process innovation in firms offers a chance to gain a competitive advantage, increase revenue and, overall preserve resources for future generations. If green process innovation is welcomed and implemented in firms, this will enable businesses to charge a high premium price, particularly if they are the first mover, and will draw in foreign investment as well as retain current investors (Khan, Johl, Kumar & Luthra, 2023). The adoption of green dynamic capabilities will result in green process innovation, which will promote productivity, competitive advantage achievement, cost savings, improved market share, increased sales, improved turnover, more substantial revenues, improved public image, increased exports, and enhanced market share (Nsiah, Danso, Charles & Raphael, 2022). Few studies have explored green process as a mediator on GDC and financial performance. Therefore, this research aims to fill this gap, and it is hypothesised that:

*H6a: Green process innovation mediates the relationship between GDC and financial performance.*

#### **5.5.6 Green process innovation mediates the relationship between GDC and SP**

Green dynamic capability is a crucial factor that can be leveraged to effectively address stakeholder demands and lay a solid groundwork for green process innovation ((Yuan & Cao, 2022). To achieve social performance, businesses may use green dynamic capabilities to optimize resource allocation and effectively implement eco-friendly processes and upgrades when presented with market opportunities for green process innovation (Yousaf, 2021). To classify and seize opportunities for green process innovation, a business with strong GDC can quickly ascertain customers' needs for environment-friendly products through market research and by analysing the research and development strategies of its competitors (Aftab et al. 2023). The well-being and safety of the society will be enhanced when businesses adopt green dynamic capabilities that lead to green process innovation. This is made possible by environmentally conscious processes that lower product carbon footprints, the provision of green products and the assurance of the community's environmental safety (Agyabeng-Mensah & Tang, 2021).

Corporate social responsibility (CSR) presents an opportunity for businesses in terms of human-centred strategies applied to address social and environmental problems. It is used as a concept that considers its application in the environment and the idea of the business to society engagements to achieve social performance (Tjahjadi, Soewarno & Mustikaningtiyas, 2021). The organisation can connect CSR with green process innovation if it possesses green capabilities and the resources necessary to achieve environmental goals. Businesses have the ability to disseminate and incorporate information regarding green process innovation and CSR to enhance their social performance (Novitasari & Tarigan, 2022). Implementing CSR has several advantages. These include the resultant enhanced customer satisfaction, a larger and more loyal workforce, enhanced firm reputation, employee competencies, and environmental friendliness (Mazodier, Carrillat, Sherman & Plewa, 2021). CSR programmes can form a crucial component of a corporate strategy, having an impact on both society and the environment. By including green innovative processes in an

organisation's strategic plan, businesses will be encouraged to use tailored CSR projects geared to the communities to overcome environmental barriers, which will improve the firm's social performance (Sarfraz, et al., 2023; Żelazna et al., 2020).

A firm that integrates CSR criteria into its corporate strategy can encourage managers to focus on the long term and increase the profitability of the business through the use of innovative green processes and resource efficiency which should successfully lead to a decrease in environmental emissions (Hou, Bello-Pintado & García-Marco, 2023; Phung, Trinh, Nguyen & Trinh, 2023). Green process innovation is crucial in transforming green dynamic capabilities into social performance. Firms with GDC and CSR initiatives can facilitate green process innovation by establishing trust among their internal and external stakeholders. CSR can also provide information about operations and investments, which can increase shareholders' trust in green investments, thereby resulting in enhanced social performance (Liu, Chen, Ren & Jin, 2021; Homayoun, Mashayekhi, Jahangard, Samavat & Rezaee, 2023). By reducing hazardous air emissions/materials using cutting-edge technologies, green process innovation seeks to support pro-environmental infrastructure. Businesses are aware that they carry a major responsibility to act in accordance with environmental standards, regulations and requirements. Green innovation is dependent on green dynamic capabilities and increases a company's likelihood of entering markets by differentiating its products in a market wherein stakeholders are environmentally conscious (Singh et al., 2022). Consumers are the lifeblood of any business, and to satisfy their changing needs, businesses must constantly develop new processes and products. The green innovation process centres on customers and society's changing demands, and this leads to businesses utilising the relevant information and coordinating the appropriate network to generate value for green products and green processes through the enterprise's mobilisation of green dynamic capabilities (Wu, 2020; Li et al., 2023). Therefore, the study hypothesises that:

*H6b: Green process innovation mediates the relationship between green dynamic capabilities and social performance.*

### **5.5.7 Green process innovation mediates the relationship between GDC and EP**

Green process innovation enables businesses to identify alternative energy sources, implement resource recycling, and improve or modify business procedures. These actions improve the effectiveness of energy use and reduce waste production, which in turn improves the firm's environmental performance (Frare & Beuren, 2021). A green dynamic capability is a significant asset for businesses striving to solve sustainability concerns like resource depletion and environmental degradation. It can greatly enhance a firm's performance outcomes with regard to asset growth, environmental performance, and the firm's reputation (Ali, Danni, Latif, Kouser & Baqader, 2021; Yu, Tao, Hanan, Ong, Latif & Ali, 2022). To effectively implement green processes and embrace green innovation, businesses can introduce green technologies and resources to their production processes through GDC. In a complex and dynamic environment, GDCs assist businesses in dynamically managing the resource repository, while progressively enhancing the current resources, based on new external knowledge. GDC can also help businesses in mitigating potential problems related to green process innovation, such as scarce resources, inadequate knowledge, and technological limitations, thereby ensuring the effective execution of green innovation and attaining environmental performance (Guo, 2021, 2023). An enterprise may choose to implement green process innovation actively or passively in response to environmental problems in order to achieve environmental performance (Zameer et al., 2022). This can be linked to external environmental guidance, such as customer demand for green products and competition in the industry for environmental protection practices. Businesses need to generate green process innovations that meet green needs through their green dynamic capability to provide the required changed products to customers and transfer operations that lower energy use and pollution to organizations in order to create cost savings (Li et al., 2023). These activities promote the improvement of environmental performance and economic performance. Businesses can integrate current resources sustainably with green dynamic capabilities, which promotes environmentally friendly processes and effective resource use. Success in environmental performance and green innovation depends on a company's ability to swiftly implement ecological practices, which is primarily determined by the company's green dynamic capabilities (Sun et al., 2020; Xiao et al., 2023). Through the use of innovative green processes that enhance performance, a firm's procedures greatly lessen the effects of environmental degradation. Green process innovation expands the company's environmental performance by reducing

the negative environmental effects of climate, adopting energy-saving technologies, reducing pollution, conserving water, and applying better waste management (Li et al., 2022; Zameer et al., 2022). Therefore, the study hypothesises that:

*H6c: Green process innovation mediates the relationship between green dynamic capabilities and environmental performance.*

### **5.5.8 Green process innovation mediates the relationship between GDC and GCA**

A green competitive advantage is the distinct situation businesses obtain by putting sustainable practices into practice and offering eco-friendly products or services. This sets them apart from their competitors and draws in environmentally conscious customers (Zhu et al., 2023). Firms' green dynamic capabilities can impact green process innovation, thereby improving the business' green competitive advantage (Xiao et al., 2023). In turn, a firm's green innovation processes have an impact on the creation, building, and enhancement of the firm's capabilities. Businesses can develop and grow green dynamic capabilities by adopting strategic orientations that improve a variety of skills and offer rich resources and capabilities to support green process innovation (Yousaf, 2021; Yuan & Cao, 2022; Xiao et al. 2023). Consequently, an organisation's innovative green processes and dynamic capabilities will lead to, support and foster a green competitive advantage. Businesses that use green innovation processes tend to outperform their competitors overall and they are successful in the long run because these processes have the potential to be sustainable. They also provide intangible value and assets that allow businesses to leverage green dynamic capabilities to efficiently and promptly meet the demands of various stakeholders (Singh et al., 2021).

Organisational managers and leaders place a high priority on enabling staff members to enhance their capabilities and come up with novel ideas and approaches for green process innovation (Luu, 2023). To gain a green competitive advantage, firms can create and rebuild organisational resources and capabilities by using green dynamic capabilities. Firms with green dynamic capabilities are more likely to find innovative solutions to environmental issues. Thus, businesses that foster adaptability of green dynamic capabilities tend to have a higher chance of achieving green process

innovation leading to green competitive advantage (Singh et al., 2022; Li et al., 2023). Firms that use GDC and green process innovation as strategies to meet customers' Environmental standards are more likely to keep current consumers and attract new customers to purchase the firm's green products rather than those of their competitors, resulting in a green competitive advantage (Agyabeng-Mensah & Tang, 2021). To provide value to customers and gain market share, green process innovation in enterprises depends on having higher or better GDCs than those of the competitors. This allows for the strategic adaptation and mobilisation of resources and capabilities. Among the most crucial aspects of green innovation is the firm's ability to replace outdated products and innovate processes that reduce production time and accelerate the development of new products relative to competitors (Ferreira, Cardim & Coelho, 2021; Kiranantawat & Ahmad, 2023). Businesses that successfully respond to environmental challenges and seize opportunities may differentiate themselves in the market, attract environmentally aware customers, decrease costs, increase consumer base, and contribute to environmental sustainability (Zhu et al., 2023). Therefore, firms with GDC are more flexible and faster to implement green process innovations, which improves their environmental performance and gives the firm a substantial green competitive advantage. Accordingly, the study presents the following hypothesis:

*H6d: Green process innovation mediates the relationship between GDC and a green competitive advantage.*

## **5.6 MODERATING EFFECTS OF GREEN SELF-EFFICACY (GSE)**

This section examines the moderating effect of green self-efficacy on the relationship between green dynamic capabilities and green product innovation, and green process innovation.

### **5.6.1 Moderating effect of GSE on the relationship between GDC and green product innovation**

Green self-efficacy implies people possess the fortitude, self-assurance, and aptitude to address environmental problems and difficulties (Padilla-Lozano & Collazo, 2021). Prior research was focused on the relationship between self-efficacy and green innovation. The concept of green self-efficacy moderating the relationship between GDC, and (a) green product innovation and (b) green process innovation needed to

be studied empirically. This study aims to fill the gap. GDC and green product innovation play a crucial role in motivating firms' managers to use green resources and capabilities, behave sustainably, and direct their behaviours on creating innovative green goods and services. Green product innovation is possible for business leaders once they have more sophisticated abilities, capabilities, views, enthusiasm, self-confidence, and the capacity to performance in a way that is ecologically conscious. All these factors need to be creatively and innovatively applied in businesses to improve the firm's competitive advantage and financial return (Alvarez-Risco, Mlodzianowska, García-Ibarra, Rosen & Del-Aguila-Arcentales, 2021; Chu, Zhang & Jiang, 2021; Guo 2022, Elshaer, Azazz, Ameen & Fayyad, 2022; Alshebami, 2023).

Individuals with a high level of GSE believe that they can create innovative ideas, create environmentally friendly, cutting-edge goods and services, and identify strategies and solutions for addressing social responsibility that protect the environment and give businesses a competitive edge that boosts sales and profitability (Chu et al., 2021; Guo, 2022). A company's sustainable performance can be improved by managers who have green self-efficacy because they believe in their own abilities and capabilities to develop innovative green products and services (Alshebami, 2023). Firm leaders with high green self-efficacy are likely to be more motivated to adopt eco-friendly products and set green objectives as part of their activities to mitigate environmental and contamination hazards (Forooq et al., 2022). High levels of green self-efficacy will foster greater creativity, support entrepreneurial behaviour, improve business operations, and steer firms toward improved performance. More precisely, when someone has confidence in their capacity to create and carry out green initiatives, and then also implements such initiatives, this will improve business performance, lower operating costs, make the best use of the resources at hand, and lessen adverse environmental effects. Leaders and owners of businesses can also gain from a high GSE by creating a green strategy for their company and ideas, aimed at fulfilling green product innovation (Guo, 2022; Alshebami, 2023) and ensuring the vision's translation into action plans and their implementation.

Green self-efficacy encourages the generation of new ideas for environmentally friendly practices, products, facilities, and procedures that represent practical, distinctive, and creative approaches to environmental challenges (Akhtar, Martins,

Mata, Tian, Naz Dâmaso & Santos, 2021). To promote green product innovation, high self-efficacy of managers in making decisions and developing strategies must focus not only on implementing the changes, but also on spreading the knowledge to everyone in the business about environmental protection (Naz, Jamshed, Nisar & Nasir, 2023). The knowledge enhances the development of products and processes to reduce greenhouse gas emissions, recycle waste, save energy, and carry out environmental monitoring. Firms should leverage the green dynamic capabilities to combine newly acquired knowledge with already existing green information to develop new products. This can be attained if managers believe in themselves and have confidence in their green ideas and knowledge to develop green products (Akhtar, 2021; Bresciani, Rehman, Alam, Ashfaq & Usman, 2022; Alshebami et al., 2023). Managers that have a high level of green self-efficacy will be able to respond to green capabilities more quickly, manage waste better, and encourage the development of green and sustainable businesses (Gupta, 2021). These managers have a positive influence, better stress management, higher self-esteem, better physical condition, better environmental adaptation, and early recovery from illnesses due to their high green self-efficacy. It can also stimulate managers' behaviour and ideas about the environment, resulting in the implementation of environmental practices and green dynamic capabilities (Javaid, Noor, Hassan Iftikhar, Rahman & Ali, 2023). Green self-efficacy is a crucial component of environmental beliefs and knowledge. It will help managers fulfil their responsibility and encourage creativity in adopting green dynamic capabilities, such as making pertinent changes to environmental management, enhance employees' green behaviour and skills, assist in making the most of the current resources and expertise to enhance and renew organisational capabilities and promote green strategic objectives and green research and development (Guo, 2022; Singh et al, 2022; Javaid et al., 2023; Li et al., 2023; Mustafa et al., 2023). To attain the firm's environmental goals, such as green product innovation, green self-efficacy is therefore essential for developing a clear vision, having employees with green knowledge to carry out green dynamic capabilities and tasks, pursuing green product innovation, and adjusting to green practices. Based on the discussion above, the study hypothesises that:

*H7a: Green self-efficacy moderates the relationship between GDC and green product innovation.*

### **5.6.2 Moderating effect of GSE on the relationship between GDC and green process innovation**

Green innovation is centred on the adaptation and enhancement of green process innovation. Green process innovation relies on technologies that use green design principles, reduce pollution, and use less energy in order to maintain and safeguard the environment (Guo, 2022). By defining attainable environmental objectives, defining environmental standards, developing an environmental culture, and coordinating individual behaviour with desired results, green process innovation fosters the enhancement of and supports managers' green self-efficacy (Elrayah & Keong, 2023). Individuals who have high levels of green self-efficacy are more likely to be in the forefront of developing innovative ideas, coming up with inventive ways to conserve the environment and implement environmental protection measures out of a strong sense of social responsibility. This trait helps businesses enhance their green process innovation and gain a competitive edge, resulting in good business performance (Chu, Zhang & Jiang, 2021). Business managers who have a higher degree of green self-efficacy are more capable of completing green innovative tasks and overcoming related difficulties. Managers' green self-efficacy improves a company's environmental sustainability because its members are more receptive to fresh perspectives and changing customer demands (Zhao & Wibowo, 2021).

Within the association between green practice innovation and green dynamic capabilities, green self-efficacy assumes a pivotal mediating role. By acting as a psychological mechanism, green self-efficacy makes it easier for managers and staff to assimilate the guidance and inspiration that come from technological advancements and innovative green practices. This empowers and inspires them to believe in themselves and actively participate in more sustainable activities and green dynamic capabilities, as well as to support the firm's environmental initiatives and goals (Elrayah & Keong, 2023; Huang, Guo, Den & Wang, 2023). Higher levels of green self-efficacy in managers increase the likelihood of using green resources and green dynamic capabilities to develop and adapt innovative green processes that yield positive business outcomes. This helps them to establish green standards and gain a competitive advantage in the environmental space (Sun & Xu, 2020; Chu, Zhang & Jiang, 2021 Zhang). Managers who have faith in their capacity to adapt to changing conditions and who possess green dynamic capabilities will participate in green

process activities. Green process innovation involves managers with high levels of self-efficacy using valuable, distinctive, and integrated resources to develop green dynamic capabilities. These positive qualities inherent in such managers constitute an internal power of the organisations, an vital component when establishing green competitive advantages (Akhtar et al., 2021; Li, 2021). The higher developed these leaders' green self-efficacy, the more possible it will be for them to recognise and extract valuable green dynamic knowledge. Green learning capability, also as a component of green dynamic capability, points out a firm's capacity to share green knowledge. A stronger green self-efficacy indicates that the firm's leaders are more skilled at promoting, teaching, and spreading knowledge on green process innovations within an organisation (Guo, 2022, 2023; Li, 2023; Xiao et al., 2023). This could enable the firm to broaden its business scope and deviate from tradition in order to better address concerns related to green process innovation. Green learning capability enhances knowledge acquisition, adaptability, and problem-solving abilities, allowing businesses to stay current on green processes and technology (Xiao et al., 2023). Thus, green self-efficacy is a key motivator for businesses to drive green process innovation using green dynamic knowledge. Since there is only limited literature available on green self-efficacy as a mediator on GDC and green process innovation, there was a need to conduct an in-depth exploration of this topic. Therefore, the study hypothesises that:

*H7b: Green self-efficacy moderates the relationship between green dynamic capabilities and green process innovation.*

## **5.7 MODERATING EFFECTS OF ENVIRONMENTAL CONCERN**

This section examines how environmental concern acts as a moderator in the relationship between GDC and green product innovation, and green process innovation.

### **5.7.1 Moderating effect of EC on the relationship between GDC and green product innovation**

There is limited research examining the relation between environmental concern and green innovation. However, there is limited research available that has examined the

moderating effect of environmental concern on green dynamic capabilities and (a) green product innovation, and (b) green process innovation. Therefore, this study aims to fill this gap. Environmental concern is the level of worries and awareness that individuals, groups, and society have for the environment and the effects that human activity has on it (Kousar, Afzal, Ahmed & Bojnec, 2022). It entails being conscious of environmental issues and prepared to take action to preserve and safeguard the environment. Protecting the environment encourages the preservation of natural resources like air, water, and land. Among other things, it helps cut down on waste and pollution and deters energy waste and greenhouse gas production (Stanfield, 2022). It helps firms become more environmentally conscious and it is highly significant for the development of green process innovation and green products (Yu, Yamaguchi & Kittner, 2022; Zameer & Yasmeen, 2022). Managers who are more aware of environmental problems than those who are not aware and do not understand the need or the implications, can strategise and innovate the firm's processes and products to become more focused on and friendly towards the ecology (Cheng et al., 2023).

Concern for the environment can encourage businesses to develop effective environmental protection policies that address these environmental issues, which will then improve the business's ability to innovate green products. The significance of managers' environmental concerns is highlighted as a driving force behind enterprise's green innovation strategies and as a component of the innovative behaviours of the organisation (Song, Yu & Xu, 2021). Firm managers have a greater chance to recognise the potential advantages of government-regulated incentive programmes if they have strong environmental awareness and concerns. Caused by the environmental regulations and the severe impact of climate change, businesses now go beyond the bare minimum of environmental oversight; instead, they aggressively incorporate green knowledge from both internal and external sources, foster the implementation of innovative green products and secure government funding (Sun & Sun, 2021). Higher environmental concern among executives will make it easier for them to recognise and seize the financial rewards and possible opportunities that eco-product innovation brings, which, in turn, will increase the chances of their support for a mutually beneficial success strategy. The growing concern regarding environmental

issues is making it simpler to recognise the potential advantages and business opportunities of green product innovation (Costa, 2021).

Environmental concern as a concept plays an influential function in building enterprises' GDC. Strong environmental concerns among managers can help organisations boost the level of green product innovation and performance by using green learning to enable them to distribute green resources and green dynamic capabilities more rationally. Executives who are highly conscious of the environment see the attention that suppliers and customers are paying to eco-friendly products as a chance to combine external and internal eco-knowledge, create innovative green products that customers demand, and gain a competitive edge (Huang, Lu, Chau & Zeng, 2020; Sun & Sun, 2021). Leaders who share a high environmental concern will rely on the firm's and their own green dynamic capabilities to drive green product innovation because these capabilities offer the tools and resources needed to accomplish environmental objectives, spur green innovation, and improve environmental performance (Ahmed et al., 2023; Nassani et al., 2022). Environmentally concerned managers need to possess green dynamic capabilities as they will then recognise the potential benefits of adopting proactive environmental measures, such as creating green products, reducing costs, improving the company's reputation through green efforts, and fortifying relationships with stakeholders in a proactive manner and beyond merely reactive measures (Huang & Xiao, 2023). The study contends that firms that are aware of environmental issues and can use green dynamic capabilities from the start and integrate norms and values to develop strong environmental strategies can spur on the development of green innovative products. Thus, the study hypothesises that:

*H8a: Environmental concern moderates the relationship between green dynamic capabilities and green product innovation.*

### **5.7.2 Moderating effect of EC on the relationship between GDC and green process innovation**

Individuals who care about the environment become more mindful of their influence on the environment. Green process innovation and other sustainable solutions are developed as a result of increasing environmental concerns (Salehi & Sadeq Alanbari

,2023). A greater likelihood of adopting behaviours that advance sustainable development objectives is seen in environmentally conscious individuals and organisations. Reducing carbon emissions, promoting green energy, lowering pollution, and conserving energy are a few of the initiatives (Cheng, Ahmad, Irshad, Alsanie, Khan, Ahmad & Aleemi, 2023). Managerial environmental concerns impact how environmental management activities are carried out in businesses that deal with ecological sustainability. Green process innovation is further enhanced by management teams that have a strong commitment to environmental sustainability and promote effective measures for reducing environmental pollution (Mo et al., 2022). Leaders in environmentally orientated businesses show an initiative in promoting environmental innovation. It is likely that they will strategically increase their investment in green practice innovation and technologies. Businesses that have the benefit of environmentally concerned teams search for and apply organisational resources to address green practices in order to boost innovative output (Ji & Miao, 2020; Song et al., 2021).

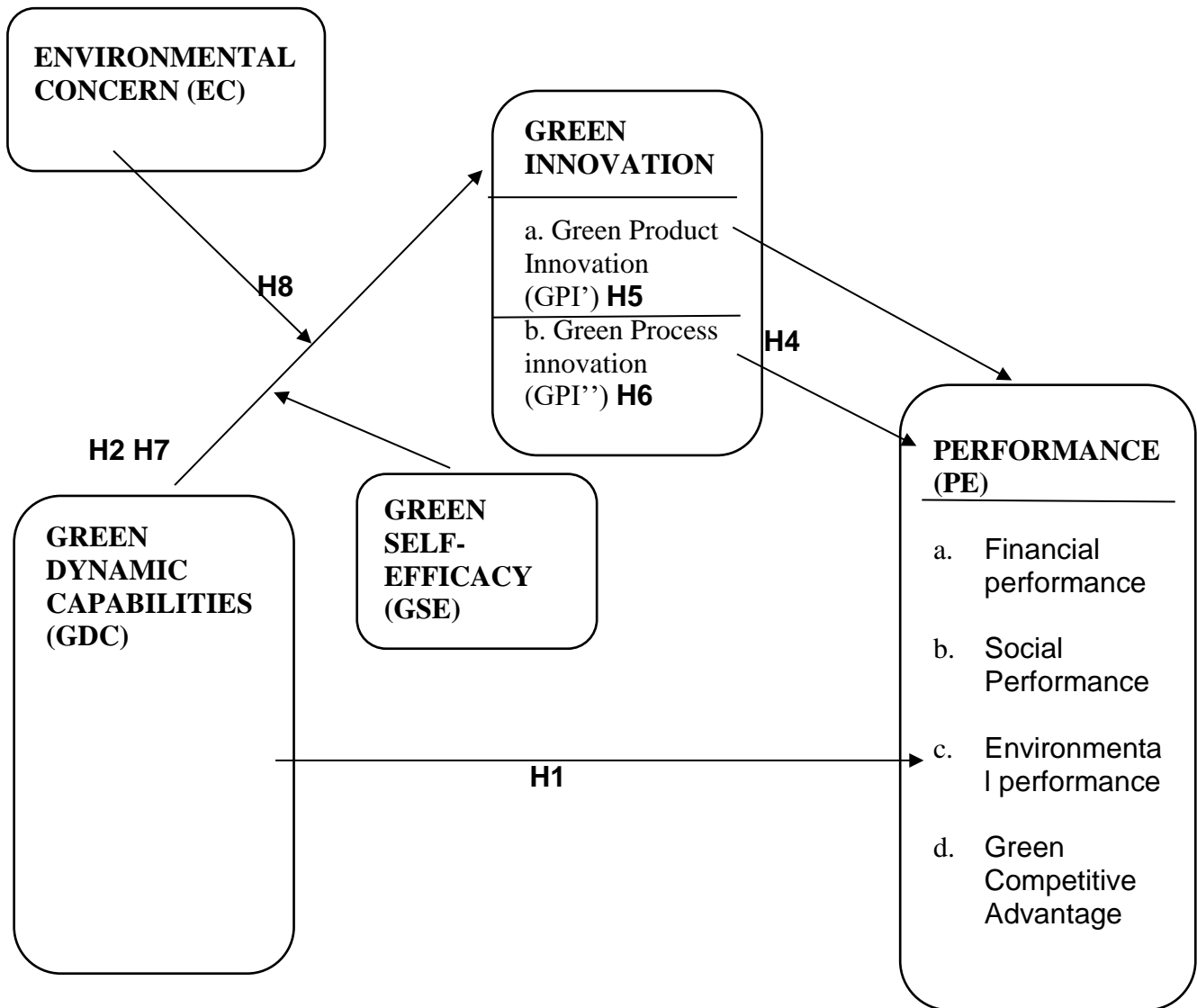
When firms continue to bring innovative changes into the production processes to overcome pollution emissions with the change in the circumstances and requirements, they obviously also have an increased environmental concern. The enhanced concern and relevant environmental knowledge enable the firm to make effective decisions, and this leads to green process innovation (Wang & Mohammad Shah, 2023). Process eco-innovation rests not only on, but also fosters environmental awareness. Having an increased environmental awareness, managers will feel more motivated and competent to use green dynamic capabilities, resources, technologies and green processes to produce green products (García-Sánchez, Gallego-Álvarez & Zafrá-Gómez, 2021; Wang & Mohammad Shah, 2023). Innovation in green processes has a greater impact on sustainability outcomes. When the concern for the environment is high, managers are more likely to adopt and maintain green practices, which can lead to significant improvements in sustainability outcomes (Cheng et al., 2023; Zimon, Arianpoor & Salehi, 2022). Firms and managers are more likely to adopt environmentally conscious practices and innovations, as well as green dynamic capabilities as their concerns about the environment grow, which promotes a more sustainable future for the business if the innovative changes are implemented. The study contends that firms' GDC should go hand-in-hand with environmental concerns

to mitigate the negative impact of a firm's prior practices. This can be effectively achieved by involving environmentally conscious management teams at a high level, leading to improved green practice innovation. Therefore, the study hypothesises that:

*H8b: Environmental concern moderates the relationship between GDC and green process innovation.*

The next section unfolds the conceptual model developed for the study.

## 5.8 THE CONCEPTUAL MODEL



**Figure 5.1: Conceptual Model**

As presented in Figure 5.1, the test was conducted against the multidimensional measures of sustainable performance, which includes financial, social, and environmental performance as well as the green competitive advantage. Using a multidimensional measure for the different study variables can improve the quality of the results. Previous research that examined this relationship did not include all of these factors. Consequently, this comprehensive model, connecting GDC and sustainable performance measures, along with mediating and moderating variables, can allow researchers to test new variables that can generate novel ideas and theoretically add value. This enables a researcher to test GDC, which has a major and advantageous impact on sustainable performance. This will be extremely beneficial to

managers in helping them make decisions about green dynamics and practices. In order to better understand the process by which the relationship between GDC and financial performance, social performance, environmental performance and also the green competitive advantage can be strengthened, the model also included GI as a mediator variable focusing on (a) green product innovation and (b) green process innovation. In addition, the model incorporates GSE and EC as moderators to investigate the connection between GDC and GI measures (a) green product innovation and (b) green process innovation.

## **5.9 SUMMARY**

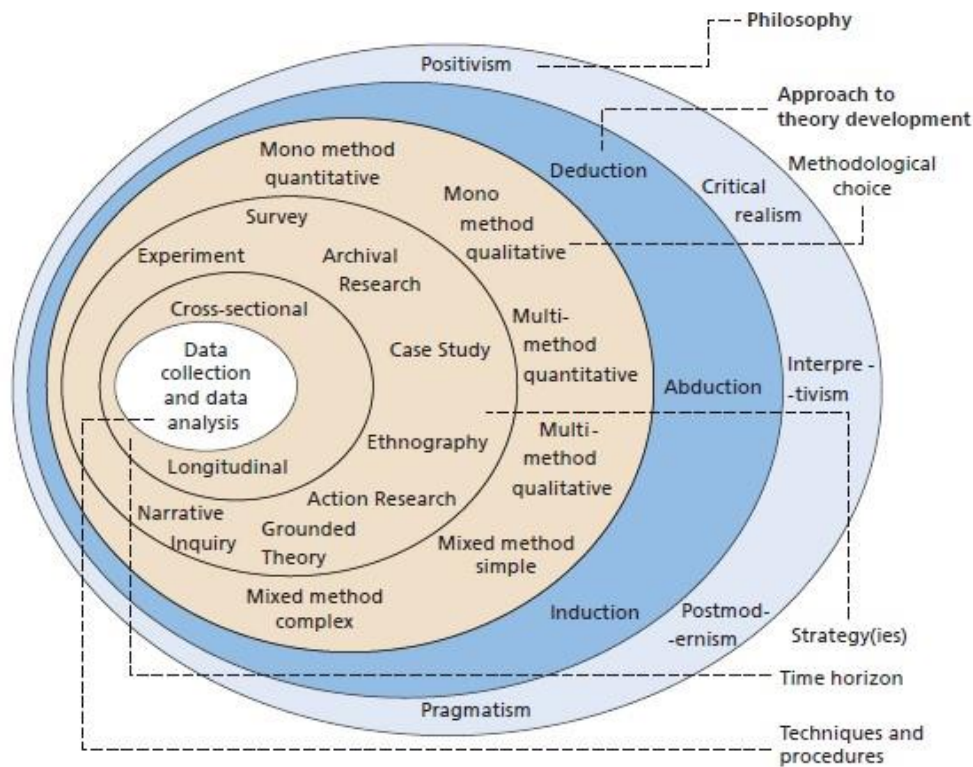
This chapter's main goal was to determine whether GDC results in better sustainable performance. The concept of GDC was measured with the dimensions of performance, namely, financial performance, social performance and environmental performance and the green competitive advantage, H1. GDC was also measured with GI measures, (a) green product innovation, and (a) green process innovation, leading to H2. Green product innovation and green process innovation measures were measured against financial performance, social performance, environmental performance and green competitive advantage to achieve H3 and H4. The mediating role of green product innovation and green process innovation was measured on the relationship between GDC and financial performance, social performance, environmental performance, and green competitive advantage; this resulted in H5 and H6. In addition, the moderating effects of GSE and EC were measured on the relationship between GDC and green product innovation and green process innovation, creating H7 and H8. There is very limited existing literature on the relationship between the study's variables. This expands the discussion on whether GDC affects sustainable performance with the mediating role of GI and the moderating roles of GSE and EC. The conclusion of this chapter is that more information is needed to add to the current limited existing literature. The next chapter will examine the methodology adopted in this study.

## **CHAPTER SIX**

### **RESEARCH METHODOLOGY**

#### **6.1 INTRODUCTION**

The conceptual framework of the research and the conceptual relationships between the constructs were emphasized in the previous chapter, which helped formulate the different hypotheses that were put forth for this study. This chapter aims to establish the philosophical underpinnings of the research as well as the methodology used to gather data and evaluate the correlations given in the conceptual model. Methodology provides a rationale for the choice of methods and the particular forms in which the methods are employed. It is essential for all studies to provide a thorough methodology presentation and explain the steps the researcher took to collect and analyse the data to address the research questions. Methodology serves as a guide on how to accomplish the goals of the research. It outlines every essential step the researcher took to carry out the study. The methodology of this chapter will be discussed using the latest research on developed by Saunders (2019). In the research on, the six main elements are discussed, that is; (1) the research philosophy; (2) the research approach; (3) the research strategy; (4) the research design; (5) the data collection and (6) the data analysis techniques. The purpose of the numbered segments is to help understand, which stage each element falls within the chapter. In this chapter, the research philosophies are discussed to determine the most suitable philosophies for the study. Following the presentation of the research philosophies, research approaches are also discussed to indicate the relevance of hypotheses to the study. The chapter covers the research strategy and the research designs that enabled the smooth scaling of the various research operations, data collection and data analyses methods. In-depth discussion of the questionnaire's development process and different questionnaire administration techniques that the researcher used to collect the data are also covered in this chapter. The chapter highlights sampling and sampling techniques, including probability and non-probability sampling, and it delves into the details of the pilot study that was conducted to evaluate the questionnaire's construct validity and reliability. The chapter also covers the ethical requirements that the researcher examined in order to guarantee that all guidelines and norms were followed, and that the research was carried out in accordance with ethical standards. Figure 6.1 below shows how the methodology chapter is outlined and discussed.



**Figure 6.1 The Research Onion of the methodology**  
**Source (Saunders, 2019)**

Saunders et al. (2019) proposed the research onion framework (Figure 6.1), which explains pictorially the various aspects of the research to be examined and planned to derive at a sound research design. The research onion guides the researcher through all the steps that need to be taken when developing a research methodology. Saunders et al. (2019) segmented the research onion into various levels of decisions: (1.) First the two outer rings, i.e., research philosophy and research approach; (2.) the research design, which constitutes (a) the methodological choices, (b) the research strategies and (c) the time horizon; and (3) the inner core of the research onion, which includes data collection and analysis aspects. Further discussions of how the research onion elements have been adopted and applied in the study are given below.

## 6.2 RESEARCH PHILOSOPHY

A research philosophy is a set of guiding principles that influence the design and execution of a research research study. Various research philosophies offer distinct viewpoints with regard to the interpretation of scientific research (Hackfort & Schinke, 2020). According to the study of Kenaphoom (2021), research philosophy is the

principal study of general and fundamental problems, including those pertaining to reality, knowledge, and global values. The goal of the research philosophy is to arrive at philosophical solutions to all problems by means of a methodical, critical approach that depends on reasoned argument. Kirongo and Odoyo (2020) assert that a research study's choice of research philosophy depends on the body of knowledge being examined. Research philosophy is a collection of concepts about the nature of the reality being studied. This dissertation is based on realism, which combines ontology and epistemology. Epistemology is also known as the theory of knowledge. It is concerned with the nature and scope of knowledge, such as the theory of relationships between truth, belief, perception, and theories of justification (Kenaphoom, 2021). According to Al-Ababneh (2020), epistemology embodies a particular comprehension of what knowledge entails; it is how researchers understand what is known. Alharahsheh and Pius (2020) assert that epistemology's goal is to understand how a researcher arrives at reality by discovering knowledge. Epistemology is seen as an internal component of the researcher, and it deals with the researcher's ability to discriminate between right and wrong, as well as the perspective of the outside world. Ontology is concerned with determining the nature of the existence of a specific phenomenon (Junjie & Yingxin, 2022). Epistemology is the study of knowledge and the embodiment of a particular understanding of knowledge. It addresses the nature of knowledge, as well as its potential, applicability, and foundation (Al-Ababneh, 2020).

According to Krueger and Alba (2022), fundamental beliefs underlie research methods and the nature of understanding, as well as the best methods for acquiring or creating it. Ontology and epistemology are important for understanding and shaping how research practices intervene in the world and with what consequences (Krueger & Alba, 2022). The focus of ontology is the nature of existence of the phenomenon. It looks for the truth or an answer to a research question by outlining where to find a particular kind of already-existing knowledge (Alharahsheh & Pius, 2020). Ontology relates to what reality is and what the world is. Epistemology relates to how one can obtain knowledge about that reality (Ylönen & Aven, 2023). Ontology investigates the objective and subjective aspects of social entities, revealing the true dynamics of the things (Guraya, Harkin, Yusoff & Guraya, 2023). The study of epistemology focuses on how researchers interpret their surroundings and differentiate between what is right and wrong in their research (Junjie & Yingxin, 2022). Saunders et al. (2019) posit that

researchers can adopt different research philosophies, such as positivism, interpretivism, realism, pragmatism, and post modernism for research.

### **6.2.1 Positivism**

The concept of positivism holds that all authoritative knowledge originates from reports of sensory experience and that only this derived knowledge can be considered legitimate or true (Kenaphoom, 2021). Positivism believes in and studies sensitive and touchable phenomena. In other words, the subject is accessible, palpable, measurable, and quantifiable. According to Al-Ababneh (2021), positivism guarantees a straightforward, precise understanding of the world. It alludes to an assertion made. It also has an interest in creating an all-encompassing social science that uses the scientific method to investigate society and people for their own benefit. Positivism is a process of experimentation that is used to investigate findings and answer questions. In addition, it relies more on social science with the notion that knowledge largely comes from what one can observe and measure (Odu & Aluko, 2022). Park, Konge and Artino (2020) assert that positivism uses functional interactions between causal and explanatory factors (independent variables) and outcomes (dependent variables) to verify existing hypotheses, which are frequently expressed quantitatively. Positivism is a phenomenon that can be observed and measured, and it has data that can be gathered and examined. Therefore, researchers use an existing theory to construct hypotheses in order to investigate observable social facts (Iovino & Tsitsianis, 2020). Kenaphoom (2021) states that quantitative research methods that support statistical analysis are grounded in positivism. According to Alharahsheh and Pius (2020), if a researcher was in an extreme positivist position, it would lead to the following:

- The researcher views firms and related social entities as real, similar to physical objects and natural phenomena.
- The researcher aims to identify observable and measurable patterns. Phenomena to be observed and measured should result in data that is credible and meaningful.
- The researcher aims to identify causal relationships between collected data to create law-like generalizations similar to those developed by scientists. The researcher would use and include key universal rules and laws to support and explain the observed behaviour or event within firms.

### **6.2.2 Interpretivism**

The interpretive approach searches for historically situated and culturally derived descriptions of the social life area. According to this philosophy, complex management studies in the social realm would be lost if such complexity were to be reduced to law-like generalizations, and the social world of business and management science is too complex to be treated as a physical science (Al-Ababneh, 2020). Interpretivism holds methods that place a strong emphasis on the value of individuals' personalities and their involvement in society and culture. By selecting a paradigm camp that involves a number of underlying assumptions about reality, the knowledge is philosophically tied to the researcher's worldview (Pervin & Mokhtar, 2022). Interpretivism looks at the in-depth variables and context-related factors; it views humans as distinct from objects in that they create deeper meanings, with the assumption that humans cannot be examined in the same way that physical phenomena can. Interpretivism explores differences, such as cultures, circumstances, and times, resulting in the development of different social realities (Alharahsheh & Pius 2020). According Alborough and Hansen (2023), with interpretivism, people construct and evolve their own subjective meanings and knowledge of their own social worlds. By means of shared practices, records, objects, language, and interactions with other people, these meanings and knowledge are communicated and deliberately formed. Interpretivism considers the intricacy of all individuals in the world and the explanations that go along with it. It also stresses that generalisations of universal patterns should not obscure the sophistication of society (Junjie & Yingxin, 2022). The main purpose of interpretivism is to construct meaning by understanding the world and human behaviour. The reality of interpretivism is a subjective ontological assumption (Ikram & Kenayathulla, 2022).

### **6.2.3 Realism**

The foundation of realist philosophy is the belief that there is a reality outside of human ideas and perceptions (Al-Ababneh, 2020). Realism is similar to positivism as it assumes that the production of new knowledge can only be achieved by relying on actual facts. It does not take into consideration any assumptions and the overall research philosophy is grounded on actual and realistic verdicts. Moreover, this assumption permeates the fundamental philosophy about collecting and understanding quantifiable and measurable data (Lovino & Tsitsianis, 2020). Realists

define realism as something that is objective, made up of matter and form, and subject to natural laws. Something objective is something that exists outside of human awareness (ZNuroh, 2020). Realism depends on one's senses, and it is what one senses that is given too much importance (Lovino et al., 2020). According to Saunders et al. (2019), there are two forms of realism, that is direct realism and critical realism. Direct realism states that the experience of a person's senses provides the exact picture of the world. It is the belief that perception occurs directly and is not influenced by representational tools, such as concepts or ideas (Ehmann, 2024).

Critical realism suggests that what a person experiences is only in the form of images and not the objective reality. Critical realism accepts that human beings' knowledge of the world is relative to who they are and that, ultimately, knowledge is embedded in a non-static social and cultural context (McBeath & Bager-Charleson, 2020). In critical realism, the word 'critical' emphasises the necessity for researchers to exercise analytical skills when evaluating the theories they employ and the justifications they put forth (Stutchbury, 2022). Critical realism means that humans actively create their own meaning and comprehension of the societal world, structure, or system that they perceive as an external, objective reality. Through critical realism, researchers can gain insight into how people interpret and give meaning to their experiences and understandings, as well as how these relate to the constraints and enabling factors of objective social structure (Parka & Peter, 2022; Mercier, Sanders, & Munford, 2023). The goal of critical realism is to find explanations by emphasising what individuals can accomplish within the social context in which they operate (Stutchbury, 2022).

#### **6.2.4 Pragmatism**

Pragmatism affirms the existence of reality in the world and upholds science's objectivity. According to this philosophy, research is subjective since individuality may affect how people perceive the world (Al-Ababneh, 2020). According to Saunders, Lewis, Thornhill, Jenkins and Bolton (2019), pragmatics aims to balance values and facts, precise and thorough knowledge, and various contextualized experiences. This is achieved by considering theories, concepts, ideas, hypotheses, and research findings in a way that is not abstract but rather take into consideration the functions they serve as tools for thought and action as well as the practical implications they have in particular situations. Pragmatism is a broad perspective or a system of values

and ideas that drives methods of research (Hampson & McKinley, 2023). Pragmatists believe that no truth is absolute and permanent as it is ever-changing from time to time and place to place and from circumstance to circumstance (Rai & Lama, 2020). The aim of pragmatic research is to understand the world and construct knowledge primarily through the application of human experience rather than by depending on absolute truths. A research framework that is action-oriented and based on pragmatism allows researchers to use the best methods possible to answer research questions, while also addressing real-world problems that arise in communities (Allemang, Sitter & Dimitropoulos, 2022). Pragmatists are interested in the real-world applications of ideas, and they place a high value on knowledge that makes actions possible. Pragmatism acknowledges that there are numerous approaches to conducting research and interpreting the world; that no one viewpoint can ever provide the whole picture; and that there might be more than one reality. This does not imply that pragmatists always employ a variety of techniques; rather, they employ the method or methods that allow important, dependable, credible, and well-founded data to be gathered in order to further the research (Saunders et al., 2019).

### **6.2.5 Postmodernism**

Postmodernism places a strong emphasis on language and power dynamics in an effort to challenge conventional wisdom and give voice to marginalized, alternative viewpoints. According to Saunders et al. (2019) Postmodernism holds that all sense of order is merely provisional and can only be established by the researchers' use of language, which includes classifications and categories. It consistently highlights and emphasizes certain parts while marginalizing, suppressing, and excluding others from what it purports to represent. Furthermore, there is no structure to the social world other than what researchers assign it through language; there is no conceptual way of determining the correct or true method to describe the world. However, what is widely accepted as right and true is determined collectively (Holtz, 2020; Hariharasudan, Pandeewari, & Hassan, 2022). Postmodernists seek to bring out what has been left out or excluded more visible by deconstructing reality into the principles and power relations that underpin it. As a result, the primary objective of postmodern research is to significantly challenge conventional ways of interpreting and understanding in order to give voice and legitimacy to the suppressed and marginalized ways of perception

and understanding that have been previously excluded (Saunders et al., 2019; Hanfstingl, Uher, Edelsbrunner, Dettweiler & Gnambs, 2023). It recognises that reality is constructed by the mind's attempt to comprehend its own unique reality, rather than by being simply mirrored by human perception (Wheatley, 2021).

### **6.2.6 Research philosophy adopted in this study**

The positivist research philosophy serves as the foundation for this research. The main assumptions of the positivist research philosophy were chosen above the other philosophies because they were the most appropriate for this study. To test the relationship between GDC and performance of hospitality firms, the researcher expected them to embrace an independent ontological stance, minimize participant interaction, and embrace an epistemological stance grounded in the scientific domain. Adopting the positivist ideology also meant accepting its premise that, since participants' independence was maintained, the researcher's values were relevant in shaping the research's conclusions. It was ideal to follow the positivist ideology because the study's goal was to draw conclusions from the processed quantitative data. This is reinforced by Kenaphoom (2021), who argues that the positivist philosophy is beneficial when the researcher desires to generalise from measurements. The positivist philosophy was chosen since the study aimed to utilise a quantitative research approach to gather, analyse, and generalise the findings.

## **6.3 RESEARCH APPROACHES**

The essential distinction between inductive and deductive approaches is the relevance of hypotheses to the study. The deductive technique confirms the accuracy of the underlying assumptions (theories or hypotheses). This indicates that the deductively presented hypothesis must be confirmed or rejected during the research process (Kyngäs, Mikkonen & Kääriäinen, 2020). A deductive research approach is appropriate for testing/verifying an existing theory about the relationship between the dependent and independent variables of scholars' research questions (Ganesha & Aithal, 2022). The deductive approach in social science extracts particular facts from general facts through observation, generalization, post-research, pre-theory, and theoretical hypothesis study. After developing a strong hypothesis, the researcher uses data to examine its implications. In other words, deductive research reduces the amount of knowledge from a general to a more specific level (Kim, 2021). The deductive

approach is linked to the hypothesis-testing nature of quantitative nursing research (Barrett & Younas, 2024).

Inductive research approach, on the other hand, aids in the development of new hypotheses and generalisations. Instead of hypotheses, this begins with research questions, as well as goals and objectives that must be reached during the investigation (Proudfoot, 2023). The inductive research approach is appropriate when building and constructing a new theory about the relationship between dependent and independent variables of a research question (Barrett & Younas, 2024). It involves the identification of cues and the collection of data to develop general theories or hypotheses. It is linked with qualitative research, where data and observations from individual participants are coded and analysed, and collectively helps to form a general theory regarding the phenomenon being studied (Dyar, 2022). The inductive method begins conducting study and developing a theory, thereafter, investigates and makes observations in order to identify a more generalized theory. In the inductive method, the researcher begins by collecting relevant data for the research topic. Once a substantial amount of data has been collected, the researcher will develop an empirical generalisation, stepping back to obtain an overview (Kim, 2021). According to Park, Bahrudin and Han (2020), the inductive and deductive approaches have the following characteristics:

### **6.3.1 Deductive approach**

- Hypothetical theories or models are developed based on current knowledge (for example, literature review) and applied to research directions.
- Hypothetical theories or models are iteratively verified using measurable data points.
- If the outcomes of validation are adequate, the model's theory can be declared lawful. In contrast, if the validation results are unsatisfactory, the total research can be considered new knowledge that can be used as a starting point for future research.

### **6.3.2 Inductive approach**

- Reviewing literature to gain insights on research directions.
- Collect and analyze qualitative data to gain a better understanding of phenomena and study findings.

- Creating new theories or models based on new understanding.

The key component of deductive reasoning is a large quantity of measurable data. The information is objectively interpreted in a numerical manner, and then validation and generalisation are carried out. Inductive reasoning uses primarily qualitative data. Written texts and spoken responses are two types of qualitative data examples. To facilitate the creation of a new theory, such data is analysed by utilising the hermeneutics technique, in which data is interpreted logically (Park et al., 2020; Okoli, 2023). In the present study, the deductive method was used. This research was influenced by stakeholder theory, legitimacy theory, resource-based view theory, natural-based view theory, and green dynamic framework theory. As a result, the deductive approach enabled the researcher to examine the theories' application in the relationship between GDC and hospitality firm performance. The deductive approach was used as the study aimed to evaluate various hypotheses on the relationship between GDC and performance, with moderating variables (green self-efficacy and environmental concern) and a mediating variable (green innovation). Aithal (2022) provides additional support for the study's method, stating that a deductive research approach is suitable for examining and validating an established hypothesis regarding the relationship between the dependent and independent variables of academic research issues.

#### **6.4 RESEARCH METHODS**

The main research designs in the body of existing literature are quantitative, qualitative and mixed method research (Kandel, 2020). According to Taherdoost (2022), qualitative research employs naturalistic and interpretative approaches to various subject topics with the goal of addressing the scientific and practical difficulties that societies face. These methods make use of a variety of empirical data, including life experiences, case studies, and narratives that depict the struggles and daily routines of real people. Qualitative research gathers primary, first-hand textual data and applies particular interpretive techniques to analyze it. Due of its exploratory nature, it is a beneficial strategy when researching a phenomenon for which there is little readily available information. Therefore, by concentrating on their deep meaning and motivations, which cannot be quantified by numbers, the qualitative approach can uncover fresh insights, ideas, and develop new topics (Allan, 2020; Kandel, 2020;

Taherdoost, 2021, 2022). It is associated with the inductive research approach. According to Adu, Owusu, Martin-Yeboah, Pino Gavidia and Gyamfi (2022), qualitative research is an interpretive approach concerned with the transformation of the world through a combination of data collection methods (fieldnotes, interviews, conversations, photographs, recordings, and memos to self), within the natural settings of participants. It aims at offering a comprehensive and interpreted understanding of the social world of the study's participants, and the application of non-standardised, adaptable approaches to data collection. Qualitative research involves the quality of data and aims to understand the explanations and motives for actions, and the way individuals perceive their experiences and the world around them. It also seeks to establish a knowledge and understanding of numerous assumptions that have been developed in a study (Ghanad, 2023). To prove a certain study's premise, in-depth data must be collected, analyzed, and interpreted (Ghanad, 2023). It also employs a variety of empirical materials, such as case studies, life experiences, and stories, to demonstrate the routines and difficulties that persons face in their lives while emphasizing on their in-depth meaning and motives, which cannot be quantified (Taherdoost, 2022).

Quantitative research uses the collection and analysis of numerical data to describe a certain phenomenon and answer specified questions. This method uses both empirical and narrative remarks regarding the meaning of the cases in real terms. It also uses empirical evaluations to determine how well a policy or plan meets a standard or guideline. Non-numerical data can be collected statistically using instruments designed for this purpose. In other words, quantitative approaches are methods for determining social reality and conducting research to collect numerical data by using mathematical models. Additionally, it is linked to the deductive research approach (Mohajan, 2020; Taherdoot, 2021, 2022). Quantitative research is about finding valid mathematical representations for empirical phenomena (Borgstede & Scholz, 2021). Studies also reveal that collection and analysis of such data are effective and less time-consuming when utilising quantitative research (Rahman, 2020; Xiong, 2022). Quantitative research uses numerical values obtained from observations to describe and clarify events so that the observations can be used to further understand them. This approach makes use of both descriptive and empirical statements regarding the cases' real interpretations. It also employs empirical evaluations designed to ascertain

the extent to which a standard or norm is met in a certain program or policy (Taherdoost, 2022). It involves a formal, objective, and systematic process in which numerical data is used to obtain information about the world (Adu et al., 2022). This method aims to address societies' scientific and practical problems and involves naturalistic and interpretative approaches to different subject matters.

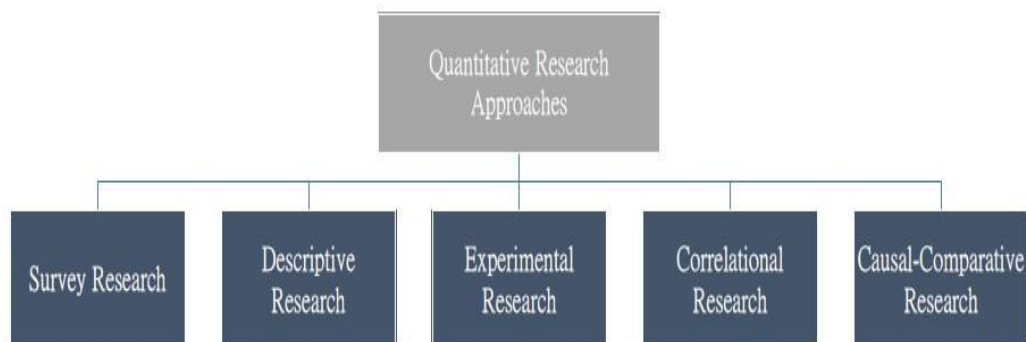
Mixed method methods utilize a combination of both quantitative and qualitative methods, depending on the purpose of the study and the nature of the research issue, in order to provide a deeper knowledge of the topic. Integrating both methodologies enables researchers to address difficult study conditions in several research domains, such as social and health research. The use of mixed methods enables researchers to answer research questions with sufficient depth and breadth and helps generalise findings and implications of the researched issues to the whole population (Taherdoost, 2022). Mixed methods research is a combination of quantitative and qualitative data collection and data analysis resulting in the production of both quantitative and qualitative data (De Allegri, Brenner, Kambala, Mazalale, Muula, Chinkhumba, Wilhelm & Lohmann, 2020; Schoonenboom, 2023). The use of mixed methods enables researchers to answer research questions with adequate depth and width and assists to generalise findings and implications of the researched issues to the whole population. This is because mixed methods allow researchers to gather and integrate multiple data sources to study complex problems and this gives them the ability to view a problem from different perspectives and research lenses (Poth & Munce, 2020). It also allows researchers to consolidate data in a purposeful way, which enables them to gain a wider view of the study. The combination of quantitative data and qualitative data can also be useful in better understanding a research problem (Sharma, Bidari, Bidari, Neupane & Sapkota, 2023). According to Dawadi, Shrestha, and Giri (2021), employing mixed methods allows researchers to address research questions in a comprehensive and in-depth manner, while also facilitating the generalisation of findings and implications of the studied issues to the entire population.

This study employed the quantitative method. According to Kandel (2020), quantitative research seeks to identify the relationship between an independent variable and a dependent variable in a population. It is a method for testing objectives that examines the relationship between variables. This study looked at the association between GDC

(the independent variable) and performance (the dependent variable). These variables, in turn, are measured, often on instruments, so that numbered data can be analysed using statistical processes and hypotheses related to phenomena (Kandel, 2020). According to Xiong (2022), findings yielded from quantitative research can be generalised to a larger population in different settings. In this study, the researcher sought to use a sample size of 480 firms, which was only attainable when utilizing the quantitative research strategy. This research began with theories such as the stakeholder theory, the legitimate theory, the resource-based view theory, the natural resource-based view theory, and the dynamic capacities framework, which were examined to determine their usefulness in GDC and the performance of hospitality firms. The next section covers the research strategies employed in the study.

### 6.5 RESEARCH STRATEGIES

Research strategies reflect the ideas of the researcher. It is useful to connect the research through a structural plan that shows how all of the primary variables of the research work together to answer the research questions (Asenahabi, 2019). Pawar (2020) postulates that strategies are used to collect the relevant data and technique to facilitate the smooth scaling of the various research operations yielding maximal information. However, the research design process involves many interrelated decisions (Abu-Taieh, Hadid & El-Mouatasim, 2020). According to the research design model of Taherdoost (2022), research strategies are well described through the three research methods, namely: quantitative, qualitative, and mixed method research. A quantitative research method was employed as the suitable method for the research study. The research strategies are shown in Figure 6.2.



**Figure 6.2 Research design model**

## **Quantitative Research approaches/strategies**

**Source: (Taherdoost, 2022)**

The quantitative research method, which is shown in Figure 6.2, was used in this study. The strategies of the quantitative research consist of the survey research, descriptive research, experimental research, correctional research and casual comparative research.

### **6.5.1 Survey research**

Survey research is a suitable approach to ascertain thoughts, feelings, and opinions. In a survey a group of questions is given to a sample selected from a predetermined target population. The traits and actions of the population are reflected in this sample (Taherdoost, 2021). Surveys are used to investigate the attitudes of the public, the behavioral variations amongst populations, and potential long-term shifts (Taherdoost, 2022). McCombes (2023) states that survey research design is the process of gathering data from a sample of people by posing questions and then evaluating the answers. Surveys can also be used to investigate certain features of a situation, look for explanations, or gather information for hypothesis testing. In addition, surveys are used in descriptive studies. Survey research is the process of gathering information through questioning people in a group or an area. This method measures the characteristics of a specific target population while accounting for a sample of that population using statistical techniques and instruction in the form of questionnaires (Taherdoost, 2022). A sub-set selected from the population is referred to as a sample in a survey. The researcher examines the sample and then looks for ways to generalise the findings to the population (Ghanad, 2023).

Asenahabi (2019) assert that survey research can be cross-sectional or longitudinal studies. Cross-sectional studies refer to the fact that the observations are done at one or more point in time, while repeat cross-sectional data is collected at two or more time points, though not necessarily on the same sample of participants. A cross-sectional survey is useful in assessing practices, attitudes, knowledge and beliefs of a population in relation to a particular event (Mohajan, 2020). In a cross-sectional survey, data collection is from individuals who show similarity in all variables except

those chosen for study (Taris, Kessler & Kelloway, 2021). Researchers track the study subjects' exposures and outcomes at the same time. After the subjects are chosen, the researchers will gather information and examine the correlations between results and exposures. The participants in a cross-sectional study are selected based on their potential relevance to the research question within the available population (Wang & Cheng, 2020).

Longitudinal surveys are studies where observations and data are carried out on the same participants at different points in time. With longitudinal surveys, the researcher observes and gathers information on multiple variables without attempting to manipulate them (Ghanad, 2023). By examining changes in individual outcomes, longitudinal data can be used to establish the temporality of effects within individuals, which can help clarify the causes and effects when statistical modelling is applied appropriately (Butler, Battista, Leatherdale, Meyer, Elliott & Majowicz, 2022).

Research to collect precise and effective data should have the relevant survey questions with open-ended and closed-ended questions. Open-ended questions are questions in which participants are encouraged to express their answers in their own words (Hadler, 2023). According to Svanes and Andersson-Bakken (2023), open-ended questions are those that can be answered in a variety of ways, with no specific correct answer. Open-ended questions are a powerful tool for motivation as they encourage discussion, which improves comprehension and reasoning behind the question (Svanes & Andersson-Bakken, 2023). In closed-ended questions, participants have a specific range of answers to choose from, however in open-ended questions, participants are asked to provide defined answers. There are various options provided to choose from (Taherdoost, 2021). The survey method can be used either online or offline with large sample sizes. The methods of conducting a survey include online surveys, face-to-face surveys, telephone and self-administered surveys:

- Online survey

Online surveys collect information from participants responding to the study link using internet-based communication technology (Singh & Sagar 2021). Andrade (2020) states that online surveys collect information from people who respond to a form or

instrument that is distributed through internet channels. Online surveys are often conducted via email or online survey platforms, with a survey link shared on social media platforms or websites or a directory of email IDs accessed by researchers. Also, participants might be asked to share the survey link further with their eligible contacts (Singh & Sagar 2021). Online surveys are becoming increasingly popular because of advantages, such as lower research costs, faster implementation times, fewer transcription errors, and easier analysis. Even though online surveys have the potential to be highly productive, they need a reasonable response rate, as this is frequently considered a key indicator of the survey's quality (Wu, Zhao & Fils-Aime, 2022). Distributing online surveys through a variety of online platforms such as social media groups and email lists, enables the researcher to reach a large audience and the possible participation of thousands of participants (Castorena, Lupu, Schade & Zechmeister, 2023). However, it is imperative to take into account the constraints associated with conducting online surveys. Online surveys can be appropriate for simpler questionnaires that do not require much explanation, but they are not appropriate for more intricate surveys that need direct communication with researchers, such as in-depth interviews (Andrade, 2020). Nonetheless, they are a simple and cost-effective method of collecting data.

➤ Face-to-face survey

When conducting a face-to-face survey, the researcher is physically present to pose the questions and help the participant answer them. Face-to-face questionnaires allow for oral presentation of questions. Paper and pencil or computerised questionnaires can be used to collect data during face-to-face survey (Taherdoost, 2021). Face-to-face surveys have several important advantages, including being flexible, adaptable, and structurally clear. They can be controlled in the survey environment and are based on interpersonal interaction (Tran & Luong, 2020). Face-to-face research data is collected in person through interactions between the interviewer and the participant. The standardised interview is the gold standard when it comes to survey designs, in particular as it minimises the impact of this interaction on the data quality (Horsfall, Eikelenboom, Draisma & Smit, 2021). The surveys are regarded as the most widely used and efficient survey mode, producing better sample composition and higher response rates. In face-to-face surveys, a good rapport between the interviewer and

the interviewee can encourage participants to be honest and thorough, which reduces the number of incomplete responses (Saarijärvi & Bratt, 2021). According to Horsfall et al. (2021), rapport is characterised by a relationship based on mutual interest, support, and understanding.

➤ Telephone surveys

Telephone surveys are research techniques in which participants are surveyed over the phone. Data is gathered by the researchers through punching responses in telephone interviews (Tweheyo, Selig, Gibson, Pariyo & Rutebemberwa, 2020). Telephone surveying has the advantage of allowing a geographically dispersed sample to be reached easily. Telephones are valuable for quickly gathering quantitative data from a distance without incurring significant costs. Phone surveys are also useful for studying the temporality and social setting in which questions are asked and responded to. When administering phone-based surveys, researchers can make use of computers to record responses, which can be continuously monitored, thereby quality control is also managed (Hoogeveen & Pape, 2020; Tran & Luong, 2020; Arita, Ba, Traoré, Bonnet, Faye & Ridde, 2023). However, the application of phone surveys involves some challenges. Phone surveys involve constraints regarding the type and size of questions that could be included in the interviews. To limit participant fatigue, interview questions need to be kept short and simplified and answer choices limited. When conducting telephone surveys, a participant's desire to please the interviewer or to avoid providing wrong answers may also affect their responses, diminishing the authenticity of their responses (Brück & Regassa, 2023).

➤ Self-administered survey

Self-administered surveys can be completed without the assistance of an interviewer or data collector. The questionnaire is read by the participants, who then independently record their answers (Workbook, 2021). Self-administered structured questionnaires are employed because they offer a reliable means of data collection, strengthen the validity of the findings, and lessen the complexity and perplexity for the the researcher. During the process of developing a questionnaire, it facilitates the evaluation of key concepts, such as construct validity, face validity, content validity,

and reliability testing (Leon, Lapkin, Fields & Moroney, 2022). These surveys can be distributed in person or most commonly by mail, the internet, or another method. The self-administered survey offers a significant benefit in that it allows participants to remain anonymous, theoretically resulting in more accurate or legitimate responses. The participant may also complete the questionnaire whenever it is most convenient for them, there is no need to set up appointments for interviews, and researcher bias or error is eliminated because there is no interviewer. It is a cost-effective way to survey large samples because of its low cost per completion (Saunders & Kulchitsky, 2021). The drawback of this type of survey is that participants can complete the questions incorrectly, or have someone else complete them, or leave questions unanswered, necessitating telephonic call-backs, where telephone numbers are available, which increases the costs of the survey.

This study employed cross-sectional survey research because it was less expensive and less time-consuming as data was collected at a single point in time, between March and April 2023. The self-administered method was selected due to its benefits, which include being less costly, requiring less time, and providing a reliable way to analyze data pertaining to a particular group. This study adopted self-administered questionnaires, which consisted of closed-ended questions. The questionnaires were developed and distributed across the hospitality firms in the Limpopo and Gauteng provinces. All the study's constructs, including GDC, GI, sustainable performance, GSE, and EC were taken into consideration when formulating the research questions.

### **6.5.2 Descriptive research**

Descriptive research aims to uncover and describe patterns and variations in populations, develop novel measurements for important phenomena, or describe samples in studies intended to pinpoint causal relationships. It also examines various statistical calculations, including frequencies and averages (Mohajan, 2020). By providing systematic research about phenomena, it aims to either explore the correlation between the phenomena by using observations or define their attitudes (Taherdoost, 2022). A descriptive statistic summarises the measurements and samples and is used in research to explore the fundamental properties of the data. This enables the researcher to communicate the interpretation and data in a clear and meaningful manner (Ghanad, 2023).

### **6.5.3 Experiment**

It can be summed up as an examination of the connections between measured and altered variables. It makes it possible for the researcher to enhance the observational settings and produce more accurate finding (Pandey & Pandey, 2021). The practice of methodically outlining and evaluating some item's attributes, qualities, or traits is known as descriptive research. Numerical descriptions that pinpoint the size, location, and frequency of the object under study are provided by descriptive research (Heath, 2023). The purpose of experimental research is to determine the relationship and connection between the independent and dependent variables. A variable and hypothesis for experimental research must be measurable, calculable, and comparable in a controlled setting (Ghanad, 2023).

### **6.5.4 Causal-comparative design**

In causal-comparative research, two groups or more variables are compared using a non-experimental quantitative design. Furthermore, it is employed when there are variations in an independent variable between two groups and the researcher intends to explore the differences between one or more independent variables or dependent variables (Asenahabi, 2019). It provides the researcher with the opportunity to examine the interaction between independent variables and their influence on dependent variables. A causal-comparative design identifies and determines the cause-and-effect of the relationship between two or more groups (Mohajan, 2020; Pawar, 2020). Pawar (2020) contends that there are a few advantages of conducting causal research, such as increased replication chances, a systematic approach to

subject selection and internal validation, and improved comprehension through the establishment of connections between variables and elimination of possibilities. The goal of the causal study design is to identify causes and effects in the data (Singh, 2023). Causal-comparative research is a non-experimental method for examining cause-and-effect relationships, which compares groups and looks for the reason behind a previous observation. This design is helpful for analysing the relationship between variables that cannot be changed or controlled and is employed when researchers are searching for a cause after the effect or outcome has already been observed (Tyers, 2022).

#### **6.5.5 Correlational research**

Correlational research involves measuring two or more variables and analysing the statistical relationship between them without the influence of any other variables. It is designed to test research hypotheses in cases where it is not possible or desirable to experimentally manipulate the independent variable of interest (Ghanad, 2023). Correlational research describes what exists at the moment and provides an evaluation of strength and direction of relationship among variables (Mohajan, 2020). The direction of a correlation can be either positive or negative (Bhandari, 2023). A positive correlation between two variables is when an increase in one variable leads to an increase in the other variable and a decrease in one. A negative correlation is quite literally the opposite of a positive correlation. This means, if there is an increase in one variable, the second variable will show a decrease and vice versa, the variable will see a decrease in the other variable (Wubante, 2020).

This study adopted the correlation research approach to measure the strengths of the relationship between GDC and performance, GDC and green innovation, green innovation and performance, the mediation effects of green innovation, and the moderating effects of green self-efficacy and environmental concern. The descriptive research design was used to statistically define and present the constructs of the study and the association between them.

## 6.6 POPULATION

The population of interest for a study consists of the individuals, groups, organisations, or other entities to whom the study's results may be generalised or transferred (Casteel & Bridier, 2021). Shukla (2020) defines population as the collection or grouping of all the units to which the results of the study are to be applied. The definition of the population of interest gives context for the people who might be affected by and intrigued by the study's findings. Giving a thorough account of the target population makes it possible for readers and practitioners to connect the study with the right subjects, be they individuals or institutions (Casteel & Bridier, 2021; Thacker, 2020). The term target population refers to a sub-set of the population about which one aims to draw conclusions, or a group of the population whose features capture the researcher's attention. A target population must be exclusive enough to exclude participants from misunderstanding the population of interest in order to meet study requirements (Casteel & Bridier, 2021; Willie, 2022). It is made up of the individuals, groups, organisations, or other entities that one wishes to understand, as well as who or what the study's findings might be applied or generalized to (Casteel & Bridier, 2021).

The target population of this study consisted of all owners, general managers and chief executive officers of three, four, and five-star hotels in the Capricorn and Waterberg district municipalities in the Limpopo Province, as well as the City of Tshwane Metropolitan Municipality and the City of Johannesburg Metropolitan Municipality. The four municipalities have a sizeable number of hotels. Many individuals in South Africa move to these provinces seeking better businesses opportunities. The reason for focusing on these four municipalities is that they consist of many hotels with star ratings ranging from three to five. The Tourism Grading Council of South Africa ranks hotels as three-star, four-star and five-star. It is emphasized that rated hotels are more likely to have a green strategy compared to non-rated ones. By giving consumers information about hotels, based on established standards, star ratings aim to reassure travellers about the standards of the place they have reserved and wish to stay at (Koutoulas & Vagena, 2023). Nunkoo, Teeroovengadum, Ringle and Sunnassee (2020) state that the hotel rating systems provide travellers with an easy way to compare hotels and that they serve not only hotels and hotel guests, but also the travel trade, such as tour operators and travel agencies. Star ratings are given according to

the common physical and service characteristics of hotels, and they reflect the comfort offered to hotel guests and the adherence to safety and hygiene standards (Koutoulas & Vagena, 2023). However, there is no population list or sampling frame of owners, general managers and chief executive officers of three, four, and five-star hotels in the study areas.

## **6.7 SAMPLE AND SAMPLING METHODS**

### **6.7.1 Sample and sample size**

Any subset of a population, which represents all the types of elements of the population, is called a sample. This means that all the traits of the various kinds of population units must be represented by the units chosen from the population (Shukla, 2020; Cash, Isaksson, Maier & Summers, 2022). Sample size is regarded as the number of individuals or institutions included in a statistical sample (White, 2023). Sivasamy (2023) defines sample size as the total number of sampling units that a study needs to include in order to produce meaningful results. Sample size is cautiously selected as the number of individual cases needed for the study to produce data that will accurately represent the entire population. Effective sample selection will result in sample statistics or characteristics that are more closely aligned with the parameters or characteristics of the entire population (Mweshi & Sakyi, 2020). Sampling is the process by which a researcher carefully selects, through a number of individual items, from a larger population of interest for closer study. A good sample generalises the population very well (Khan, 2020; Mweshi & Sakyi, 2020). Sampling selects a specific number of participants from a predetermined group in order to carry out a study. The research findings are generalisable when the sample is a true representative sub-set of people who might have similar traits to a sizeable population (Cash, Isaksson, Maier & Summers, 2022; Vadakedath & Kandi, 2023).

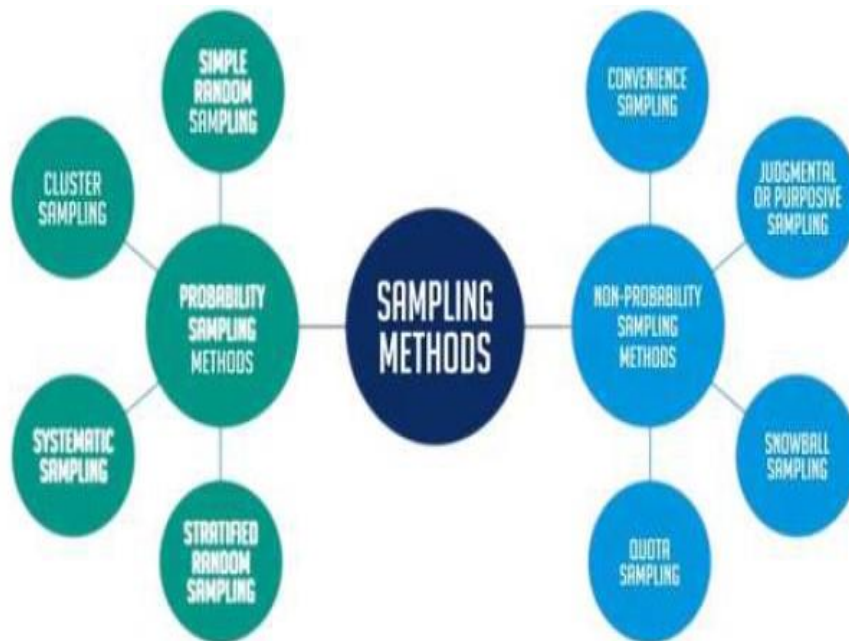
The rule of 10 (10 times rule) was employed to decide on the sample size of the study. According to this rule, the minimum sample size should be 10-times the maximum number of arrows (or paths) pointing at the latent variable in the model. (Priyanath & Megama, 2020). This is supported by Hair et al. (2017) and Jhantasana (2023) as in their study, the 10-times rule was used for the number of indicators considered to have a substantial effect on size and sufficient statistical power. In the current survey, there were 26 paths to the latent variable made up of 18 paths from the independent variable (green dynamic capabilities) and 8 paths from the mediating variable (innovation).

Therefore the minimum sample size is 260 owners and managers of hospitality firms. This is because data can only be obtained from the owners and managers of the hospitality firms. However, to improve the study's statistical power 406 questionnaires were received from survey participants. There the sample size of the study is adequate.

### **6.7.2 Sampling methods**

Sampling methods are divided into two categories: probability-based methods and non-probability-based methods (Berndt, 2020). In probability sampling, the complete list of the population is required, while in non-probability sampling, the list of the population is not required for the sampling process (Khan, 2020). The probability sampling methodology is an effective method for choosing a sample as it gives every member of the population an equal opportunity to be chosen. The goal of a probability sample is to produce objective, precise, and trustworthy population statistics. However, in reality, a number of challenges, such as non-coverage, non-response, and other error sources, can compromise impartiality (Salvatore, 2023). Wiśniowski, Sakshaug, Perez Ruiz and Blom (2020) state that the process of selecting samples at random from a population in which each population element has a known inclusion is referred to as probability sampling. The purpose of the probability sampling technique is to create a study sample that closely resembles the representation of the total population by giving each member of the population a known and random chance of being selected into the sample for research participant recruitment (Boyd, Powney & Pescott, 2023; Turban, Almazan, Reisner & Keuroghlian, 2023). Non-probability sampling methods select the sample not by chance, but rather by the researcher's personal evaluation (Berndt, 2020; Mulisa, 2022). It entails an arbitrary selection process for sample elements for which inclusion probabilities are not known (Kalton, 2023; Wiśniowski, Sakshaug, Perez Ruiz & Blom, 2020). In a non-probability sample, the chance that each population unit was sampled, is not known (Boyd, Powney & Pescott, 2023). This happens, when either the sample is not chosen truly at random or the unit's inclusion probability is unknown even when random sampling is used (Kim, 2022). Common types of probability methods include simple random sampling, stratified sampling, systematic sampling, cluster sampling, and multi-stage sampling. The types of non-probability sampling methods include purposeful sampling, convenience, snowball sampling, and quota sampling (Berndt, 2020; Raifman,

DeVost, Digitale, Chen & Morris, 2022). Figure 6.3 shows the types of sampling methods.



**Figure 6.3 Sampling methods**

**Source: (Makwana, Engineer, Dabhi & Chudasama, 2023)**

### **6.7.2.1 Probability Sampling**

#### ➤ Simple random sampling

The simplest type of probability sampling is simple random sampling, in which each population unit or every individual within a population has an equal chance of selection (Thomas, 2020; Lohr, 2022). Simple random sampling ensures that all members of a population have an equal chance of being chosen. This method is widely used in research to guarantee a representative sample and to lessen bias. Through random participant selection, researchers can increase the likelihood that the results obtained can be applied to a broader population (Makwana, Engineer, Dabhi & Chudasama, 2023; Rahman, Tabash, Salamzadeh, Abduli & Rahaman, 2022).

#### ➤ Cluster sampling

Cluster sampling is the process of dividing a population into clusters and selecting members randomly from each cluster. Cluster sampling is the random selection of

previously existing or naturally occurring categories or clusters, such as towns within a district or families within a society. This method includes creating clusters based on particular criteria, followed by selecting a sample using either simple random sampling or systematic sampling techniques (Iliyasu & Etikan, 2021). Using this process, the population can be reduced in size by being divided into smaller groups, which can then be selected at random (Rahman et al., 2022). In cluster sampling, the population is divided into pre-existing groups, and all members from randomly chosen clusters are included in the sample (Nikolopoulou, 2022).

➤ Stratified random sampling

A statistical technique known as stratified random sampling entails choosing a random sample from each stratum after dividing the population into sub-groups or strata according to specific criteria. This method is widely used in studies to guarantee that the sample is representative of the population and to increase the accuracy of the estimations (Makwana et al., 2023). Using stratified sampling, a population is divided into smaller groups according to attributes like age, sex, and occupation. The benefits include ensuring that all segments of the population are represented. Stratified random sampling improves population coverage by allowing researchers to include sub-groups more effectively (Rahman et al., 2022). Stratified random sampling is a technique that enhances sample representativeness by creating groups within the study population according to the researcher's desired sample characteristics (Howell, Su, Nassel, Agne & Cherrington, 2020).

➤ Systematic sampling

Systematic sampling selects a sample by using a predefined interval from a larger population. This method creates a representative subset of the population, assuring that the sample includes every  $n$ th member of the population. In this method, a member is selected on a regular basis. The chosen person will be known as the  $K$ th element, where  $K$  represents the sampling frame's item count divided by the sample size's item requirement (Rahman et al., 2022; Makwana et al., 2023). Disproportionate stratified random sampling means that the number of elements sampled from each stratum is not equal to the population representation of those elements. There is no

smearing of the fraction with each stratum and no reasonable chance for the element to be included in the sample in the population (Iliyasu & Etikan, 2021).

➤ Multi-stage sampling

Multi-stage sampling involves selecting samples in two or more phases. Using a multi-stage sampling technique, large population clusters are divided into smaller clusters over a number of stages to facilitate the collection of primary data. It uses progressively smaller sampling units at each stage of the sampling process (Obilor, 2023). It is critical to understand that multi-stage sampling helps to mitigate some of the drawbacks of true random sampling, including excessive cost and time consumption, even though it is not as effective as the latter type of sampling (Khan, 2020). The sampling is carried out in a hierarchical fashion, with units chosen according to predetermined standards or data gleaned from earlier phases at each stage. Improved statistical estimation, faster convergence rates, lower error probabilities, and less soil disturbance can all be achieved with multi-stage sampling. In situations where a sampling frame is lacking or the population is widely distributed, it allows for the selection of units (Mallik, Banerjee & Michailidis, 2020; Mahdizadeh & Zamanzade, 2022).

### **6.7.2.2 Non-probability sampling**

➤ Purposeful sampling

With this kind of sampling, the researcher chooses a sample that might be representative of the target population by using their own knowledge or discretion (Stratton, 2023). Purposive sampling is a non-probability sampling technique in which the researcher, acting on conviction, only chooses participants who meet the study's objectives. This sampling method involves the researchers selecting study participants from the study population, using their own discretion (Obilor, 2023; Nyimbili & Nyimbili, 2024).

➤ Convenience sampling

In this method, researchers select subjects based on their availability and accessibility. This method is quick, affordable, and convenient. It is called convenience sampling because the researcher selects the sample elements based on their convenient

access and proximity (Scholtz, 2021; Boyd, Powney & Pescott, 2023). Convenience sampling is the selection of study subjects because they are accessible for one reason or another to the researcher (Stratton, 2023). In addition, it is popular due to its low cost, time efficiency, and simplicity (Stratton, 2021). When using the convenience sampling method, researchers choose participants more quickly and cheaply than when using other non-random sampling techniques since the sample drawn from the target population is readily accessible (Golzar, Noor & Tajik, 2022).

➤ Snowball

In this form of sampling, those who have been selected to participate in the sample are asked to recruit other potential sample members that they may be affiliated with. The snowball sampling method is utilised when a participant finds more participants from their personal network, which includes friends, family, and acquaintances. This kind of sampling is used in situations, where it is difficult to identify qualifying sample participants (Makwana et al., 2023). Data collection starts with gathering information from one or more contacts the person gathering the data usually knows. The participant is asked to supply contact details for additional possible participants at the conclusion of the data collection process (Stratton, 2023).

➤ Quota

This is a type of non-probability sampling method, which states that the participants in a group are a representative sample of the group's population with an equal probability (Kalton, 2023). With this sampling technique, the researchers use a proportionate ratio to determine the required sample size from each population's sub-group (Iliyasu, 2021; Pace, 2021). Quota sampling involves the selection of participants according to a predetermined set of criteria that have been established by the researcher. Certain characteristics serve as a threshold for selecting the participants in the sample (Makwana et al., 2023). The quota sampling method is more appropriate when the accuracy of the research outcome is less critical. When a researcher has a thorough understanding of the population and a clear understanding of the research purpose, quota sampling works well (Rahman, 2023). Quota sampling is a technique used when the study population is naturally divided into multiple distinct compositions. The participants of quota sampling are chosen based on certain characteristics that the researcher has selected (Stratton 2021; Kandi, 2022; Raifman et al., 2022). Quota

sampling is advantageous because it requires no sample frame and is less stressful to administer, making it an affordable and suitable way to quickly generate a sample (Iliyasu & Etikan, 2021).

This study used the non-probability sampling technique, which includes convenience, snowball and quota sampling. Quota sampling was adopted for this study. The researcher selected hotels with three, four, and five stars as graded by the TGCSA. The hotels' addresses and star ratings were provided by the TGCSA (2019), together with a thorough explanation of what constitutes a three-star, four-star, and five-star hotel, as well as what sets one hotel apart from another in terms of the star ratings. This made it possible for the researcher to gather information regarding the different hotel star ratings prior to sending out questionnaires. Only the owners, general managers, and chief executive officers of these hospitality firms were considered for inclusion in the study. The study also looked at gender, age, education level, years of operation and number of employees to ensure equal representation. The selection made increased the quality of the results by enabling rich data to be obtained from the sample of hotels. Quota sampling is advantageous as it is faster to conduct, and this makes it easier to explore distinctions in sub-groups (Berndt, 2020).

Convenience sampling was used for the convenience of the researcher. Participants who were readily accessible or available to the researcher were selected and hotels that met the researcher's requirements qualified to be a part of the study's sample. To access hotel leadership, the researcher took the questionnaires to various hotels in the selected municipalities, namely, the Capricorn and Westenberg municipalities in Limpopo, and the City of Tshwane Metropolitan Municipality and the Johannesburg Metropolitan Municipality in Gauteng. The selected municipalities were convenient for the researcher, and they are considered as the hub municipalities of hotels in the Limpopo and Gauteng provinces. The hotel leaders were given four weeks to fill out the questionnaire, while some participants completed the questionnaire in the presence of the researcher. This led to time efficiency and the researcher incurred low travelling costs. Snowball sampling was also used in this study. The researcher asked the known participants to provide the contact details of other potential hotels' leadership. The potential participants were contacted, then given the questionnaires to complete and they were asked to provide more contacts

## 6.8 DATA COLLECTION

Data collection methods are broadly classified into two types: primary data collection methods and secondary data collection methods. Primary data is factual and distinctive, and it is gathered with an aim for finding solutions. It is data that is collected for the first time by the researcher (Ajayi, 2023). Primary data refers to information that has not yet been published, and it is first-hand and unaltered by anyone. Primary data collection has the benefit of being directly related to the research questions, minimising missing data in important areas, and offering the chance for real-time data correction. Because of this, this kind of data is thought to be more accurate (Dhudasia, Grundmeier & Mukhopadhyay, 2023). Primary data is used only for one specific study; As a result, the data collected will be related to the study being conducted. Primary data sources provide accurate and comprehensive information as they are obtained directly and in accordance with specifically designed content (Khuc & Tran, 2021).

Secondary data, on the other hand, is the analysis and interpretation of results and data that was collected for other purposes. It is made up of data obtained from sources that are generally accessible, which indicates that the data was previously obtained for a different purpose and may be utilized for additional research study goals. The principal sources of data are the relevant working environments of industries and industry personnel, specifically the management and employees (Taherdoost, 2021; Walliman, 2021; Ajayi, 2023). Secondary data use provides access to vast amounts of previously acquired data, but it frequently needs additional cleaning and codification to align the data with the study topic (Dhudasia et al., 2023). Using primary collection method helps researchers to acquire improved data that can enhance outcomes and achieve the validity, reliability, objectivity, and authenticity of data and the researcher can add further data as needed while conducting the research (Taherdoost, 2021).

This study used the primary data methods. Questionnaires were used to collect primary data from hospitality firms in the provinces of Gauteng and Limpopo. Managers and owners were given the questionnaire to complete and return. According to Tran and Khuc (2021), data from primary data sources is original and complete since it was collected in accordance with content that has been specially developed. Primary data was used in this study as it enabled the researcher to collect novel and current information, and the information gathered helped the researcher in determining

and understanding the core problems and objectives of the study. Existing studies on the relationship between GDC and performance tend to have limited data; hence, the primary data collection method was considered for this study. Primary data is reliable and has better confidence levels of decision-making with the trusted analysis having had direct contact with the occurrence or the events (Abu-Taieh, Al Hadid & El Mouatasim, 2020). Primary data can be obtained from a variety of sources, including questionnaires, interviews, focus groups, observations, surveys, case studies, and experimental methods (Pandey & Pandey, 2021; Ajayi, 2023). For this study, a self-administered survey was used, which was discussed in more detail at the beginning of this chapter. The survey included a self-administered questionnaire, which participants read, completed and independently recorded their answers. The self-administered questionnaire is discussed in more detail below.

#### ➤ **Questionnaire method**

A questionnaire is a common tool used to collect data; it is a form or instrument with a series of questions that collect responses from participants (of a particular demographic) in order to provide the researcher with the data needed for the study. (Taherdoost, 2021). Participants are given a list of written items and are asked to respond by ticking the ones that they believe are relevant to them (Ajayi, 2023). Questionnaires are the most widely used tool for data collection, consisting of a set of open-ended or closed-ended questions on one or more variables. A questionnaire is perceived as a crucial component that can influence both the item and the unit of responses (Bulut, Xiao, Rodriguez & Gorgun, 2020). A questionnaire incorporates a list of questions intended to collect data from participants in order to learn about their knowledge, opinions, attitudes, beliefs, and behaviour (Ranganathan & Caduff, 2023). A self-administered questionnaire was used in this study. According to Ranganathan and Caduff (2023), self-administered questionnaires are defined as questionnaires that are meant to be filled out by the participants on their own, without the help of a researcher. This method lowers the research expenses and streamlines logistics, while enabling participants to respond at their own speed and in their own time. Self-administered questionnaires can be sent by email or postal mail, distributed to participants in person during visits, or be accessed online via a link. Self-administered questionnaires provide participants with the assurance of anonymity, which could lead to more accurate responses (Saunders & Kulchitsky, 2021;

Ranganathan & Caduff, 2023). These questionnaires are known to have several benefits, some of which are that they are relatively inexpensive; It takes a short period of time to gather data from a great number of participants and the gathered data is simple to collect, measure, evaluate, and interpret (Mazhar, Anjum Anwar, & Khan, 2021). This method enables participants to react at their own pace, while reducing research costs and logistics usually associated with face-to-face interviews. Self-administered questionnaires provide discretion and anonymity, which may lead to more accurate responses (Ranganathan & Caduff, 2023). Self-administered structured questionnaires were employed in this study because they offer a reliable means of data collection, strengthen the validity of the findings, and lessen the complexity and confusion for the researcher (Fu, Li, Zhang, Chen, Wang, Han, Tian, Liu, Zhang, Deng & Liu, 2022). The self-administered questionnaire used for this study was made up of the following content:

➤ **Questionnaire content**

For the study, data was gathered from the participants by using the self-administered questionnaires with a closed-ended response format. The purpose for using this format was that it minimised participant fatigue, while lowering the non-response rate; it minimised the possibility of participant misunderstandings; and it was reasonably quick to complete (Darko, 2022). Participants were required to cross or tick the number that best represented their responses for each question on the questionnaire. The questionnaire of this study was divided into five sections, namely: (A) demographic information, (B) green dynamic capabilities, (C) green innovation (green product innovation and green process innovation), (D) performance (financial, social and environmental performance and green competitive advantage), (c) green self-efficacy and concern for the environment. Demographic information included the position, gender, age, level of education, scale of the hotel, number of years in operation and total number of employees. The five-point Likert scale, ranging from (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, and (5) strongly agree was used to measure GDC, GI, FP, EP, SP, GCA, GSE, and EC. The scale was chosen to enable statistical analysis of the data using various approaches (Pita, 2021).

The GDC section comprised 18 items and employed a measure that originated from earlier research by Yu et al. (2021) and Yousaf et al. (2021). Cronbach's alpha for the

study's reliability scale was 0.93 and 0.88. This suggests that the scale was reliable, indicating that the study's questionnaire was consistent. The GI section with eight items used a measure adopted from a study of Li (2022). The reliability scale according to the Cronbach's alpha for green product innovation (4 items) was 0.94 and in green process innovation (4 items) it was 0.94. This indicates reliability. Hair et al. (2009) noted that values of 0.7 or higher denote good reliability. It indicates that the scales had modest reliability (Cheung, Cooper-Thomas, Lau & Wang, 2023). Reliability is the stability and consistency of the measuring instrument over time. Reliability measured by Cronbach's alpha is a measure of repeatability of a measure. It refers to the ability of instruments to produce similar outcomes when used at various times (Sürücü & Maslakçi, 2020).

The section on performance was measured with four factors: financial performance with four items, environmental performance with three items, social performance with four items, and green competitive advantage with four items. Financial performance was adapted from the study of Hindasah and Nuryakin (2020) with a Cronbach's alpha of 0.946, environmental performance from previous studies of Magsi et al. (2018) with the Cronbach's alpha of 0.81, and social performance from Hernandez-Perlines and Cisneros (2017) with a Cronbach's alpha of 0.79. All the constructs had a scale load greater than 0.7, which showed the reliability of the items and the questionnaire. For GCA with four items, a study by Zameer, Wang, Yasmeen and Mubarak (2020) was used with a Cronbach's alpha of 0.80. The GSE construct with three items was derived from Farooq et al. (2021), and it showed a Cronbach's alpha of 0.93. All these coefficients were greater than 0.70. This indicates that the scales had modest reliability. The adoption of environmental concern (4 items) was based on the findings of Xu et al. (2021), whose Cronbach's alpha was 0.77. All these constructs' coefficient value was greater than 0.70. This suggests that the scale was dependable, implying that the questionnaire used in this study was reliable. Different local languages are spoken in the study areas, especially in the Gauteng Province. Therefore, to ensure a standard communication approach, an English-language version of the questionnaire was created to accommodate all participants.

## 6.9 PILOT STUDY

A pilot study is a small-scale research project designed to gather information about the study's future directions. It is also feasible to determine the impact of the instrument and its reliability, which will be important information for the larger-scale future research (Ullah, Khan, Hakal, Khalid & Hashmi, 2023). Malamqvist (2019) states that a thorough examination of the methods and outcomes from the pilot study facilitates the identification of weaknesses that can be addressed. Therefore, a well-organised and managed pilot study has the potential to improve the quality of the research by informing subsequent stages of the research process. Pilot studies, also known as preliminary studies, are conducted prior to the main core studies, when a problem, process, phenomenon, or mechanism specific to a given community, location, object, or society has received little attention, implying that very little is known about it (Mohamed, Sahida, Izwan & Mahmuda, 2023). Pilot research is frequently conducted on a small scale and is the first point of contact with the examined reality (Dźwigoł, 2020). One of the goals of conducting a pilot study is to improve the research's quality, which can be accomplished in most aspects of the research process. Piloting aids in the refinement, identification, and reduction of errors and possible omissions in the questionnaire and its design. The implementation of the pilot study involves several crucial elements, including its size, methods, and content (Gani, Imtiaz, Rathakrishnan & Krishnasamy, 2020; Asante-Darko, 2022).

A questionnaire needs to be valid and reliable, and therefore, any new questionnaire needs to be pilot tested among a small sample of participants who are representative of the larger population. In addition to validity and reliability, pilot testing provides information on the time taken to complete the questionnaire and whether any questions are confusing or misleading and need to be rephrased. Validity indicates that the questionnaire measures what it claims to measure – this means taking into consideration the limitations that come with any questionnaire-based study. Reliability means that the questionnaire yields consistent responses when administered repeatedly, even by different researchers, and any variations in the results are due to actual differences between participants and not because of problems with the interpretation of the questions or their responses (Asante-Darko, 2022; Ranganathan et al., 2023).

A pilot study was conducted to explore the constraints of the questionnaire on GDC and performance of hospitality firms. Self-administered questionnaires, consisting of closed-ended questions, were distributed to 40 hotel owners, general managers and chief executive officers to examine, assess, scrutinise, and critique the questionnaire's content, structure, and suitability for the study. A total of 20 questionnaires were distributed in Limpopo Province and 20 in Gauteng Province. The participants of the pilot study were not permitted to take part in the main survey. The aim was to test the validity of the questionnaire before distributing it to a large group of participants. Out of the 40 questionnaires sent, 30 were received back and put through a reliability test. The Cronbach's alpha (CA) test was used to determine the internal consistency of the study's constructs. The study's results showed that the tool was reliable and ensured validity. It was found that the tool's reliability was greater than 0.70, indicating a good value (Hair et al., 2019), and suggesting that the question items did not require clarification. This process confirmed that no items needed to be eliminated as all items were feasible and appropriate for this research. This suggested that the reliability and pilot study procedures gave the research its authenticity. The results obtained were adequate to conduct the core research. In addition, the results of the pilot study indicated that the respondents understood the questions, and this helped to confirm face and content validity. The next section covers the data analysis method of this study.

## **6.10 DATA ANALYSIS METHODS**

### **6.10.1 Analysis methods**

This section discusses the statistical methods and tools used to analyse the data collected. Structural equation modelling (SEM) was employed as the study's main structural tool. According to Bollen, Fisher, Lilly, Brehm, Luo, Martinez and Ye (2022), the application of structural equation modelling in social and behavioural sciences, management sciences and other disciplines is growing as they enable researchers to assess various concepts and hypotheses (Hair et al., 2021; Sarstedt et al., 2021). SEM is a prevalent multidimensional method for analyzing the relationships between observed and latent variables and their direct and indirect effects. In SEM an observed variable is a variable that has been measured explicitly and that helps to explain a latent variable. Latent variables, on the other hand, are unobservable variables that cannot be directly measured. The SEM theory explains complex relationships between

variables by employing a path model or analysis to explain effects caused by observed and latent variables (Kang & Ahn, 2021). The SEM attempts to evaluate the relationship between latent variables (Ampofo & Aidoo, 2022). SEM enables the research of a set of relationships between one or more independent variables and one or more dependent variables. In addition, it is used to test hypothesised relationships between a set of observed (measured) and unobserved (latent) variables. SEM also involves the development of a path diagram with arrows between variables and path coefficients for each arrow (Owolabi, Ayandele & Olaoye, 2020; Zyphur & Bonner, 2023). Based on its many advantages, SEM is a data analysis method that is frequently employed in academic settings. These advantages include the ability to control measurement errors, the simplicity of application of mediating variables, and the possibility of statistical evaluation of theoretical models (Kang & Ahn, 2021).

The simulation of structural equations has two methods. These are covariance-based structural equation modelling (CB-SEM: Jöreskog, 1993) and partial least square structural equation modelling (PLS-SEM: Hair & Alamer, 2022). Although CB-SEM is more commonly used for marketing research, PLS-SEM has recently become more popular in various disciplines (Hair Jr et al., 2020; Magno, Cassia & Ringle, 2022). When a hypothesised model contains one or more common factors, the CB-SEM is employed (Dash & Paul, 2021). It estimates the model parameters by alluding to the empirical variance-covariance matrix. It must meet data normality, sample size, reflective construct (i.e., the direction of indicator arrows pointing toward the construct), and influential theory when testing a model. However, the latter SEM, PLS-SEM, is known to be a variance-based SEM and is explicitly more accessible in the sense that it does not have to meet all of the strict criteria of CB-SEM. When assumptions in CB-SEM are not met, it plays a critical role in solving causality problems in the context of latent variables (Zeng, Liu, Gong, Hertogh & König, 2021; Ashraf, 2022). CB SEM is the proper method if the goal of the research is to test and confirm theories. On the contrary, PLS SEM is the suitable approach if the goal of the study is theory development and prediction (Dash & Paul, 2021). The primary objective is to optimize the explained variance in the dependent constructs while also evaluating data quality based on measurement model characteristics (Zhang, Dawson & Kline, 2021).

This study employed the PLS-SEM structural modelling because it is effective in handling complex structural models, data points that are not normally distributed, predicting and identifying important target constructs, and managing small sample sizes (Jhantasana, 2023). PLS-SEM, rather than CB-SEM, is used in research with a theory development objective. PLS-SEM can estimate complex relationships and prioritise prediction without placing a heavy burden on data or necessitating a relationship specification (Zeng, Liu, Yong, Hertogh & König, 2021). According to Sarstedt, Ringle and Hair (2021), PLS-SEM is an approximation method that inherently recognises that constructs and conceptual variables are not identical. PLS-SEM can successfully handle complex models, such as those that include very many constructs and indicators, reflective and formative measurement models, mediation and moderation effects, higher-order constructs, and nonlinear relationships with considerably smaller sample size requirements. PLS-SEM offers great flexibility in estimating multifaceted model relationships, such as in conditional process models or higher-order models (Sarstedt et al. 2020a; Magno et al., 2022). The evaluation of the structural model comprises assessing the model's explanatory and predictive power and the path coefficients' significance and relevance (Magno et al., 2022).

PLS-SEM provides researchers with greater statistical power. A structured method was also adopted to identify and assess significant outputs related to PLS-SEM. The PLS-SEM method is more likely to identify an effect as significant when it is indeed present in the population. PLS-SEM provides solutions when other methods do not converge, or develop inadmissible solutions, regardless of whether using common factor or composite model data (Sarstedt et al., 2021). In line with the hypotheses and the discussion above, the Smart-PLS-SEM was used for the study. Smart-PLS SEM is a tool based on partial least squares rather than covariance (Dash & Paul, 2021). The statistical tool was used to examine the direct effect, which is the relationship between a dependent variable (performance) and an independent variable (GDC), the indirect effect, which includes the relationship between independent and dependent variables which are mediated by GI and moderated by GSE and EC, and the total effects, which are the sum of two or more direct or indirect effects. Recent similar studies are in support of the application of PLS-SEM. Arshad et al. (2022) carried out a study on "The influence of climate change, green innovation, and aspects of green dynamic capabilities as an approach to achieving sustainable development" and used

SMART-PLS-path modelling to test hypotheses and investigate used the SEM causal links. Zhang Xiaoyi et al. (2023) also employed the PLS-SEM to analyse the data. Mubeen et al. (2023)'s study on "Greening your business: nexus of green dynamic capabilities, green innovation and sustainable performance" used the PLS-SEM for data analysis. Learning from those studies, the PLS-SEM was applicable for this study. The next section outlines how data was handled and cleaned using the PLS-SEM model.

### **6.10.2 Data cleaning**

Data cleaning is an important step in data analysis. It is carried out to detect and remove any possible errors or discrepancies from the research data with the goal of improving its quality (Pulka, 2022). Similarly, Guo, Wang, Yang, Li, Zhao, Li, Zhu, Cui, Jiang, Sheng and Li (2023) note that any potential violations of the fundamental presumptions pertaining to the application of the multivariate approach in data analysis can be found through data cleaning. Therefore, data cleaning and preliminary analysis are critical to providing accurate and consistent research data. Data cleaning addresses numerous problems in data generated by humans or machines, including missing values, duplicated data, outliers, and irrelevant data (Alotaibi, Pardede & Tomy, 2023). Below is a discussion of missing data, outliers and common method variance of the study:

#### **➤ Missing data analysis**

Missing data is defined as a data value that is not stored for a variable in the observation under investigation (Alotaibi Pardede & Tomy, 2023). The missing values problem typically arises in all data-related domains and results in several other problems (Emmanuel, Maupong, Mpoeleng, Semong, Mphago & Tabona, 2021). Missing data mechanisms refer to the various ways in which data can be missing or incomplete. Identifying and comprehending missing data mechanisms is critical because they may affect the validity and reliability of statistical investigations and empirical conclusions (Amusa & Hossana, 2024). Missing values occur when a participant does not answer some of the questionnaire's questions. Therefore, missing data may arise from participants who unintentionally ignore survey items or who choose not to reply at all (Bell et al., 2022; Emmanuel, Maupong, Mpoeleng, Semong, Mphago & Abona, 2021). Running PLS and SEM may not be feasible when data does

not exist since this method requires a sufficient number of data points to calculate the necessary estimations (Hair et al., 2021). This study used a removal method to address the questionnaire's missing values, which was efficient and user-friendly. In this study, 5 questionnaires from the study were removed due to incorrect or incomplete responses from participants.

➤ **Analysis and management of outliers**

An outlier is abnormal data, also known as anomalous data. Outliers are groups of data points that deviate significantly from the rest of the data (Han, Pei & Tong, 2022). An outlier is a data value that is so different from the other values in the sample that disregarding it can result in considerably false estimates. Outliers can have a significant impact on a statistical analysis (Sullivan, Warkentin & Wallace, 2021). Outlier values should not be present in the data because they distort the sample's representation, which leads to incorrect interpretations of the statistical analyses (Petronilla & Chinaka, 2023). Bell et al. (2022) comment that outliers can be very high or very low and they have the potential of distorting the normality of data. For this study, the data was analysed for outliers using the SPSS software. However, the researcher found no outliers among the participants' responses because the answers or options for answers were closed-ended/pre-coded in the questionnaire.

➤ **Common method variance**

A common method variance (CMV) is a systematic error variance that results from using a common method to measure the study's constructs (Kock, Berbekova Assaf, 2021). According to Baumgartner, Weijters and Pieters (2021), method variance is any systematic, non-substantive impact of the measurement technique on measures of substantive constructs. Method variance occurs when an observed response reflects not only the construct the researcher intended to measure (and typically random measurement error), but also the method of measurement used to obtain the observed responses (Baumgartner & Weijters, 2021). The problem with common method variance is that it might falsely increase or decrease apparent correlations (Manata & Boster, 2024). CMV is the degree of false correlation between research variables that are produced by measuring study variables using the same survey source (Pulka, 2022). Typically, research results are inflated or deflated as a sign of CMV. The

researcher's conclusions may be deceptive if method variance is not properly taken into account and confused for substantive variance. CMV arises when various concepts or multiple measures of the same construct share the same measurement method (Baumgartner & Weijters, 2021; Rodríguez-Ardura & Meseguer-Artola, 2020). These measures were carried out to lower the study's common variance:

- The researcher used various constructs on the questionnaires with different questions. The researcher collected the data at different points in time and different locations. Questionnaires were distributed in two provinces, Limpopo and Gauteng. In Limpopo, the data was collected over several weeks in March and May 2023 and various districts including the Capricorn Municipality and the Waterberg District. In Gauteng, the data was collected over several weeks in June and August, targeting the City of Tshwane Metropolitan Municipality and the City of Johannesburg Metropolitan Municipality.
- The instrument tool's questions were phrased in a clear, precise, and succinct manner to enable all participants to comprehend and provide relevant answers. The study's primary constructs were evident from the questions posed. This made it easier for participants to answer questions. The questionnaire provided instructions on how to use the scale when responding to questions.
- The questionnaire explained the aim of the study, ensured anonymity, and provided instructions on how to answer questions, such as using an "X" or tick. This helped to reduce any possible reluctance by participants to be included in the study and to provide answers that are consistent across the questions.
- The questionnaire consisted of closed-ended questions. This helped to minimise the time it took for participants to complete the survey.
- The results of the Harman's test indicated that no one factor accounted for more than 40% of the variance suggesting that CMV is not present.

### **6.10.3 Reliability and validity**

A measuring tool's validity is determined by how well it serves its intended purpose and whether it captures the behaviour or quality it is designed to measure (Sürücü & Maslakçı, 2020). Validity tests are crucial in determining whether the scale's expressions provide appropriate measurements based on the research's purpose. It is established by interpreting the data from the measuring device in a meaningful and appropriate way after the analyses (Cheung, Cooper-Thomas, Lau & Wang, 2023). For research to be effective, the measuring instrument must accurately reflect the intended results. Using a validated measuring instrument ensures accurate analysis outcomes (Edwin, 2019; Sürücü & Maslakçı, 2020; Taherdoost et al., 2021; Manata, & Boster, 2024). According to Clifton (2020), reliability is the possibility that a scale will yield consistent results when measuring the same phenomenon. Reliability testing is necessary when administering a newly developed instrument to a different population and it indicates how likely it is that the scales' scores can be repeated and generalised (Sijtsma & Pfadt, 2021). A reliability coefficient is a number between 0 and 1 (Ravinder and Saraswathi, 2020). Values greater than 0.70 are deemed appropriate for scale development; in research, values greater than 0.80 are deemed appropriate for group mean comparisons; in high stakes testing, values greater than 0.90 are necessary (Njeri, Khader, Ali & Line, 2024). Reliability and validity are two of the most important and fundamental domains to consider when evaluating any measuring methodology for data collection in a reliable research project. The PLS-SEM measurement model analysis has been applied to assess the reliability and validity of the data gathered for this study.

### **6.10.4 Measurement model analysis**

The measurement model analysis was employed to examine the fundamental relationships between the measurement items and their related latent constructs. The assessment model aided in determining the degree to which the identified measurement items accurately reflected their underlying constructs (Darko, 2022). To deal with the matter of validity and reliability, the indicator loadings of each measurement item, as well as Cronbach's alpha, composite reliability, average variance extracted (AVE), cross-loadings, Fornell and Lacker criteria, and the heterotrait-monotrait ratio (HTMT) of correlations were examined. According to Hair et

al. (2021), results between 0.70 and 0.95 indicate satisfactory to good reliability levels, while values between 0.60 and 0.70 are considered acceptable. Another internal consistency reliability metric that produces lower values is Cronbach's alpha, which also uses the same thresholds as the composite reliability metric (Hair et al., 2021). It is expressed as a number between 0 and 1 and the commonly accepted rule for describing internal consistency using According to Sarmento & Costa (2019; Hair et al., 2021) the following ranges are used to measure Cronbach's alpha: 0 to 0.49 is unacceptable; 0.50 to 0.59 is poor; 0.60 to 0.69 is questionable; 0.70 to 0.79 is acceptable; 0.80 to 0.89 is good; and 0.9 to 1 is excellent. The convergent validity was examined using the AVE (Sarstedt et al., 2021). The AVE was used to examine convergence validity. According to Kandi (2022) The AVE value must be greater than 0.5 and less than the CR value. The AVE is determined by dividing the total sum of squares of the covariance loadings of the expressions associated with the factor by the number of expressions. A value of 0.50 or higher is deemed appropriate for AVE. This level indicates that, on average, the construct makes up (more than) 50% of the variance in its items (Sarstedt et al., 2021).

After determining the reliability and convergent validity of reflectively measured constructs, the last stage was to evaluate the discriminant validity. A discriminant is employed to verify if the latent variable is measured by the observed variables incorporated in the measurement model (Sürücü, 2020; Hair et al., 2021). The study assessed discriminant validity using the Fornell and Larcker criteria (1981), cross-loadings (2010), and Henseler et al.'s (2015) heterotrait-monotrait ratio (HTMT) of correlations. The Fornell and Larcker criterion was used to compare the square root of the AVEs to the inter-item correlations. The square root of the AVEs must be higher than the inter-item correlation to achieve discriminant validity. Additionally, for cross-loadings, the indicator loadings in each construct should generally be higher than the loadings in the other constructs (Rönkkö & Cho, 2022). Lastly, the discriminant validity of the study construct was determined by using the HTMT proposed by Dijkstra and Henseler (2015) which has been found to be a more accurate indicator of discriminant validity than the other measures. According to Henseler et al. (2015), an acceptable threshold is 0.85, which was achieved. Following the achievement of internal validity, convergent validity, and discriminant validity, further statistical analysis was conducted. The next discussion is based on how ethical considerations were ensured.

## 6.11 ETHICAL CONSIDERATIONS

To approve the study, the researcher first obtained a clearance certificate from the Turfloop Research Ethics Committee (TREC) at the University of Limpopo. Prior to completing any of the questionnaires, participants were provided with a permission letter, a consent form, and a questionnaire. Data analysis was transparent and used only for academic purposes. The ethical considerations that were adhered to at all times are briefly outlined below:

- a) **Confidentiality and anonymity of participation** – To ensure confidentiality and anonymity, the questionnaire did not include requests for participants' names, email and physical addresses, phone numbers, or other contact information. In addition, the questionnaire's cover page and consent letter assured participants' anonymity and the confidentiality of the information they provided.
- b) **Informed consent and voluntary participation:** The researcher developed an informed consent form that describes the purpose of the research. It was signed by each participant, indicating that they understood the purpose of the study. Participation in the study was voluntarily, and participants could withdraw from the study without any adverse effects. There was no financial reward to encourage participation. There was no coercion or undue influence on participants to take part in the research.
- c) **Respect and dignity, and risk and harm** – The researcher assured that participants were treated with respect and dignity. All participants received the same type of questionnaire, and all were treated fairly. The participants suffered no physical, psychological, social or legal harm.
- d) **Psychological risks:** There were no experiments in the study that might have caused worries, depression, anxiety, fear, guilt, low self-esteem, or behavioral changes. During the collection and completion of the self-administered questionnaire, participants were free to turn down participation in the study and to withdraw at any time. The participant was not under any pressure from the researcher to complete the questionnaire or take part in the survey. The questionnaire did not contain any sensitive questions that might have raised feelings of anxiety, guilt, shame, shock, or low self-esteem were posed. The study

made use of modified scales and questions with strong psychometric qualities that had been employed in earlier studies of a similar nature. Anonymity was ensured, and in the event that the participant disclosed it, neither their name nor the name of their organization was needed or recorded.

- e) **Permission letter:** A permission letter was provided to the manager or owner of the participating hotels, requesting approval to carry out research in their establishments among the upper management. Questionnaires were only distributed once permission was granted.

## **6.12 SUMMARY**

This chapter presented the research methodology used in this study. The methodology was based on the recent research on by Saunders et al. (2019). Every step of the research methodology research on was contextualized and applied to this study. The body of existing literature has shown that various assumptions, including those related to ontology and epistemology, influence the methodology that a researcher decides to use. These then influence the research philosophies that the researcher may choose to follow. This study adopted the positivist research philosophy with a deductive approach. The study adopted the quantitative research methodology since it intended to collect and analyse numerical data. The research strategies adopted included survey research, correlation and the descriptive research design to describe and present the constructs of the study and the association between them. The non-probability sampling method was employed, following the convenience, snowballing and quota sampling. A primary data collection method was adopted to enable the researcher to collect novel and current data as there is limited literature available on GDC and the performance of hospitality firms. Self-administered questionnaires were distributed to various hotel owners and managers for data collection. The study used the PLS-SEM for data analysis and to examine the relationship between various variables of the study. The following chapter will present the data analysis and the results of the study.

**CHAPTER SEVEN**  
**DATA ANALYSIS AND RESULTS**

**7.1 INTRODUCTION**

The previous chapter described the study's research design and methodology. An in-depth explanation of the sample selection and components, questionnaire development, data collection, and statistical analysis were provided. The present chapter addresses the analysis and presentation of empirical findings from the study's pilot and main study analyses. This study's overall goal was to evaluate the relationship between green dynamic capabilities and the performance of hospitality firms. The researcher mainly sought to determine if green dynamic capabilities affect performance measures, such as financial performance, social performance, environmental performance, and a green competitive advantage. The study also aimed to examine the role of green innovation measures (green product innovation and green process innovation) in mediating the relationship between green dynamic capabilities and performance (financial performance, social performance, environmental performance and green competitive advantage). Finally, the study aimed to test the moderating effect of green self-efficacy and environmental concern on the relationship between green dynamic capabilities and green innovation (green product innovation and green process innovation).

This chapter provides the statistical analysis and findings from data gathered from various hospitality firms in the provinces of Gauteng and Limpopo, South Africa. The structural equation modelling (SEM) analysis of the study was conducted using smart partial least square structural equation modelling (PLS-SEM). Smart-PLS SEM defined as an elastic and thorough methodology for demonstrating, assessing, and testing a theoretical model to describe the largest variance possible (Hair et al., 2021; Sarstedt et al., 2021). This chapter describes and analyzes the data collected in accordance with the goals of the study, utilizing the methodology outlined in the previous chapter. This analysis tests the structural relationships of the variables stated in the conceptual model. The report begins by providing participants' demographic distributions, normality analysis, and other descriptive statistics. The following first discussion presents the response rate received for this study.

## **7.2 RESPONSE RATE**

### **8 Table 7.1: Response Rate**



|                                   |       |       |
|-----------------------------------|-------|-------|
| <b>Green dynamic capabilities</b> | 0.165 | 0.000 |
| <b>Performance</b>                | 0.192 | 0.001 |
| <b>Green innovation</b>           | 0.116 | 0.000 |
| <b>Green self-efficacy</b>        | 0.126 | 0.000 |
| <b>Environmental concern</b>      | 0.157 | 0.002 |

\*Note: Green dynamic capabilities (GDC), green innovation (GI), performance (PE), green self-efficacy (GSE) and environmental concern (EC)

Table 7.2 indicates that GDC, GI, GSE, EC and performance are tested for normality. The normality analysis for GDC by Kolmogorov-Smirnova is 0.165 and sig at 0.000; performance is 192 and sig at 0.001; GI is 116 sig at 0.000; GSE is 0.126 and sig at 0.000; and EC is 157 and sig at 0.002. The results reveal that these constructs are fit to be tested by the Smart-PLS software since the normality rate is supported. The section that follows provides the demographic information of the study's participants.

## 7.4 DEMOGRAPHIC INFORMATION

Participants' demographics include their position at work, their gender, age, education, hotel scale, number of years in hotel operation and the total number of employees working at the hotel. The demographic information is presented by using tables and figures.

### 7.4.1 Position

The first item to be assessed is the work position of the participants in this study. The owner, general manager, and chief executive officer are the highest-level of hotels' executives who set the standard for all other employees. They participate in the firm's daily operational activities and encourage and inspire employees to meet and excel in business (Williams, 2022). The study divided the choice of answers into three, namely, owners, chief executive officer and general manager. The table below presents the frequency and percentage of the participants based on the positions they hold in their firms.

**Table 7.3: Participants' position**

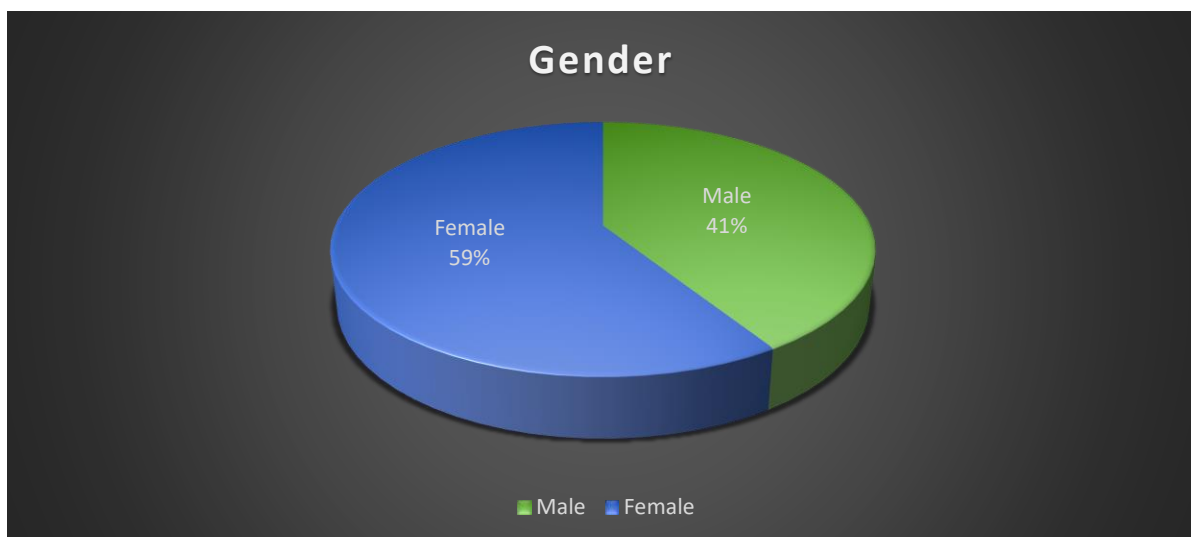
| <b>Gender</b> | <b>Frequency</b> | <b>Percent</b> |
|---------------|------------------|----------------|
|---------------|------------------|----------------|

|                         |            |             |
|-------------------------|------------|-------------|
| Owner                   | 202        | 49.8%       |
| Chief executive officer | 88         | 21.7%       |
| General manager         | 116        | 28.6%       |
| <b>Total</b>            | <b>406</b> | <b>100%</b> |

The table above shows the position of participants in the hotel sector in the Gauteng and Limpopo provinces. The table shows that most of the participants are hotel owners (49.8%), followed by general managers (28.6%) and chief executive officers (21.7%). This implies that more hotels in the study area are managed by owners than chief executive officers or general managers. The next table is based on the gender of the participants.

#### 7.4.2 Gender

The gender patterns of hotel owners/ managers are shown in this section. Gender diversity in the workplace is crucial because it fosters innovation, the creation of new jobs, and economic growth (Veckalne & Tambovceva, 2023). Figure 7.1 shows the results of participants in accordance with their gender.



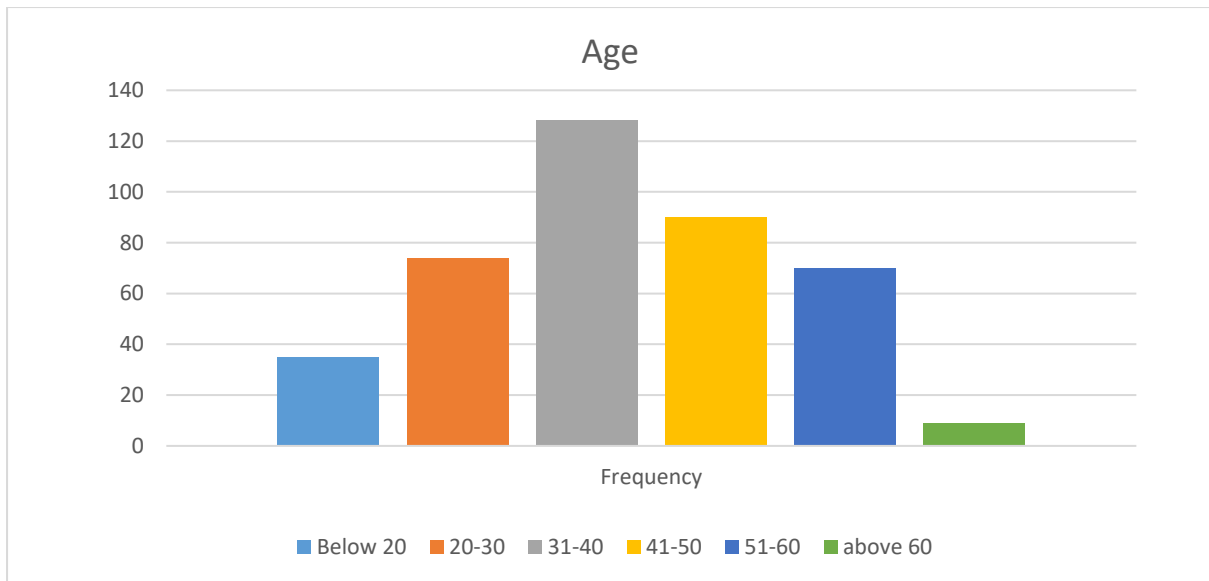
**Figure 7.1: Gender of the participants**

According to Figure 7.1, out of the 406 hotel owners and managers who took part in the study, 59% are female and 41% are male. The findings show that female hospitality

owners dominate the survey and that a lot of women are currently working in the hospitality sector. According to Ozdemir (2023), ownership and participation of women in businesses has increased in South Africa and women are very active in a wide variety businesses and contexts, including the hospitality and tourism industry. This confirms that there are more women active in business. Males were once thought to be the only ones owning and managing hotels, but women have started running hotels with success. These results are supported by Xiao et al. (2023) on simulating the influence of strategic orientation on green innovation through the use of green dynamic capabilities as a mediator, who found women having entered the business sector. The majority (53.4%) hotel owners or managers in this study were female, while the remaining 46.6% were male. Increased gender diversity among entrepreneurs boosts innovation, productivity and innovative approaches (Del Mar Fuentes-Fuentes, Quintana-García, Marchante-Lara & Benavides-Chicón, 2023). Russen, Dawson, and Madera (2021) assert that an understanding of gender diversity at the executive level is crucial for the hospitality and tourism sector. That report further states that employing executives of different genders can have a significant positive influence on the industry, its customers, employees, and the organisation at large. The next section presents the established age of the participants.

### **7.4.3 Age**

The purpose of addressing the age distribution of hotel owners and managers is to identify the dominant age group and comprehend its beliefs, goals and motivations for operating hotels. The following figure shows the age of the participants.



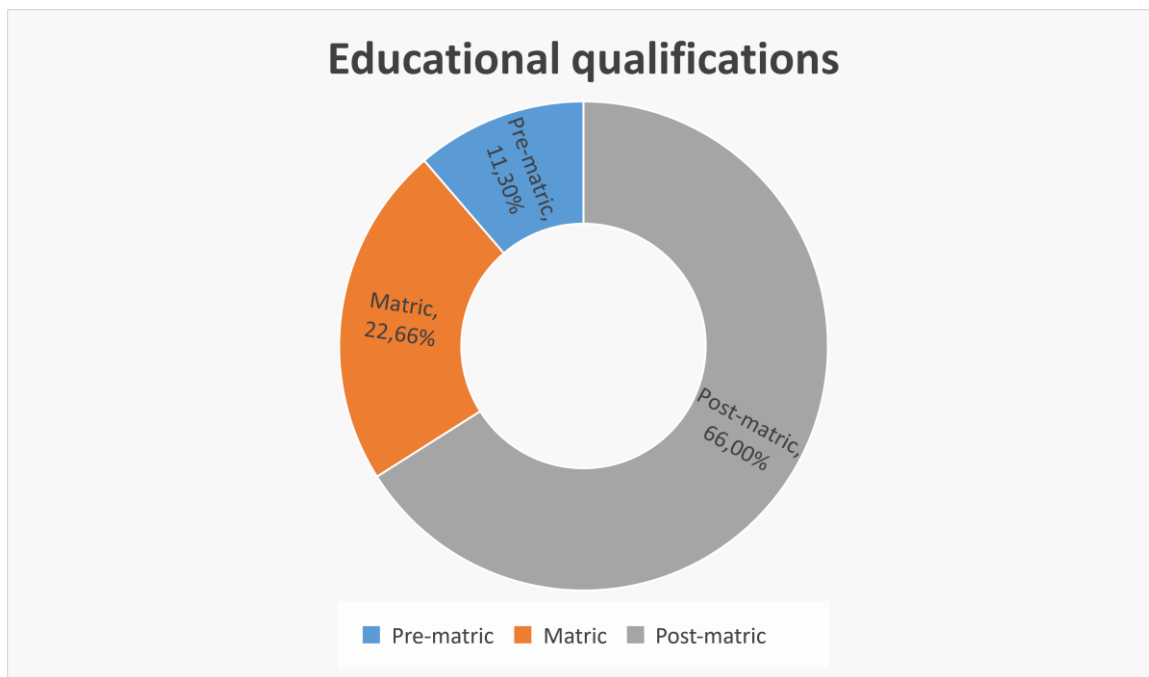
**Figure 7.2: Age of the participants**

According to Figure 7.2, the age bracket of 31 to 40 has the highest percentage of participants (31.8%), followed by that of the age group 41 to 50 (22.2%). Age groups 20 to 30 make up 18.3% of the population, while those aged 51 to 60 make up 17.4%, those under 20 make up 8.7% and those above the age of 60 are 2.2%.

The fact that unemployment in South Africa is at a high level could be a contributing factor in very young individuals already owning or managing a hotel, as they could have decided to start their own firms. The results show that the number of individuals in the management positions of hospitality firms, specifically those between the ages of 31 to 50 is a reflection of their most productive years. The age group that is currently dominating from the data is hotel owners and managers aged between 31 and 40, who probably gained enough experience in the industry prior to taking on the most senior roles in the tourism and hospitality industry.

#### **7.4.4 Education of participants**

The following figure presents the education level of participants in the study. Figure 7.3 shows the education level of participants.



**Figure 7.3: Educational qualification**

Figure 7.3 depicts the educational qualifications of the participants. The results indicate that out of the 406 participants, 46 (11%) have a pre-matric qualification and 92 (23%) have a matric qualification, indicating that for a third of all participants, it did not necessitate them to have any tertiary education to qualify for senior positions in the hotel industry, where practical experience (and maybe short courses) sufficed for them to hold down senior positions. On the other hand, 268 (66%) and thus two-thirds of all senior managers/owners of these hotels have a post-matric qualification. According to Ivančić, Ažić and Badurina (2022), attaining organisational goals requires the relevant background education of management and employees. That report claims that education is the only appropriate solution to the difficulties the globe faces today, which include unpredictable, frequent, severe and fast changes. Having received post-matric education probably made it easier for participants to be able to set the appropriate strategies for sustainability and growth of their hotel businesses.

The next section presents the scale of the hotel.

#### **7.4.5 Scale of the hotel**

This section presents the scale or grading of the hotels, reflecting the kind of services the hotels offer. Ranging from three-star to five-star, these hotels differ regarding the services they offer, as well as the level of the accommodation. Table 7.3 Present the scales of the hotel service.

**Table 7.4: Scale of the hotel**

|                  | <b>Frequency</b> | <b>Percent</b> |
|------------------|------------------|----------------|
| Three-star hotel | 80               | 19.7%          |
| Four-star hotel  | 154              | 37.9%          |
| Five-star hotel  | 172              | 42.4%          |
| <b>Total</b>     | 406              | 100%           |

Table 7.4 above shows that 19.7% of the participants or hotels are three-star hotels, while 37.9% are four-star hotels and the majority, 42.4%, are five-star hotels. This indicates that overall, 80% are managing hotels that offer a reasonable or high level of luxury and comfort. Tiwari and Mishra (2023) state that customers are motivated to choose a hotel based on their perception of services behind a given grading, and the reinforcement of expectations through real experiences produces good guest satisfaction as well as re-engagement intentions. The section presents the age of the respective hotel operations.

#### **7.4.6 Years of business operation**

Table 7.5 below indicates the number of years the hotels have been in operation. The table depicts the frequency of years of business operation.

**Table 7.5: Years of business operation**

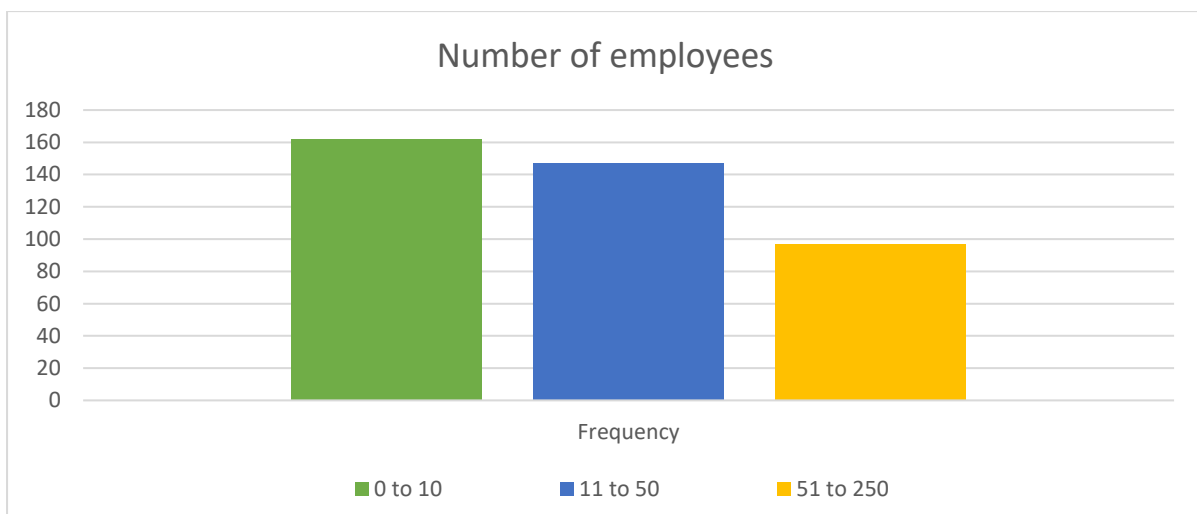
| <b>Years of business operation</b> | <b>Frequency</b> | <b>Percentage</b> |
|------------------------------------|------------------|-------------------|
| Below 5 years                      | 62               | 15.3              |
| 6-10 years                         | 126              | 31.0              |
| 11-15 years                        | 96               | 23.6              |
| 16-25 years                        | 108              | 26.6              |
| Above 25 years                     | 14               | 3.4               |
| <b>Total</b>                       | 406              | 100               |

Table 7.5 shows how long these hotels have been in existence. The findings indicate that, of the 406 hotel that took part in the survey, 15.3% have been in operation for below 5 years, being relatively new. A larger group, 31.0% have operated for 6-10

years; 23.6% for 11–15 years; and 26.6% for 16–25 years. Only 3.4% of these hotels have operated for longer than 25 years, which means that nearly all these hotels have opened their doors after 1994, when South Africa became a democratic country.

#### 7.4.6 Number of employees

The hospitality sector hires a diverse array of people to increase productivity (Demirović Bajrami, Petrović, Sekulić, Radovanović, Blešić, Vuksanović, Cimbaljević & Tretiakova 2023; Sandstrom & Reynolds, 2020). Improved performance can only be accomplished through motivated, engaged and committed quality employees of the organisation (Zhenjing, Chupradit, Ku, Nassani & Haffar, 2022). Therefore, employees are viewed as a valuable asset to every firm to improve performance (Alsafadi & Altaht, 2021). The results regarding the number of employees working for the included hotels are reflected in Figure 7.4 below.



**Figure 7.4: Number of employees**

As reflected in Figure 7.4 above, 39.9% of the hotels have between 0 and 10 employees, followed by 36.2% who have between 11 and 50 employees. Hotels with 51 to 250 accounts to 23.9% of all firms. This suggests that most of these hotels are reasonably small as they only have 0–10 employees working for them, where the owner is then also taking on a very active role in running the hotel. The hospitality industry is in demand of labour and requires extensive use of employees as one of the essential components in establishing the sector's competitiveness. Despite the vital function that employees play, the hospitality sector is recognised as having one of the

highest rates of employee turnover (Demirović Bajrami, Petrović, Sekulić, Radovanović, Blešić, Vuksanović, Cimbaljević & Tretiakova, 2022). Employees are essential to an organisation's ability to carry out the different activities and improve the efficiency of the business. The 24% of hotels that employ large numbers of staff will be the large and probably more established hotels. The next section presents the descriptive statistics of the constructs, based on the items used to measure those constructs.

## 7.5 DESCRIPTIVE STATISTICS OF GREEN DYNAMIC CAPABILITIES MEASURES

The level of confidence of hotel owners is measured in this part by green dynamic capabilities by using descriptive analysis, which is based on the mean, standard deviation and Cronbach's alpha. The mean and standard deviation of the GDC measurements, as well as the Cronbach's alpha, will all be covered in detail in this section's descriptive statistics.

**Table 7.6: Descriptive statistics of green dynamic capabilities**

| Green dynamic capabilities | Mean                  | Std deviation |
|----------------------------|-----------------------|---------------|
| GDC 1                      | 4.56                  | 0.77          |
| GDC 2                      | 4.06                  | 0.93          |
| GDC 3                      | 4.54                  | 0.71          |
| GDC 4                      | 4.20                  | 0.81          |
| GDC 5                      | 4.13                  | 0.85          |
| GDC 6                      | 3.98                  | 0.93          |
| GDC 7                      | 4.57                  | 0.84          |
| GDC 8                      | 4.87                  | 0.97          |
| GDC 9                      | 4.65                  | 0.68          |
| GDC 10                     | 4.25                  | 0.57          |
| GDC 11                     | 4.34                  | 0.82          |
| GDC 12                     | 4.54                  | 0.68          |
| GDC 13                     | 4.91                  | 0.77          |
| GDC 14                     | 4.58                  | 0.68          |
| GDC 15                     | 4.57                  | 0.78          |
| GDC 16                     | 4.69                  | 0.69          |
| GDC 17                     | 4.52                  | 0.78          |
| GDC 18                     | 4.87                  | 0.64          |
| No. of items=18            | Cronbach's alpha=0.79 |               |

The GDC construct scale's mean and summated standard deviation are shown in Table 7.6 above as are the mean and standard deviation for each item. According to the items, the majority of participants appear to concur with the questions and do not have any concerns or issues regarding GDC. From the 18 items of the GDC, the items

with the highest mean include “In our hotel, employees carefully interrelate green actions between members of the firm to meet changing conditions” (mean = 4.91) and the lowest item “Our hotel assesses how green changes in the business environment may affect customers”, with a 4.02 average mean. The mean numbers are higher than 3.00. This suggests that participants concur with the GDC assertions. Cronbach's alpha is 0.79. This highlights that the coefficient is higher than the usual Cronbach's alpha coefficient of 0.70, indicating that GDC is reliable. The majority of GDC items measure the same fundamental concept, as evidenced by the high coefficient.

## 7.6 DESCRIPTIVE STATISTICS OF PERFORMANCE

Performance factors measure the level of the hotels' positive results and thus, also their sustainability. The descriptive analysis used includes the mean, standard deviation, and Cronbach's alpha.

**Table 7.7: Descriptive statistics on performance**

| Performance       | Mean                    | Std deviation |
|-------------------|-------------------------|---------------|
| FP 1              | 4.20                    | 0.90          |
| FP 2              | 4.35                    | 0.63          |
| FP 3              | 4.58                    | 0.58          |
| FP 4              | 4.34                    | 0.67          |
| SP 1              | 4.58                    | 0.87          |
| SP 2              | 4.69                    | 0.98          |
| SP 3              | 4.89                    | 0.58          |
| SP 4              | 4.67                    | 0.68          |
| EP 1              | 4.89                    | 0.89          |
| EP 2              | 4.68                    | 0.87          |
| EP 3              | 4.02                    | 0.77          |
| GCA 1             | 4.99                    | 0.78          |
| GCA 2             | 4.67                    | 0.88          |
| GCA 3             | 4.36                    | 0.76          |
| GCA 4             | 4.85                    | 0.78          |
| No. of items = 15 | Cronbach's alpha = 0.88 |               |

The average scale mean and standard deviation for the performance construct, as well as the mean and standard deviation for each item are shown by the descriptive statistics on performance, as shown in Table 7.7 above. The fact that the mean values for all 15 items are greater than 3, indicating that participants appear to agree with the questions, is instructive. The average standard deviation of 0.77 and the scale mean of 4.58, respectively, indicate that participants concur with the questions and 0.88 is the Cronbach's alpha. Good consistency is indicated by this.

## 7.7 DESCRIPTIVE STATISTICS OF GREEN INNOVATION

Green innovation is being divided into two parts, namely: green product innovation (GI') and green product innovation (GI''). The following items are named after each of the sub-constructs to measure the green innovation construct. Table 7.8 depicts the measurement items for green innovation.

**Table 7.8: Descriptive statistics of green innovation**

| Green innovation | Mean                    | Std deviation |
|------------------|-------------------------|---------------|
| GI' 1            | 4.20                    | 0.90          |
| GI' 2            | 4.35                    | 0.63          |
| GI' 3            | 4.58                    | 0.58          |
| GI' 4            | 4.34                    | 0.67          |
| GI'' 1           | 4.58                    | 0.87          |
| GI'' 2           | 4.68                    | 0.67          |
| GI'' 3           | 4.78                    | 0.97          |
| GI'' 4           | 4.98                    | 0.88          |
| No. of items=8   | Cronbach's alpha = 0.84 |               |

The average scale mean and standard deviation of the green innovation construct, as well as the mean and standard deviation of each item, are seen in the descriptive statistics on green innovation in Table 7.8 above. From the eight items of GI, the items with the highest mean include "Our hotel uses low energy and water in the process of providing services to customers" (mean = 4.98), and the lowest item "Our hotel takes into consideration the environment in developing products and services for our customers" with a 4.20 mean. The means of all the items are greater than 3, indicating

that participants appear to agree with the questions. The average standard deviation of 0.77 and the scale mean of 4.56 indicate that participants are in agreement with the questions. Cronbach's alpha is 0.84. Good consistency is indicated by this.

## 7.8 DESCRIPTIVE STATISTICS OF GREEN SELF-EFFICAY

**Table 7.9: Descriptive statistics of green self-efficacy**

| Green self-efficacy | Mean                    | Std deviation |
|---------------------|-------------------------|---------------|
| GSE 1               | 4.20                    | 0.90          |
| GSE 2               | 4.35                    | 0.63          |
| GSE 3               | 4.58                    | 0.58          |
| No. of items=3      | Cronbach's alpha = 0.77 |               |

The mean and standard deviation for each item, as well as the average scale mean and standard deviation for the green self-efficacy construct, are shown in descriptive statistics on green self-efficacy, in Table 7.9 above. From the three items, the highest mean average is 4.58, whereas the lowest is 4.20. The mean values for all the items are greater than 3, implying that participants seem to concur with the questions. The average scale mean of 4.38 and the average standard deviation of 0.70, show that participants generally agree with the questions. The Cronbach's alpha is 0.77. This indicates a high degree of consistency.

## 7.9 DESCRIPTIVE STATISTICS OF ENVIRONMENTAL CONCERN

The table below shows the items that are used to measure the environmental concern construct. Table 7.10 below shows the mean(s) of each item and the standard deviation of the measurement items. The construct is measured by four items, guided by the adopted theory in this study that guides the construct.

**Table 7.10: Environmental concern**

| Environmental concern | Mean                  | Std deviation |
|-----------------------|-----------------------|---------------|
| EC 1                  | 4.82                  | 0.91          |
| EC 2                  | 4.59                  | 0.68          |
| EC 3                  | 4.85                  | 0.87          |
| EC 4                  | 4.48                  | 0.77          |
| No. of items=4        | Cronbach's alpha=0.84 |               |

The mean and standard deviation for each item, as well as the average scale mean and standard deviation for the environmental concern construct, are shown by the descriptive statistics on environmental concern in Table 7.10 above. From the four items of environmental concern, the item with the highest mean includes “When mankind interferes with nature, it often produces disastrous consequences” (Mean = 4.85) and the lowest item includes “I think that environmental problems are important, and we should care about them”, with a 4.48 average mean. These mean values are greater than 3.00. This suggests that participants agree with the environmental concern questions. Table 7.10 shows Cronbach's alpha at 0.84. It reveals that the coefficient is higher than the standard Cronbach's alpha coefficient of 0.70, implying that the construct of environmental concern is reliable. The high coefficient indicates that all EC items measure the same fundamental concept. The next section will be based on the properties of Smart-PLS-SEM version 4.0.

## **7.10 PARTIAL LEAST SQUARE STRUCTURAL EQUATION MODELLING (PLS-SEM)**

This study employed PLS-SEM for its data analysis. According to Mubeen et al. (2023), Smart-PLS is a popular technique that is ideal for using models with mediation and moderation and advanced techniques. PLS-SEM includes two types of measurement model: one is reflective, and the other one is a formative measurement model. This study is concerned with employing only the reflective measurement model as there are no items suitable for formative measurement.

### **7.10.1 Reflective measurement model**

A reflective model occurs when the indicators of a construct are considered to be caused by that construct (Hair, et al., 2021). They state that when indicators are highly

correlated and interchangeable, they are reflective, and their reliability and validity should be thoroughly investigated. The examination of the indicator loadings, internal consistency, reliability, convergent validity, and discriminant validity is one of the criteria for evaluating the reflection measurement. These factors are discussed below:

**Table 7.11: Reflective measurement**

| <b>Construct</b>                        | <b>Item code</b> | <b>Outer loadings</b> | <b>Outer weights</b> | <b>CA</b>    | <b>CR</b>    | <b>AVE</b>   |
|-----------------------------------------|------------------|-----------------------|----------------------|--------------|--------------|--------------|
| <i>Green Dynamic Capabilities (GDC)</i> |                  |                       |                      | <b>0.790</b> | <b>0.936</b> | <b>0.683</b> |
|                                         | <b>GDC 1</b>     | 0.838                 | 0.197                |              |              |              |
|                                         | <b>GDC 2</b>     | 0.868                 | 0.182                |              |              |              |
|                                         | <b>GDC 3</b>     | 0.885                 | 0.187                |              |              |              |
|                                         | <b>GDC 4</b>     | 0.741                 | 0.175                |              |              |              |
|                                         | <b>GDC 5</b>     | 0.815                 | 0.193                |              |              |              |
|                                         | <b>GDC 6</b>     | 0.825                 | 0.168                |              |              |              |
|                                         | <b>GDC 7</b>     | 0.824                 | 0.195                |              |              |              |
|                                         | <b>GDC 8</b>     | 0.833                 | 0.172                |              |              |              |
|                                         | <b>GDC 9</b>     | 0.838                 | 0.173                |              |              |              |
|                                         | <b>GDC 10</b>    | 0.755                 | 0.188                |              |              |              |
|                                         | <b>GDC 11</b>    | 0.823                 | 0.176                |              |              |              |
|                                         | <b>GDC 12</b>    | 0.848                 | 0.186                |              |              |              |
|                                         | <b>GDC 15</b>    | 0.798                 | 0.175                |              |              |              |
| <i>Green innovation (GI)</i>            |                  |                       |                      | <b>CA</b>    | <b>CR</b>    | <b>AVE</b>   |
|                                         |                  |                       |                      | <b>0.840</b> | <b>0.941</b> | <b>0.733</b> |
| <i>Green product innovation (GPI')</i>  | <b>GPI' 1</b>    | 0.844                 | 0.283                |              |              |              |
|                                         | <b>GPI' 2</b>    | 0.889                 | 0.264                |              |              |              |
|                                         | <b>GPI' 4</b>    | 0.852                 | 0.284                |              |              |              |
| <i>Green process innovation (GPI'')</i> | <b>GPI'' 2</b>   | 0.935                 | 0.285                |              |              |              |
|                                         | <b>GPI'' 3</b>   | 0.816                 | 0.279                |              |              |              |
|                                         | <b>GPI'' 4</b>   | 0.841                 | 0.                   |              |              |              |

| <i>Performance (PE)</i>                  |              |       |       | CA           | CR           | AVE          |
|------------------------------------------|--------------|-------|-------|--------------|--------------|--------------|
|                                          |              |       |       | <b>0.882</b> | <b>0.943</b> | <b>0.715</b> |
| <b>Financial performance (FP)</b>        | <b>FP 1</b>  | 0.853 | 0.218 |              |              |              |
|                                          | <b>FP 2</b>  | 0.852 | 0.220 |              |              |              |
|                                          | <b>FP 3</b>  | 0.855 | 0.217 |              |              |              |
| <b>Social performance (SP)</b>           | <b>SP 1</b>  | 0.852 | 0.457 |              |              |              |
|                                          | <b>SP 2</b>  | 0.829 | 0.245 |              |              |              |
|                                          | <b>SP 4</b>  | 0.881 | 0.354 |              |              |              |
| <b>Environmental performance (EP)</b>    | <b>EP 1</b>  | 0.827 | 0.125 |              |              |              |
|                                          | <b>EP 2</b>  | 0.885 | 0.354 |              |              |              |
|                                          | <b>EP 3</b>  | 0.828 | 0.264 |              |              |              |
| <b>Green competitive advantage (GCA)</b> | <b>GCA 2</b> | 0.872 | 0.245 |              |              |              |
|                                          | <b>GCA 3</b> | 0.800 | 0.314 |              |              |              |
|                                          | <b>GCA 4</b> | 0.795 | 0.325 |              |              |              |
| <i>Green Self-Efficacy (GSE)</i>         |              |       |       | CA           | CR           | AVE          |
|                                          |              |       |       | <b>0.772</b> | <b>0.876</b> | <b>0.800</b> |
|                                          | <b>GSE 1</b> | 0.920 | 0.178 |              |              |              |
|                                          | <b>GSE 2</b> | 0.874 | 0.188 |              |              |              |
|                                          | <b>GSE 3</b> | 0.888 | 0.179 |              |              |              |
| <i>Environmental Concern (EC)</i>        |              |       |       | CA           | CR           | AVE          |
|                                          |              |       |       | <b>0.843</b> | <b>0.866</b> | <b>0.786</b> |
|                                          | <b>EC 1</b>  | 0.897 | 0.251 |              |              |              |
|                                          | <b>EC 2</b>  | 0.898 | 0.365 |              |              |              |
|                                          | <b>EC 3</b>  | 0.864 | 0.145 |              |              |              |

\*Note: Green dynamic capabilities (GDC), green innovation (GI), performance (PE), green self-efficacy (GSE) and environmental concern (EC)

### 7.10.2 Indicator loadings

Examining the indicator loadings is the first stage in the assessment of a reflective measurement model. Hair Jr, Hult, Ringle, Sarstedt, Ray, Hair & Danks (2021) claim

that loadings above 0.708 are recommended as they suggest that the construct explains more than 50% of the indicator variance and thus, it provides acceptable item reliability. Table 7.11 above shows that all item loadings of all constructs are greater than 0.708. This means that all construct loadings should be retained as they explain more than 50% of the variance of the indicators and thus, they provide item reliability. Items with weaker indicator loadings ( $< 0.708$ ) should be removed (Hair et al., 2021). From Table 11 above, on the GDC construct “GDC 13 & GDC 14” were removed, for green product innovation item “3” was removed, item “1” for green process innovation was removed, for SP item “3” was removed and item “1” for GCA was removed. All the removed factors indicated weakest factor loadings.

### **7.10.3 Internal consistency reliability**

Utilising Jöreskog's (1971) composite reliability, the second step involves evaluating internal consistency and reliability. Internal consistency is often assessed by using correlations between different items on the same test, or the same sub-scale on a larger test. It determines whether a set of items designed to measure the same general construct produces comparable results. In most cases, higher values indicate a higher level of reliability. Reliability scores between 0.60 and 0.70 are considered acceptable in exploratory research, but scores between 0.70 and 0.90 are considered fair or good. Scores of 0.95 and above present a challenge as they indicate item redundancy and reduce construct validity (Hair, Risher, Sarstedt & Ringle, 2019; Hair et al., 2021). Another reliability metric is Cronbach's alpha, which should be at least 0.7 (Njeri, Khader, Ali & Line, 2024). The composite reliability values in Table 7.11 above are greater than 0.70 but less than 0.95, indicating good construct reliability. Additionally, over 0.7, Cronbach's alpha values show satisfactory construct reliability.

### **7.10.4 Convergent validity**

The convergent validity of each construct measure is discussed in the third step of evaluating the reflective measurement model. The degree to which a construct converges to explain the variance of its elements is called convergent validity. The mean extracted variance (AVE) for all items on each construct is the matrix used to assess the convergent validity of a construct. If the acceptable AVE is 0.50 or more, the construct represents at least 50% of the variance of its elements (Hair et al., 2022; Cheung, Cooper-Thomas, Lau & Wang, 2023). Looking at Table 7.11 above, all of

the constructs in this research project achieve an AVE greater than 0.50, indicating reasonable convergent validity.

### 7.10.5 Discriminant validity

#### 6.7.5.1 Fornell-Larcker criterion

The degree to which a construct differs empirically from other constructs in the structural model is evaluated by using discriminant validity as the fourth step in reflective measurement scale assessment. The heterotrait–monotrait ratio (HTMT) was the conventional metric and Fornell and Larcker (1981) advised comparing the average variance of each construct to the squared inter-construct correlation (as a measure of shared variation) of that construct and all other structurally assessed constructs. All model constructs should not have a shared variance that is greater than their AVEs.

**Table 7.12: Fornell-Larcker criterion**

| <b>CONSTRUCT</b> | <b>CFE</b>          | <b>GDC</b>          | <b>GI</b>           | <b>GSE</b>          | <b>PE</b>           |
|------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| EC               | <b><i>0.886</i></b> |                     |                     |                     |                     |
| GDC              | 0.655               | <b><i>0.826</i></b> |                     |                     |                     |
| GI               | 0.568               | 0.771               | <b><i>0.869</i></b> |                     |                     |
| GSE              | 0.546               | 0.627               | 0.714               | <b><i>0.894</i></b> |                     |
| PE               | 0.497               | 0.641               | 0.679               | 0.781               | <b><i>0.845</i></b> |

\*Note: Green dynamic capabilities (GDC), green innovation (GI), performance (PE), green self-efficacy (GSE) and environmental concern (EC)

The square root of the AVE is represented by the diagonals in bold and italics in Table 7.12 and the correlations are represented by the other entries. Additionally, as indicated in Table 7.12, the square root of AVE is greater than the correlations among the latent variables. The two criteria being met suggests enough discriminant validity. These tests all show that the measuring model is effective. Another method to

calculate the discriminant validity is heterotrait–monotrait ratio (HTMT) and the following table (Table 7.13) shows the results of the HTMT.

### 7.10.5.2 HTMT (heterotrait–monotrait ratio)

The HTMT is defined as the mean value of the indicator correlations across constructs (i.e., the heterotrait–heteromethod correlations) relative to the (geometric) mean of the average correlations for the indicators measuring the same construct (i.e., the monotrait–heteromethod correlations) (Hair et al., 2021).

**Table 7.13: HTMT (heterotrait–monotrait ratio)**

| CONSTRUCT | CFE   | GDC   | GI    | GSE   | PE    | GSE*GDC | CFE*GDC |
|-----------|-------|-------|-------|-------|-------|---------|---------|
| CFE       |       |       |       |       |       |         |         |
| GDC       | 0.255 |       |       |       |       |         |         |
| GI        | 0.268 | 0.271 |       |       |       |         |         |
| GSE       | 0.246 | 0.227 | 0.214 |       |       |         |         |
| PE        | 0.297 | 0.241 | 0.379 | 0.381 |       |         |         |
| GSE*GDC   | 0.294 | 0.214 | 0.244 | 0.318 | 0.234 |         |         |
| CFE*GDC   | 0.379 | 0.230 | 0.255 | 0.284 | 0.282 | 0.876   |         |

\*Note: Green dynamic capabilities (GDC), green innovation (GI), performance (PE), green self-efficacy (GSE) and environmental concern (EC)

Analysis of the heterogeneity-monotrait measurements (HTMT) by Henseler, Ringle and Sarstedt (2015) must meet the requirements of HTMT, the value must be less than HTMT 0.90. Henseler, Ringle and Sarstedt (2018) state that with HTMT, a 95% confidence interval with a value of 1 (i.e YES) has no discriminatory power (Dirgiatmo, 2023; Roemer, Schuberth & Henseler, 2021). Based on the Table 7.13 and judging from the value of HTMT, the construction was tested to meet the analysis criteria achieve lower than 1. It shows that the connection between the construction is too

weak. To confirm its existence, discriminant validity for each construct was tested. The table (Table 7.13) shows that the HTMT values of all constructs are lower than 0.90, satisfying the requirement of discriminant validity. The next section will present the structural model analysis, or the properties of the structural model.

## **7.11 STRUCTURAL MODEL**

### **7.11.1 Common method bias (CMB)**

Common method bias (CMB) occurs when changes in replies are brought on by the instrument rather than the participants' true predispositions, which the instrument seeks to elucidate (Wall, Simmering, Fuller & Waterwall, 2022). Kock, Berbekova and Assaf (2021) explain that CMB occurs when data for all variables (independent, dependent, moderating, and mediating) is collected using the same method. In other words, one is analysing variances because the instrument introduces bias as all constructs are measured using one method or instrument. Consequently, the results are contaminated by the noise of the biases. CMB could pose a threat as biases from systematic errors can affect the results (Memon instruments) (Memon, Thurasamy, Cheah, Ting, Chuah & Cham, 2023). The full collinearity test, based on variance inflation factors (VIFs), was used to assess both vertical and lateral collinearity (Jordan & Troth, 2020). If VIF has a value greater than 3.3, this indicates that the model may be contaminated with CMB (Hair, 2021). The VIF values for this research study are 1.62 (GDC); 1.62 (PE); 1.20 (GSE); 1.31 (GI); and 1.21 (CFE). The VIF values of the model constructs are less than 3.3. This means that this study is free from CMB.

### **7.11.2 R-Squared (R<sup>2</sup>)**

R-squared is a statistical measure that represents the proportion of variance for a dependent variable (Hair et al., 2021). While correlation explains the strength of the relationship between an independent and dependent variable, R<sup>2</sup> explains the amount of variance in the second variable. The R<sup>2</sup> shows the proportion of variation in the dependent variable(s) that is explained by one or more predictor variable/s, according to Hair et al. (2021) and the ranges from 0 to 1, with higher values indicating a greater explanatory power. R<sup>2</sup> of 0.75, 0.50 and 0.25 can be considered significant, moderate and weak, respectively. The R<sup>2</sup> values for this model are as follows: 0.64 (GDC); 1.62

(PE); 0.69 (GSE); 0.63 (CFE); and 0.72 (GI). The next section presents the path coefficient and t-statistics.

### **7.11.3 Goodness-of-fit**

Goodness-of-fit (GOF) is defined as the global fit measure; it is the geometric mean of both average variances extracted and the average R-square ( $R^2$ ) of the endogenous variables (Hair, 2019; Shahryar & Jahanshahi, 2022). The test of goodness (GOF) is used to determine whether the empirical data is adequately captured by the model (Kang & Ahn, 2021). The GOF has values ranging from 0 to 1. Hair et al. (2020) postulate that the GOF values of 0.10 (small), 0.25 (medium) and 0.36 (large) provide global validation of the model demonstrate. The GOF is calculated by averaging the AVEs and multiplying by the R value and then obtaining the square root value. Therefore, average of AVEs is 0.743 and average of  $R^2 = 0.676$ , the GOF value is 0.502. It can be concluded that the empirical data fits the model satisfactorily and has significant predictive power.

### **7.11.4 Predictive relevance of the model ( $Q^2$ )**

The predictive relevance of the model is a recommended supplementary assessment test (Lienggaard, Sharma, Hult, Jensen, Sarstedt, Hair & Ringle, 2021 ). This study used  $Q^2$  to evaluate the predictive model. The  $Q^2$  criteria recommend that the conceptual model be able to predict the latent structure (Akbari, Bahrami, Bidgoli & Hosseini, 2023). The model is predictive when the  $Q^2$  value is greater than 0 (Hair et al., 2019). The  $Q^2$  value of this model is 0.372; it is greater than 0 and therefore, this suggests that the model has reasonable predictive power.

### **7.11.5 The effect size ( $f^2$ )**

The effect size ( $f^2$ ) shows the magnitude of the effect of each exogenous latent construct on the endogenous latent construct (Hair et al., 2021; Liu, & Yuan, 2021). The effect size shows whether one construct has a substantial impact on another construct and how deleting a construct from the path model changes the value of the R value (Hair et al., 2021). Effect size is a change in R-squared ( $R^2$ ) examined to determine if the effect of the independent structure on the dependent structure has a significant effect ( $f^2$ ) (Akbari et al., 2023). In the guidelines for evaluating  $f^2$ , Hair et al. (2021) point out that these values of 0.02, 0.15 and 0.35 represent small, medium and

large effects, respectively, of an exogenous latent variable on an endogenous latent variable. Effect size values of less than 0.02 indicate no effect is present. The effect size values of this model are GDC = 0.363; PE = 0.268; GI = 0.279, GSE = 0.365 and CFE = 0.374. These values show a moderate effect on the endogenous variables.

#### **7.11.6 Estimated model fit**

The estimated and saturated model assesses the correlation between all constructs. The estimated model is a model based on an overall effects scheme and takes into account the model structure (Hair Jr et al., 2021). It is therefore a more restricted version of the measure of fit. Model fit is measured using the standardised root mean square residual (SRMR), which shows the average of the standardised residuals between the observed and hypothesised matrices (Hair et al., 2019; Hair et al., 2021). The SRMR values vary from 0 to 1, with values smaller than 0.05 obtained by well-fitting models. Better fit is indicated by a lower SRMR, while higher SRMR values reflect a poorer model fit (Goretzko, Siemund & Sterner, 2024). The study's SRMR value, which is 0.053, indicates that the model fits the data well.

#### **7.11.7 Path coefficients and t-statistics**

When determining whether the hypothesis is accepted or not, the bootstrapping method was used to calculate the standardised coefficients' significance levels (Hair et al., 2019). Acceptable t-statistics for a two-tailed test are 1.65 for a 10% significance level, 1.96 for a 5% significance level, and 2.58 for a 1% significance level. The endogenous latent variable has a greater effect when the standard ( $\beta$ ) value is higher. The table (Table 7.14) below shows the effect of the path coefficient and t-statistics.

**Table 7.14: Path coefficient and t-statistics**

| Hypotheses   | Standard ( $\beta$ ) ( $\beta$ ) | t-<br>statistics | p-<br>Values | Decision |
|--------------|----------------------------------|------------------|--------------|----------|
| <b>H1a</b>   | 0.910                            | 9.345            | 0.001        | Accepted |
| <b>H1b</b>   | 0.906                            | 8.154            | 0.000        | Accepted |
| <b>H1c</b>   | 0.847                            | 7.545            | 0.041        | Accepted |
| <b>H1d</b>   | 0.901                            | 11.547           | 0.003        | Accepted |
| <b>H2a'</b>  | 0.888                            | 10.547           | 0.000        | Accepted |
| <b>H2b''</b> | 0.911                            | 9.454            | 0.007        | Accepted |
| <b>H3a'</b>  | 0.881                            | 8.445            | 0.013        | Accepted |
| <b>H3b'</b>  | 0.864                            | 9.214            | 0.016        | Accepted |
| <b>H3c'</b>  | 0.865                            | 7.542            | 0.001        | Accepted |
| <b>H3d'</b>  | 0.868                            | 6.478            | 0.000        | Accepted |
| <b>H4a''</b> | 0.910                            | 10.574           | 0.042        | Accepted |
| <b>H4b''</b> | 0.870                            | 5.544            | 0.010        | Accepted |
| <b>H4c''</b> | 0.873                            | 7.224            | 0.01         | Accepted |
| <b>H4d''</b> | 0.874                            | 6.214            | 0.002        | Accepted |

\*Note: Green dynamic capabilities (GDC), green innovation (GI), performance (PE), green self-efficacy (GSE) and environmental concern (EC)

The above table shows the t-statistics and path coefficient of the relationship between GDC and PE, GDC and GI, GPI' and PE and GPI'' and PE. Therefore, **H1a** proposes that GDC and FP are significantly positively related. The results (SB = 0.910; t = 8.154; p > 0.05) show that there is a significant positive relationship between GDC and FP. Hypothesis 1a is accepted. Then **H1b** proposes that GDC and SP are significantly positively related. The results (SB = 0.906; t = 10,547; p < 0.05) show that there is significant positive relationship between GDC and SP. Therefore, the hypothesis is accepted. **H1c** proposes that GDC and EP are significantly positively related. The results (SB = 0.847; t = 7.545; p < 0.05) show that there is a significant positive relationship between GDC and EP. Therefore, the hypothesis is accepted. **H1d** proposes that GDC and GCA are significantly positively related. The results (SB = 0.901; t = 11.547; p < 0.05) show that there is a significant positive relationship between GDC and EP. Therefore, the hypothesis is accepted. **H2a'** proposes that

GDC and GI' are significantly positively related. The results (SB = 0.888; t = 10.547; p < 0.05) show that there is a significant positive relationship between GDC and GI'. Therefore, the hypothesis is accepted. **H2b''** proposes that GDC and GI'' are significantly positively related. The results (SB = 0.911; t = 9.454; p < 0.05) show that there is a significant positive relationship between GDC and GI''. Therefore, the hypothesis is accepted.

**H3a'** proposes that GI' and FP are significantly positively related. The results (SB = 0.881; t = 8.445; p < 0.05) show that there is a significant positive relationship between GI' and FP. Therefore, the hypothesis is accepted. **H3b'** proposes that GI' and SP are significantly positively related. The results (SB = 0.864; t = 9.214; p > 0.05) show that there is a significant positive relationship between GI' and SP. Therefore, the hypothesis is accepted. **H3c'** proposes that GI' and EP are significantly positively related. The results (SB = 0.865; t = 7.542; p < 0.05) show that there is a significant positive relationship between GI' and EP. Therefore, the hypothesis is accepted. **H3d'** proposes that GI' and GCA are significantly positively related. The results (SB = 0.868; t = 6.478; p < 0.05) show that there is a significant positive relationship between GI' and GCA. Therefore, the hypothesis is accepted.

**H4a''** proposes that GI'' and FP are significantly positively related. The results (SB = 0.910; t = 10.574; p < 0.05) show that there is a significant positive relationship between GI'' and FP. Therefore, the hypothesis is accepted. **H4b** proposes that GI'' and SP are significantly positively related. The results (SB = 0.870; t = 5.544; p < 0.05) show that there is a significant positive relationship between GI'' and SP. Therefore, the hypothesis is accepted. **H4c** proposes that GI'' and EP are significantly positively related. The results (SB = 0.873; t = 7.224; p > 0.05) show that there is no significant positive relationship between GI'' and EP. Therefore, the hypothesis is **not** accepted. **H4d** proposes that GI'' and GCA are significantly positively related. The results (SB = 0.874; t = 6.214; p < 0.05) show that there is a significant positive relationship between GI'' and GCA. Therefore, the hypothesis is accepted. The next section will present the mediation analysis.

## 7.12 MEDIATION ANALYSIS

Mediation is a test carried out to show if a mediator construct can significantly carry the capability of an independent variable to a dependent variable . It plays a prominent

role in gaining a better understanding of the relationship between two variables and provides an elaborated view to research (Sidhu, Bhalla & Zafar, 2021) A mediation test uses a mediator variable to identify the indirect relationship between the independent and dependent variables (Lienggaard, Sharma, Hult, Jensen, Sarstedt, Hair & Ringle, 2021). The mediation test used in this research was based on the PLS approach and is measured by PLS algorithm analysis with formulated hypotheses. The table (Table 7.15) below illustrates the results of mediation.

**Table 7.15: Mediation results**

| Hypotheses   | Direct effect from |         | Indirect effect |         | Total effect |       |         |     |         |
|--------------|--------------------|---------|-----------------|---------|--------------|-------|---------|-----|---------|
|              | $\beta$            | P-value | Beta            | P-value | $\beta$      | SD    | T-value | VAF | P-value |
| <b>H5a'</b>  | 0.531              | 0.001   | 0.663           | 0.000   | 1.194        | 0.067 | 4.764   | 56% | 0.000   |
| <b>H5b'</b>  | 0.647              | 0.000   | 0.874           | 0.003   | 1.521        | 0.145 | 2.154   | 57% | 0.020   |
| <b>H5c'</b>  | 0.578              | 0.002   | 0.754           | 0.040   | 1.332        | 0.080 | 1.487   | 56% | 0.005   |
| <b>H5d'</b>  | 0.748              | 0.006   | 0.654           | 0.009   | 1.402        | 0.101 | 1.658   | 46% | 0.000   |
| <b>H6a''</b> | 0.531              | 0.000   | 0.593           | 0.000   | 1.124        | 0.054 | 4.875   | 53% | 0.001   |
| <b>H6b''</b> | 0.845              | 0.000   | 0.574           | 0.002   | 1.419        | 0.025 | 2.548   | 40% | 0.004   |
| <b>H6c''</b> | 0.754              | 0.010   | 0.874           | 0.000   | 1.628        | 0.012 | 1.478   | 53% | 0.000   |
| <b>H6d''</b> | 0.682              | 0.005   | 0.714           | 0.005   | 1.396        | 0.103 | 1.687   | 51% | 0.000   |

From the above table, first, the mediation analysis was performed to assess the mediating role of GPI' and GPI'' on the linkage between GDC and PE. VAF = (indirect effect/total effect) and total effect = (direct effect + indirect effect). Note that the VAF is measured using the following properties: VAF lower than 20% is low mediation, VAF between 20% and 80% is partial mediation, and VAF above 80% is full mediation. Therefore, **H5a** proposes that GPI' mediates the relationship between GDC and FP. The results shown in Table 7.15 above reveal that the direct effect is significant ( $\beta = 0.531$  and  $p < 0.05$ ). The indirect effect becomes significant ( $\beta = 0.663$  and  $p < 0.05$ ). The total effect of GPI' on GDC through FP is significant ( $\beta: 1.194$ ;  $t = 4.764$ ;  $p < 0.05$  and  $VAF = 56\%$ ) and this shows partial mediation. Therefore, the hypothesis is accepted.

**H5b** proposes that GPI' mediates the relationship between GDC and SP. The results reveal that the direct effect is significant ( $\beta = 0.647$  and  $p < 0.05$ ). The indirect effect becomes significant ( $\beta = 0.874$  and  $p < 0.05$ ). The total effect of GPI' on GDC through SP is significant ( $\beta: 1.521$ ;  $t = 2.154$ ;  $p < 0.05$  and  $VAF = 57\%$ ) and this shows partial mediation. Therefore, the hypothesis is accepted. **H5c** proposes that GPI' mediates the relationship between GDC and EP. The above results reveal that the direct effect is significant ( $\beta = 0.578$  and  $p < 0.05$ ). The indirect effect becomes significant ( $\beta = 0.754$  and  $p < 0.05$ ). The total effect of GPI' on GDC through EP is significant ( $\beta: 1.332$ ;  $t = 1.487$ ;  $p < 0.05$  and  $VAF = 56\%$ ) and this shows partial mediation. Therefore, the hypothesis is accepted. **H5d** proposes that GPI' mediates the relationship between GDC and GCA. The results reveal that the direct effect is significant ( $\beta = 0.748$  and  $p < 0.05$ ). The indirect effect becomes significant ( $\beta = 0.654$  and  $p < 0.05$ ). The total effect of GPI' on GDC through GCA is significant ( $\beta: 1.402$ ;  $t = 1.658$ ;  $p < 0.05$  and  $VAF = 46\%$ ) and this shows partial mediation. Therefore, the hypothesis is accepted. **H6a** proposes that GPI'' mediates the relationship between GDC and FP. The results reveal that the direct effect is significant ( $\beta = 0.531$  and  $p < 0.05$ ). The indirect effect becomes significant ( $\beta = 0.574$  and  $p < 0.05$ ). The total effect of GPI'' on GDC through FP is significant ( $\beta: 1.124$ ;  $t = 4.875$ ;  $p < 0.05$  and  $VAF = 53\%$ ) and this shows partial mediation. Therefore, the hypothesis is accepted. **H6b** proposes that GPI'' mediates the relationship between GDC and SP. The results reveal that the direct effect is significant ( $\beta = 0.845$  and  $p < 0.05$ ). The indirect effect becomes significant ( $\beta = 0.574$  and  $p < 0.05$ ). The total effect of GPI'' on GDC and SP is significant ( $\beta: 1.419$ ;  $t = 2.548$ ;  $p < 0.05$  and  $VAF = 40\%$ ) and this shows partial mediation. Therefore, the hypothesis is accepted. **H6c** proposes that GPI'' mediates the relationship between GDC and EP. The results reveal that the direct effect is significant ( $\beta = 0.754$  and  $p < 0.05$ ). The indirect effect becomes significant ( $\beta = 0.874$  and  $p < 0.05$ ). The total effect of GPI'' on GDC through EP is significant ( $\beta: 1.628$ ;  $t = 1.478$ ;  $p < 0.05$  and  $VAF = 53\%$ ) and this shows partial mediation. Therefore, the hypothesis is accepted. **H6d** proposes that GPI'' mediates the relationship between GDC and GCA. The results reveal that the direct effect is significant ( $\beta = 0.682$  and  $p < 0.05$ ). The indirect effect becomes significant ( $\beta = 0.714$  and  $p < 0.05$ ). The total effect of GPI'' on GDC through GCA is significant ( $\beta: 1.396$ ;  $t = 1.687$ ;  $p < 0.05$  and  $VAF = 51\%$ ) and this shows partial mediation. Therefore, the hypothesis is accepted. From the above table, all the VAF values are between 20-80%, and thus, they exert partial mediation. The results further

show that all the p-values are positively significant on all constructs. The next section presents the moderation analysis.

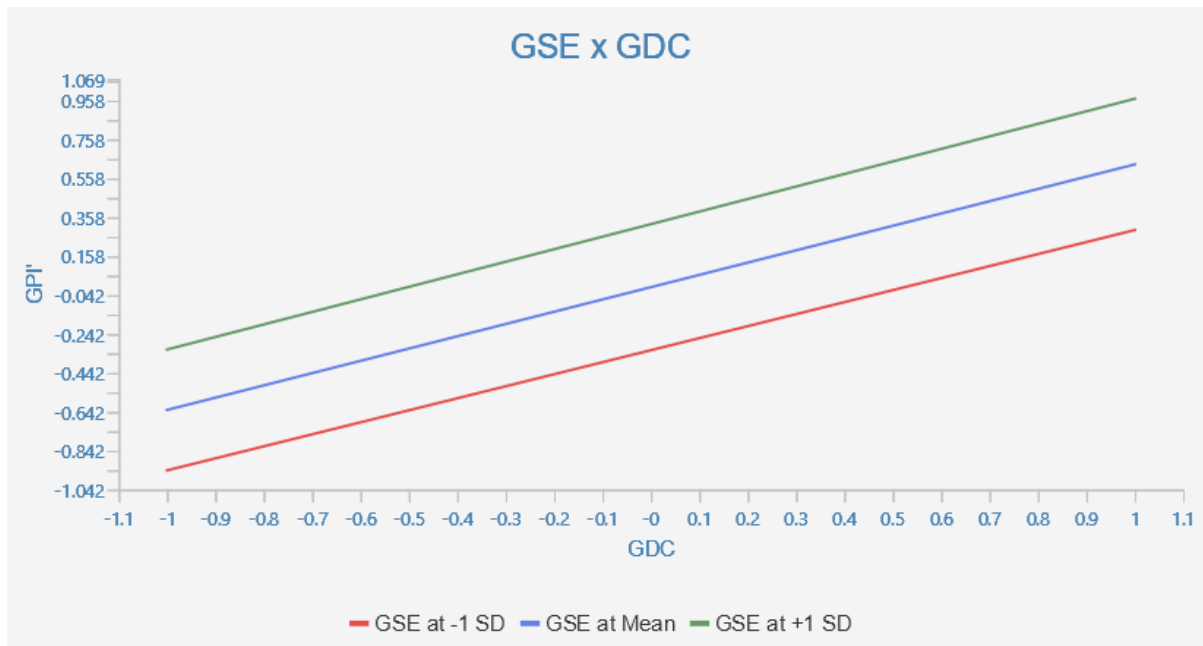
## 6.10 MODERATION RESULTS

Moderation is a test performed to determine if a moderator can significantly affect the relationship between the independent and dependent variables (Hair et al., 2021; Morrow, Duff & Mayberry, 2022). A moderation test determines the direct effect of the moderating variable on the relationship between the independent variable and the dependent variable through a moderating variable (Hair et al., 2021). The moderating test used in this research paper is based on the PSL approach. The test is measured by means of bootstrapping 5000 re-sampling analysis with formulated hypotheses. The table below illustrates the results of mediation.

**Table 7.16: Moderation analysis**

| Direct effect (GDC→GI) |              | Total effect with moderating variable(s) |             |       |         |         |                     |
|------------------------|--------------|------------------------------------------|-------------|-------|---------|---------|---------------------|
| hypotheses             | Coefficient  | P-value                                  | Coefficient | SD    | T-value | P-value | Confidence interval |
| <b>H7a'</b>            | <b>0.888</b> | 0.000                                    | 0.762       | 0.084 | 9.271   | 0.001   | -1.042; -0.442      |
| <b>H7b'</b>            | <b>0.903</b> | 0.001                                    | 0.628       | 0.058 | 1.687   | 0.000   | -1.021; -0.621      |
| <b>H8a''</b>           | <b>0.888</b> | 0.000                                    | 0.662       | 0.074 | 6.871   | 0.002   | -1.057; -0.457      |
| <b>H8b''</b>           | <b>0.903</b> | 0.001                                    | 0.631       | 0.078 | 2.145   | 0.000   | -1.045; -0.445      |

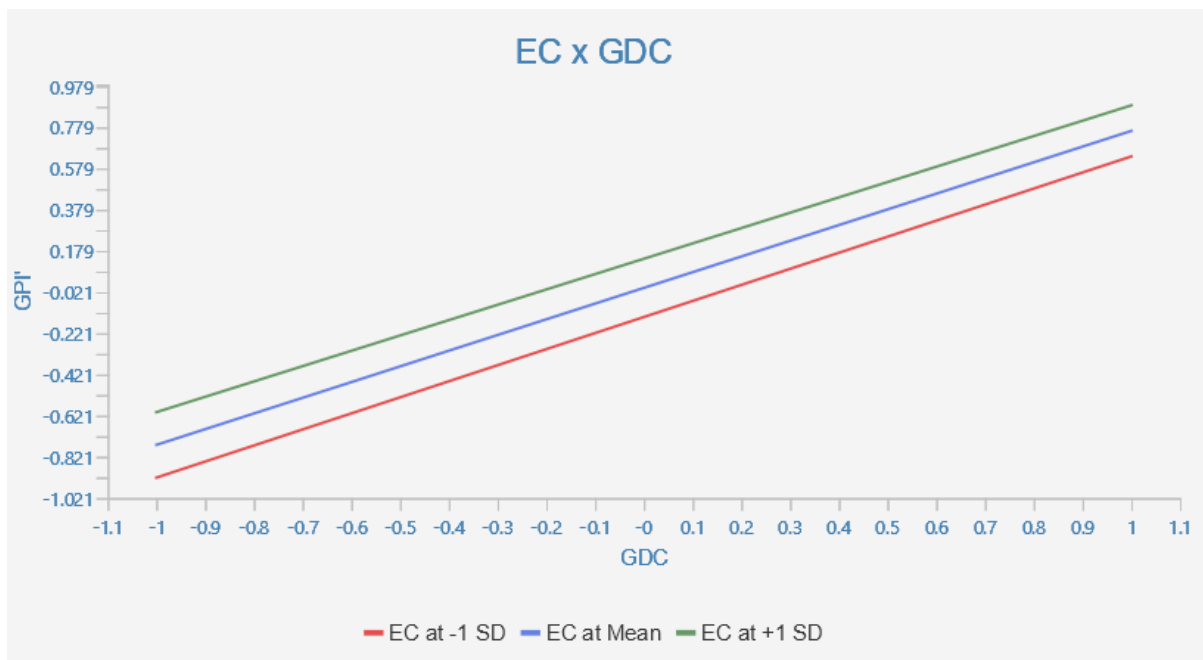
Table 7.16 shows that the moderation analysis was performed to assess the moderating role of (EC) and (GSE) on the linkage between (GDC) and (GI) of hotels. **H7a'** proposes that GSE moderates the relationship between GDC and GPI'. The above results reveal that the direct effect of GSE on GPI' is significant ( $\beta = 0.888$ ;  $p < 0.05$ ). With the inclusion of the moderating variable (GSE), the impact of GDC on GPI' becomes significant ( $\beta = 0.762$ ;  $t = 9,271$ ;  $p < 0.05$ ). The following figure (Figure 7.5) confirms the positive moderation effects of the constructs, and explains them more broadly.



**Figure 7.5 Moderation analysis of GSE on GDC and GPI' nexus**

The results show an average weight on the slope plot and the relationship between GDC and GPI' is moderated by GSE. The bias-corrected confidence interval is -1.042; -0.442, and since there is no 0 in between, this means that the direct effect is significant. Figure 7.5 further reveals the following: The red line represents the standard deviation below the mean; the blue line represents the standard deviation at mean; and lastly, green represents the standard deviation above the mean. This shows that they are positive because of the sloping trend from bottom to top, thus from left to right. This implies that the relationship between GDC and GPI' is dampened by GSE. The diagram shows that the green line is with more GSE, and the red line is with less GSE, so the positive effect has a steeper or positive slope when there is less GSE. This shows that GSE moderates the relationship between GDC and GPI' at an average effect.

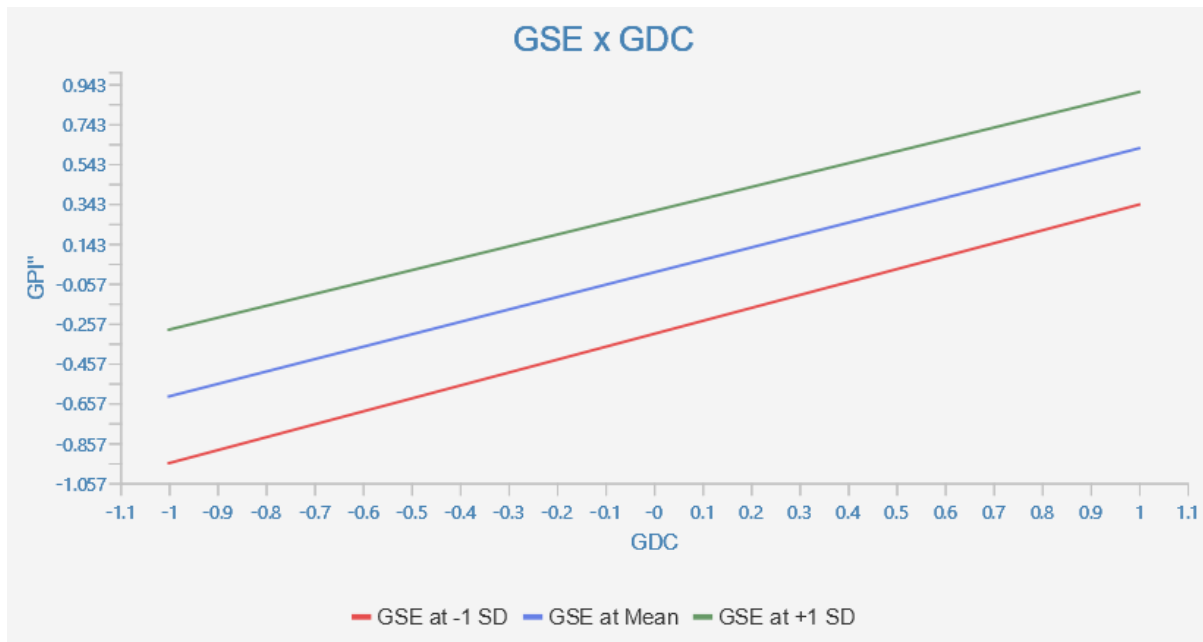
The moderation analysis was performed to assess the moderating role of (EC) and (GSE) on the linkage between (GDC) and (GI) of hotels. **H8a'** proposes that EC moderates the relationship between GDC and GPI'. The results reveal that the direct effect of EC on GPI' is significant ( $\beta = 0.903$ ;  $p < 0.05$ ). With the inclusion of the moderating variable (EC), the impact of GDC on GPI' becomes significant ( $\beta = 0.628$ ;  $t = 1,687$ ;  $p < 0.05$ ). Figure 7.6 confirms the positive moderation effects of the constructs and it explains them more broadly.



**Figure 7.6 Moderation analysis of EC on GDC and GPI' nexus**

The results show an average weight on the slope plot and the relationship between GDC and GPI' is moderated by EC. The bias-corrected confidence interval is -1.021; -0.621, and since there is no 0 in between, this means that the direct effect is significant. Figure 7.6 further reveals the following: The red line represents the standard deviation below the mean, the blue line represents the standard deviation at mean and lastly, green represents the standard deviation above the mean. This shows that they are positive because of the sloping bottom to top, thus from left to right. This implies that the relationship between GDC and GPI' is dampened by EC. The diagram shows that the green line is with more EC and the red line is with less EC, so the positive effect has a steeper or positive slope when there is less EC. This shows that EC moderates the relationship between GDC and GPI' at an average effect.

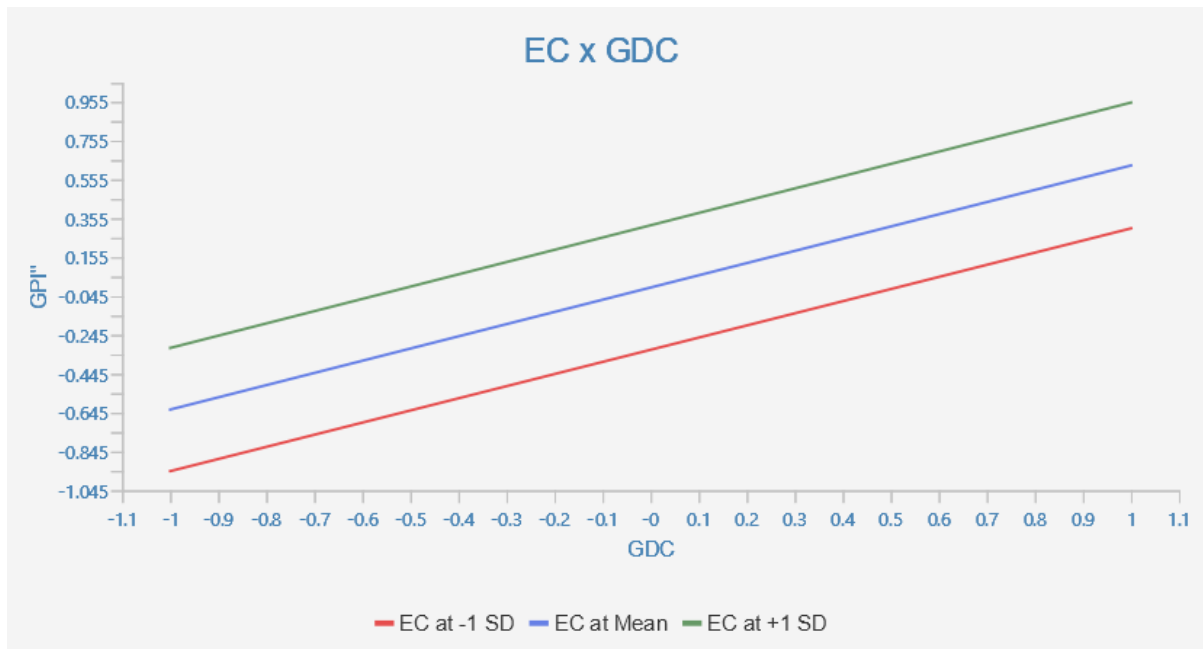
The moderation analysis was performed to assess the moderating role of (EC) and (GSE) on the linkage between (GDC) and (GI) of hotels. **H7b'** proposes that GSE moderates the relationship between GDC and GPI". The results reveal that the direct effect of GSE on GPI" is significant ( $\beta = 0.888$ ;  $p < 0.05$ ). With the inclusion of the moderating variable (GSE), the impact of GDC on GPI" becomes significant ( $\beta = 0.662$ ;  $t = 6,871$ ;  $p < 0.05$ ). The following figure (Figure 7.7) confirms the positive moderation effects of the constructs and it explains them more broadly.



**Figure 7.7 Moderation analysis of GSE on GDC and GPI'' nexus**

The diagram shows an average weight on the slope plot and the relationship between GDC and GPI'' is moderated by GSE. The bias-corrected confidence interval is -1.067; -0.457, and since there is no 0 in between, this means that the direct effect is significant. Figure 7.7 reveals the following: The red line represents the standard deviation below the mean, the blue line represents the standard deviation at mean and lastly, green represents the standard deviation above the mean. This shows that they are positive because of their sloping bottom to top, thus from left to right. This implies that the relationship between GDC and GPI'' is dampened by GSE. The diagram shows that the green line is with more GSE and the red line is with less GSE, so the positive effect has a steeper or positive slope when there is less GSE. This shows that GSE moderates the relationship between GDC and GPI'' at an average effect.

The moderation analysis was performed to assess the moderating role of (EC) and (GSE) on the linkage between (GDC) and (GI) of hotels. **H8b'** proposes that EC moderates the relationship between GDC and GPI''. The results reveal that the direct effect of EC on GPI'' is significant ( $\beta = 0.903$ ;  $p < 0.05$ ). With the inclusion of the moderating variable (EC), the impact of GDC on GPI'' becomes significant ( $\beta = 0.631$ ;  $t = 2,145$ ;  $p < 0.05$ ). Figure 7.8 confirms the positive moderation effects of the constructs and it explains them more broadly.



**Figure 7.8: EC moderates the GDC and GPI'' nexus**

The diagram shows an average weight on the slope plot and the relationship between GDC and GPI'' is moderated by EC. The bias-corrected confidence interval is -1.045; -0.445, and since there is no 0 in between, this means that the direct effect is significant. The above figure, Figure 7.8, reveals the following: The red line represents the standard deviation below the mean, the blue line represents the standard deviation at mean and lastly, green represents the standard deviation above the mean. This shows that they are positive because of their sloping bottom to top, thus from left to right. This implies that the relationship between GDC and GPI'' is dampened by EC. The diagram shows that the green line is with more EC and the red line is with less EC, so the positive effect has a steeper or positive slope when there is less EC. This shows that EC moderates the relationship between GDC and GPI'' at an average effect. The next section presents the research hypotheses.

## 7.14 RESEARCH HYPOTHESES

The following table (Table 7.17) presents the summary of hypotheses proposed by the study and the results of the data analysis after testing those hypotheses. The study was grounded on eight hypotheses, all of which were found positively significant and related to each other.

**Table 7.17: Research hypotheses**

| <b>HYPOTHESIS</b> |                                                                                                                                                                                          | <b>RESULTS</b> |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>H1</b>         | There is a significant positive relationship between GDC and (a) financial performance, (b) social performance, (c) environmental performance, and (d) green competitive advantage.      | Accepted       |
| <b>H2</b>         | There is a significant positive relationship between GDC and (a) green product innovation and (b) green process innovation.                                                              | Accepted       |
| <b>H3</b>         | Green product innovation is significantly positively related to (a) financial performance, (b) social performance, (c) environmental performance, and (d) green competitive advantage.   | Accepted       |
| <b>H4</b>         | Green process innovation is significantly positively related to (a) financial performance, (b) social performance, (c) environmental performance, and (d) green competitive advantage.   | Accepted       |
| <b>H5</b>         | Green product innovation mediates the relationship between GDC and a) financial performance, (b) social performance, (c) environmental performance, and (d) green competitive advantage. | Accepted       |
| <b>H6</b>         | Green process innovation mediates the relationship between GDC and a) financial performance, (b) social performance, (c) environmental performance, and (d) green competitive advantage. | Accepted       |
| <b>H7</b>         | Green self-efficacy moderates the relationship between GDC and (a) green product innovation and (b) green process innovation.                                                            | Accepted       |
| <b>H8</b>         | Environmental concern moderates the relationship between GDC and (a) green product innovation and (b) green process innovation.                                                          | Accepted       |

## 7.15 SUMMARY

This chapter covered data analysis, testing hypotheses and disclosing results. First, the chapter revealed the response rate, which was 47% from the total number of questionnaires distributed. Second, the study further revealed the results of normality from the Kolmogorov–Smirnov test and the Shapiro Wilks tests. These tests ensure that set data is well represented by a normal distribution and to determine the probability a random variable underlying the set of data to be normally distributed. Third, the chapter discussed the demographic information of the participants and made inferences based on the findings. The chapter presented the descriptive statistics results of each of this study's constructs. The results show that all constructs have an acceptable means and standard deviation, and the Cronbach's alpha coefficient was satisfactory. The Smart-PLS version 4.0 was used to analyse the data. First, the reflective measures were analysed measuring reliability and validity. The findings indicated satisfactory reliability and validity of the study's constructs. A structural model was analysed, using common method bias,  $R^2$  squared, path coefficients and t-statistics, the goodness-of-fit test, predictive relevance of the model, the effect size and estimated model fit. All structural model analyses provided satisfactory results as per each test requirement. Lastly, mediation and moderation analysis results were presented, and they revealed a direct significant effect of the mediation variable on the relationship between GDC and performance (PE). Lastly, the chapter also revealed the direct effect of moderating variable EC and GSE on the GDC-PE nexus. The study further revealed that the relationship between GDC and PE is moderated by EC and GSE. The next chapter will focus on the summaries, conclusions, recommendations of the study and future research suggestions.

## **CHAPTER EIGHT**

### **CONCLUSIONS, RECOMMENDATIONS AND FUTURE RESEARCH SUGGESTIONS**

#### **8.1 INTRODUCTION**

The preceding section presented the statistical findings, discussions, and explanations obtained from the analysis of data collected from chosen hotels in the provinces of Gauteng and Limpopo, in South Africa. The main objective was to share the main results from the empirical tests carried out in order to add to the ongoing discussion among academics regarding the relationship between GDC and hospitality firms' performance. This chapter sums up the research conducted for this thesis and ties the strands jointly to present a conclusion to the study. It explores all critical phases of the research and provides a summary of the results. First, the chapter presents an overview of the hypotheses proposed built on the results of the hypothesis analysis. In addition, the results collected in this study are matched with results from previous empirical studies and assessed in light of the current findings. The chapter also gives a summary of the study's contribution to the body of knowledge by examining the theoretical, empirical, theoretical, managerial and political contributions. Finally, it presents the limitations of the study and suggest areas for future study. The next section provides an overview of the study.

#### **8.2 OVERVIEW OF THE STUDY**

To make significant recommendations and draw conclusions from this study, it is necessary to first review the eight chapters covered. The study was introduced, and its background was briefly covered in the first chapter. The context of the study was discussed in Chapter two, while the theoretical frameworks of the research were covered in the third chapter. The fourth chapter explored the empirical literature relevant to the study . The conceptual model and a number of significant research hypotheses were presented in chapter five and empirically tested. Chapter six covered the research methodology of the study. Chapter seven presented the survey results and statistical analysis derived from the collected data. The study concludes with Chapter eight.

## 8.3 SUMMARY OF FINDINGS

### 8.3.1 GDC and Performance

- H1 There is a significant positive relationship between GDC and (a) financial performance, (b) social performance, (c) environmental performance, and (d) green competitive advantage.

The results showed that **H1a** is supported as there is a significant positive relationship between GDC and FP ( $t = 8.154$ ;  $p > 0.05$ ). This suggests that South African hospitality firms, particularly those in the Limpopo and Gauteng provinces, use eco-friendly practices to lessen the harmful effects on the environment. This, in turn, leads to hotels attaining higher sales and profits, leading to a positive financial performance. Prior studies state that GDC helps firms achieve a high level of FP and allows firms to save funds and achieve operative productivity (Davies, Bustinza, Parry, and Jovanovic, 2023; Zhu, Zhang, Siddik, Zheng & Sobhani, 2023; Li Z, Rasool, Cavus, Shahid, 2024;). Therefore, the implementation of GDC in hotels increases their profits, sales, fixed assets and working capital leading to enhanced financial performance.

**H1b** results illustrate that GDC is significantly positively related to SP ( $t = 10,547$ ;  $p < 0.05$ ). These findings are consistent with earlier research, which found that green dynamic capability leads to social engagements and social performance (Yousaf, 2021; Yuan & Cao, 2022). GDC fosters partnership and relationships with stakeholders, such as suppliers, buyers, and societies, to develop sustainable solutions (Zhu et al., 2023). Saleem and Bashir (2024) assert that firms' support of CSR initiatives can improve their green dynamic capabilities and enhance organisations' ability to solve problems in a systematic manner, adjust to changes in the external environment, and satisfy the demands of customers to gain a competitive advantage over their competitors. It is apparent that green dynamic capabilities incorporate the wise use of resources and therefore, they contribute positively to society and address the social challenges hotels face.

The results of **H1c** show that GDC is significantly positively related to EP. The results ( $t = 7.545$ ;  $p < 0.05$ ) show that there is a significant positive relationship between GDC

and EP. The results are consistent with those of Li, Hassan Murad and Mirza (2023) and Golgeci, Ali, Bozkurt, Gligor and Arslan (2022), who state that organisations integrate green resources and competencies to conserve ecosystems and meet environmental problems related to climate change. The current study's findings also confirm previous studies of Mahadi (2021), Nassani, Javed, Radulescu, Yousaf, Secara and Tolea (2022) and Khairy (2023). These studies contended that green dynamic capabilities improve businesses' environmental performance by promoting green strategic objectives, green management practices, and green research and development. It is apparent that a green dynamic capability combines resources and competencies to improve organisations' environmental performance. Additionally, hotels employ green resources, continuously search the environment for new green business prospects, and implement green changes as solutions that lower pollution emissions, lower environmental risk, and improve environmental performance.

The study's findings revealed a positive and significant relationship between GDC and GCA, **H1d** ( $t = 11.547$ ;  $p < 0.05$ ). This suggests that hotels in the Gauteng and Limpopo provinces utilise their green dynamic capabilities to obtain a competitive advantage of low cost in the range of environmental management and offering green products that stand out from rivals, leading to GCA. Similar studies, such as those conducted by Chimhundu and Chan (2022), Cezarino, Alves, Chiappetta Jabbour and Venkatesh (2023) and Liboni, Cezarino and Alves (2023), conclude that the main force behind gaining a green competitive advantage is GDC, where the competencies are developed into green capabilities with a sustainability focus at heart. Since ecological capabilities are hard for competitors to replicate, GDC provides businesses and hotels with a compelling value proposition to assist them in becoming green, enhancing their performance and green competitive advantage (Li, Rasool, Cavus & Shahid, 2024; Qio et al., 2020). Businesses that have extensive GDC are competent at recognising new environmental trends, making investments in environmental development, and they make an effort of taking into consideration consumer preferences and legal requirements. This helps these companies to foresee and meet consumer demands for environmentally friendly goods and services, consequently leading to GCA (Zhu et al., 2023). Previous research indicates that putting GDC into practice enables businesses to efficiently manage resource usage, produce less waste, and have less of an adverse effect on the environment (Yousaf, 2021). Generally, businesses' GCA

is improved by the implementation of GDC. Green dynamic capabilities allow businesses to stand out from the competition by showcasing their dedication to environmental sustainability, lowering their ecological impact, and offering eco-friendly products. The study suggests that to solve environmental difficulties, managers must have green dynamic capabilities, which will result in their company acquiring a green competitive advantage.

### 8.3.2 GDC and green innovation (GI)

- H2 There is a significant positive relationship between GDC and (a) green product Innovation (GPI') and (b) green process innovation (GPI'')

Results on the effect of GDC on GDI' of hotels show an acceptable high level of GDC on GDI' ( $t = 10.547$ ;  $p < 0.05$ ). **H2a.** Results show that there is a significant positive relationship between GDC and GDI'. The results of this study are consistent with those of Yousaf (2021), Xiao et al. (2023), and Zhu et al. (2023), which indicate that green dynamic capability is a requirement for green product innovation in businesses. Furthermore, there is a direct correlation between a firm's green dynamic capabilities and the rate at which green product innovation occurs. The results of the study demonstrate that green dynamic capabilities can assist firms in adding both internal and external resources and capabilities, resulting in the provision of environmentally friendly product resources that produce minimal pollutants and make use of easily recycled and reused products. The findings are consistent with the dynamic capability theory, which holds that firms with strong green dynamic capabilities are better equipped and grow their green capabilities to adapt to a changing market (Yuan, 2022). To adapt to external pressure and shifts in the market for environmentally friendly products, businesses use their green capabilities (Abrudan, Rafi, Daianu & Kalyar, 2022). Businesses with strong GDC are well-positioned to devote resources to exhibit greater innovation and advancement of green products (Mao & Lu, 2023). Therefore, GDCs allow hospitality organisations to recognize and prioritise prospects for green product innovation by leveraging green knowledge, improving existing green services, identifying and importing new green information and knowledge, and understanding green tasks and responsibilities. Employing these opportunities, hotels

can offer green goods and services by addressing environmental concerns and meeting the evolving demands of eco-aware customers,

**H2b** proposes that GDC and GI'' are significantly positively related. The results (SB = 0.911; t = 9.454; p < 0.05) show that there is a significant positive relationship between GDC and GI''. This suggest that GDC serves as a reliable indicator of GI'' in the South African hospitality firms. Hotels are thus more dependent on dynamic capabilities to promote green process innovation. Hotel managers recognise the importance of assimilating green information, searching for new green business prospects and incorporating green knowledge to minimize material use, energy and water consumption, and pollution and hazardous substance emissions while delivering services to clients. Li, et al. (2023) support this, stating that organizations' capacity to create new ideas and long-term solutions for their green processes leads to a significant increase in GDC. Ma, Ali, Shahzad and Khan (2022) claim that GDC offers green process innovations, including advancements energy efficiency, managing waste, pollution control, and environmentally friendly product design. Yu et al. (2022) highlight that businesses can seize opportunities to increase green process innovation by maximising their capabilities to integrate green resources to meet environmental demands. Thus, hotels using GDC and applying its latest green processes, which recycle waste, use less energy, water, and oil, and ensure that fewer hazardous emissions occur, help to improve firm performance.

### **8.3.3 Green innovation and performance**

- H3 Green product innovation is significantly positively related to (a) financial performance (b) social performance (c) environmental performance and (d) green competitive advantage.

The study shows a significant positive effect of GPI' on FP with (t = 8.445; p < 0.05)

**H3a.** According to the results of this research, green product innovation is beneficial to hospitality firms in South Africa. These results show a positive correlation between hotels' participation in green product innovations, which, in turn, impact the firms' ability to increase sales, assets, working capital and draw in new investors and enhance overall financial performance. Developing green products can help

companies eliminate environmental problems, open up new markets, and achieve greater financial success. The results are congruent with those of Roh, Lee, Yang, Wang, Li, Li and Wang (2021) and Liu et al. (2024) as they conclude that by incorporating solutions to environmental problems into new product development, firms can improve their product differentiation, which raises sales in the long run by increasing recognition among organizational stakeholders. Using green innovation could prompt businesses to reconsider their green products and services, which is essential for creating new green products and enhancing energy efficiency.

The results of **H3b** confirm that there is a significant positive relationship between GI' and SP ( $t = 9.214$ ;  $p > 0.05$ ) According to stakeholder theory, firms that prioritize green product innovations may enhance their relationships with stakeholders and gain their support (Nazam, Hashim, Nuta, Yao, Zia, Malik, Usman & Dimen, 2022; Roh & Yu, 2023). Businesses can also create sustainable and eco-friendly products in response to the growing consumer and market demand for such products (Liu et al., 2024). A firm that adopts green product innovation gains the attention of environmentally conscious consumers and is viewed as contributing to society by those who engage in environmental conservation programmes and activities (German, Redi, Ong & Liwanag, 2023; German, Redi Prasetyo, Persada, Ong, Young & Nadlifatin, 2022). According to Padilla-Lozano and Collazzo (2021), CSR that prioritises human talent appears to improve employee relations, which, in turn, lowers attrition and boosts motivation, all of which lead to better social performance. Based on the study's findings, hotels that use technology to save energy and water, reduce pollution, and use creative, green product materials report higher customer and employee satisfaction and make a better contribution to solving social and environmental issues in the community.

The study's findings demonstrate that GDI' has a significant and positive relationship with **H3c** ( $t = 7.542$ ;  $p < 0.05$ ); thus, hypothesis H3c is substantiated. These results show that hotels in the Gauteng and Limpopo provinces in South Africa reduce the generation and emission of pollutants, achieve an efficient use of raw materials, lessen the use of resources (energy and water) and an increase in recycling of materials. This also results in these companies minimising environmental accidents and a potentially

negative impact on the environment. These results are consistent with those of Su (2023) and Ahmed (2022) as they state that firms can improve their environmental performance by reducing waste and resource consumption through the development of green products.

The results of **H3d** show that there is a significant positive relationship between GI' and GCA (SB = 0.868; t = 6.478; p <0.05). Companies that establish their uniqueness by producing appealing eco-friendly products for customers enhance their success and acquire a green competitive edge (Nuryakin & Maryati, 2022). Other research results confirm the results, stating that green product innovation gives a firm a green competitive edge and helps it draw in new business, while retaining its current client base and establishing a market-leading position (Fatoki, 2021; Novitasari & Agustia 2023). Utilising green products and green product innovation as a business resource results in a long-term green competitive benefit because of lower production costs (Guo, 2022). Hence, the study postulates that hotels implementing green innovation by producing green products gain a new and sustainable competitive advantage. By using eco-friendly materials that produce the minimal pollution, having products that are simple to recycle and reuse, and supporting water and energy conservation as well as pollution reduction, hotels can acquire a green competitive advantage in the green market.

- H4 Green process innovation is significantly positively related to (a) financial performance, (b) social performance, (c) environmental performance, and (d) green competitive advantage.

**H4a** confirms a significantly positively related relationship. The results (t = 10.574; p < 0.05) indicate that there is a significant positive relationship between GI'' and FP. By reorganising firms' resources, green process innovation can create synergies between various resources, and thus, enhance fixed assets, sales, and profitability. These findings are supported by Hoang, Nguyen and Phan (2021), Padilla-Lozano and Collazzo (2021), and Liu et al (2024) who argue that firms may lower manufacturing costs and chemical emanations to conform with environmental regulations by using green process innovation. Businesses benefit financially from reducing emissions over

time, and investors offer financial incentives to encourage green process innovation (Benkraiem, Dubocage, Lelong & Shuwaikh, 2023). Green process innovation of firms leads to a decrease in the amount of energy and resources used, resulting in an increase in efficiency and profitability. The study suggests that green process innovation in hospitality firms in South Africa can improve efficiency, reduce pollution, and reduce the use of energy and water, and the use of material in the process of offering services to customers, leading to increased profitability, sales, and working capital.

The findings of this study reveal that GPI'' is significantly positively related to SP, **H4b**. This is indicated denoted by ( $t = 5.544$ ;  $p < 0.05$ ). Green process innovation reduces the harmful environmental effects of the business, while simultaneously enhancing organisational social performance by reducing waste, costs and increasing customers' and employees' environmental needs. According to Novitasari and Tarigan (2022), a company's proficiency in executing CSR can be measured by the degree of innovation in green processes and the sustainability of the company's environmental enlightenment. As a result of such competencies, the firm's environmental-based initiatives can strengthen its superior and competitive capabilities through their outreach to the community. This result is consistent with that of Mbanyele, Huang, Li, Muchenje and Wang (2022). Businesses that practise CSR will put forth greater effort to reduce any potential harm to the environment. The study also supports the research outcomes, which state that an effective implementation of green innovation can enhance business performance by implementing innovative green processes.

The results of **H4c** reveal a significant positive relationship between GPI'' and EP'' ( $t = 7.224$ ;  $p > 0.05$ ). From the findings, It is apparent that hotels have embraced the idea of going green with great Vigor, adopting green process innovation to attain environmental performance. Their long-term performance has been enhanced by these green process innovations that have enabled them to overcome environmental hurdles. Due to green process innovations, new products may radically transform the existing methods of operations, significantly reducing any negative impact on the environment. In addition, exploratory green process innovation may result in the development of novel products that can lead to environmental cleaning, healing, and

recovery (Rehman et al., 2023). Green process innovations assist businesses in lowering pollution production and emissions to minimize environmental incidents and their detrimental effects on the environment (Li et al., 2023).

**H4d** in the study specifies that GPI' has a positive effect on GCA. The findings show that GPI' influences GCA positively and significantly as indicated through  $t = 6.214$ ;  $p < 0.05$ . The study's findings are consistent with those identified by Maziriri and Maramura (2022), Ribeiro and Steiner (2021). The primary rationale is that products and waste can be reduced, reprocessed, and can be energy used more resourcefully through greener processes giving hotels a green competitive advantage over their competitors. Businesses invest in green process innovation because going green may enhance their green competitive advantage, open up new markets, and increase green productivity (Padilla-Lozano & Collazzo, 2021). Creating a competitive advantage for a business through innovative green products often takes place in response to market demands.

#### **8.3.4 Mediation effects of green innovation**

- H5 Green product innovation mediates the relationship between GDC and a) financial performance, (b) social performance, (c) environmental performance, and (d) a green competitive advantage.

The effect of **H5a**, GPI' on GDC through FP is significant ( $t = 4.764$ ;  $p < 0.05$  and VAF = 56%). This indicates that GPI' mediates the relationship between GPI' and FP of hotels in the Gauteng and Limpopo provinces, South Africa. The study reveals that hotels enhance their green product innovation through their GDC, such as identifying and utilising new green information and knowledge, continuously searching the environment for new green business prospects. Additionally, they generate new environmental knowledge that could impact the creation of new goods and services which, in turn, provides rich green capabilities and resources to support green product innovation. As a result, firms will experience higher profits, sales, working capital, and fixed assets. Searching and utilising green knowledge and green resources enables businesses to create innovative and environmentally friendly products with the lowest pollution emissions and that use technology to save energy and water, while reducing

pollution, and to make use of materials that can be reused and recycled. Green product innovations aim to satisfy consumer demand, while minimising adverse impacts on the ecosystem over the course of a product's lifecycle (Abbasi, Daneshmand-Mehr & Ghane Kanafi, 2021). Investments in green product innovation can open a business' new market sales channels, avoid regulatory penalties, and improve the overall performance of its green goods, all of which strengthen the firm's financial performance (Wang & Ahmad, 2024).

The results confirm that GPI' mediates the relationship between GDC and SP, **H5b**. The total effect of GPI' on GDC through FP is significant ( $t = 2.154$ ;  $p < 0.05$  and  $VAF = 57\%$ ). The results align with both the stakeholder theory and the theory of dynamic capabilities. This is because firms that encounter pressure from stakeholders regarding social and environmental demands can benefit from opportunities for green product innovations through the use of green dynamic capabilities. Meanwhile, firms can work with external partners who support these initiatives to obtain green resources for green products (Joshi & Dhar, 2020; Oliveira-Dias, Maqueira-Marin, Moyano-Fuentes & Carvalho, 2023). This suggests that developing green dynamic capabilities and green products tailored to stakeholders' needs or demands through effective engagement can help address environmental and societal issues. CSR is used as a strategic tool for green innovation when a business is able to direct the growing body of green knowledge gathered from its stakeholders toward the creation of novel strategies based on environmentally friendly goods (Donate, Guadamillas & Gonzalez-Ramos, 2023). This study shows that GPI is a crucial component that can be attained through green dynamic capabilities and offers direction on how to promote and take part in societal and environmental demands in order to improve social performance.

**H5c** proposed the mediation of GPI' on GDC and EP. This study reveals a positive effect of GPI' on GDC and EP as indicated ( $t = 1.487$ ;  $p < 0.05$  and  $VAF = 56\%$ ). The results are supported by Aftab, Abid, Sarwar, Amin, Abedini and Veneziani (2024) whose study implies that in order for businesses to develop innovative green products, they must integrate green resources, upgrade resource requirements, and react promptly to environmental problems and market shifts. As a result, firms will attain environmental performance. The study's conclusions also align with earlier research

by Kiranantawat and Ahmad (2023) and Li et al. (2023), who note that green dynamic capability has a direct impact on green product innovation. Managers of firms must use green resources to generate new green product ideas that address environmental challenges. The study's findings reveal that the establishment of green dynamic capabilities in hotels aids in creating and offering green product innovations that lower the cost of environmental compliance, reduce the effectiveness of raw material and the use of resource (energy and water) and increase the recycling of materials. All these factors contribute to an overall improved reputation of environment-friendly products and services and environmental performance.

The results of **H5d** reveal that GPI'' significantly mediates the relationship between GDC and GCA as shown by  $t = 1.687$ ;  $p < 0.05$  and  $VAF = 51\%$ . This is supported by Xhu et al. (2023) and Abbasi et al. (2023) as they acknowledge that green product innovation is initiated through green dynamic capabilities, which results in firms obtaining a green competitive advantage. Through effective responses to environmental challenges and strategic opportunities, such as offering innovative green products, businesses can stand out in the marketplace, draw in environmentally conscious customers, improve their reputation among consumers, and promote environmental sustainability (Zhu et al., 2023). The results of the study show that the green competitive advantage of hotels is influenced by the integration of green dynamic capabilities, such as utilising green knowledge, expertise and resources. Consequently, firms can create green products or services that produce the least amount of pollution and reduce energy and water usage. Thus, green product innovation is essential for hospitality firms to enhance their green competitive edge through a green competitive advantage.

- Green process innovation mediates the relationship between GDC and a) financial performance, (b) social performance, (c) environmental performance, and (d) a green competitive advantage

The study illustrates that GPI'' mediates the relationship between GDC and FP, denoted by  $t = 4.875$ ;  $p < 0.05$  and  $VAF = 53\%$ , **H6a**. The findings support the idea that hotels can successfully achieve financial performance through green process innovation and green dynamic capabilities. Fulfilling customers' green demands

improves hotels' financial performance (Wang & Ahmad, 2024). Consequently, a business possessing and applying strong green dynamic capabilities can use market analysis and other approaches to quickly determine customers' needs for green products and assess competitors' green innovations. This enables the business to modify and enhance its own green process innovation plans, resulting in higher sales and profits (Yousaf, 2021; Yuan & Cao, 2022). Therefore, hospitality firms that see opportunities in the market for green innovation, use their green dynamic capabilities to reorganise their resources and carry out green process innovations for upgrades achieve enhanced financial performance.

The results of **H6b** state that GPI' positively mediates the relationship between GDC and SP. This study's findings are similar to previous studies of Kiranantawat and Ahmad (2023) and Li et al. (2023). These researchers, state that green dynamic capability has a direct impact on green process innovation. As a result, it encourages managers, staff members, clients, suppliers, and other pertinent stakeholders to acquire green knowledge and to collaborate in order to generate new, distinctive business ideas that will promote green process innovations. Green dynamic capability encourages firms to be involved in green process innovation to response to societal and developmental needs. It offers tremendous assistance in the development of green, novel ideas to gain a competitive advantage and improve social performance. Additionally, businesses can integrate green knowledge and resources to create green process innovations that advance social performance (Novitasari & Tarigan, 2022). This confirms that green dynamic capabilities incorporate and implement green resources that promote green process innovation to address social problems and achieve social performance.

The study illustrates that GDI'' significantly mediates the relationship between GDC and EP with  $t = 1.478$ ;  $p < 0.05$  and  $VAF = 53\%$ . **H6c** is accepted. According to Wang, Khan, Anwar, Shahzad, Adu and Murad (2021), advancement in green process innovation and efficiency will increase opportunities to advance environmental performance by reducing environmental issues (Dzikriansyah et al., 2023; Wand & Ameen, 2024). To alleviate the adverse effects of their operations on the environment, hotels implement environmentally conscious practices. These practices include cutting down on pollution and hazardous material emissions while providing customer

services, conserving energy and water, and utilizing recycled materials. As a result, hotels enforce their green competencies, expertise, and assets to handle diverse environmental impacts and demands from customers, culminating in achieved environmental performance. The study supports the idea that green process innovation is crucial to achieving environmental performance through green dynamic capabilities.

The study reveals that **H6d** is accepted. Results show that GPI'' mediates the relationship between GDC and GCA ( $t = 1.687$ ;  $p < 0.05$  and  $VAF = 51\%$ ). Singh et al. (2022) elucidate that utilising GDC and making investments in green process innovation may help a firm stand out from its competitors, draw in environmentally concerned customers, and achieve a green competitive advantage. Moreover, businesses with robust GDCs are skilled at identifying emerging consumer trends, legal requirements, and environmental trends. This gives them a green competitive advantage by allowing them to anticipate and fulfil consumer demands for innovative green processes and products. The findings suggest that hotels with higher GDC have a higher probability of achieving GCA through green process innovations. Hotel managers can set themselves apart from the competition by having high GDCs and obtain a green competitive advantage by implementing green process innovations to generate eco-friendly products. GCA encompasses a hotel's capacity to offer green process innovation that is better than that of their competitors, to invest more in environmental development compared to most of its competitors and ensuring a competitive advantage of lower environmental management expenses in comparison to its main rivals.

### **8.3.5 Moderating effects of green self-efficacy**

**H7a** proposes that GSE moderates the relationship between GDC and GPI'. The results confirm the significant positive moderation effect of GSE on GDC and GPI' ( $\beta = 0.762$ ;  $t = 9,271$ ;  $p < 0.05$ ). This shows that hotel managers with higher levels of green self-efficacy can create and develop new environmentally safe products because they are confident in their ability to meet environmental goals and can carry out environmental missions successfully. Additionally, hotel managers who believe in their abilities to overcome environmental challenges will come up with innovative solutions to achieve green product innovation. Managers with higher green self-

efficacy take into account environmental problems, pay attention to the appeal of their work, and use GDC, such as green resources and knowledge, to achieve green product innovation. Consequently, the utilisation of GDC by managers with high GSE will improve the growth of green product innovation, save energy, control greenhouse gases, reduce pollution, reduce waste, and employ environmental supervision (Akhtar et al., 2021).

The study illustrates that GSE significantly moderates the relationship between GDC and GPI' (t = 6,871; p < 0.05). **H7b** Alshebami et al. (2023) assert that managers with higher GSE have the ability, strength, and belief in themselves of being able to achieve environmental objectives. Green process innovation heavily depends on the utilisation of green ideas, knowledge and resources, which are elements of green dynamic capabilities. Therefore, managers' confidence and ability in attaining environmental goals is pivotal (Guo, 2022). The outcome of the study shows that managers believe in their ability to carry out green environmental ideas, carry out green environmental missions successfully, overcome green environmental challenges, and come up with creative green solutions to attain green process innovation. Moreover, high GSE encourages leaders to disseminate, promote, and stimulate green knowledge ideas and resources to achieve green process innovation.

### **8.3.6 Moderating effects of environmental concern**

- H8: Environmental concern moderates the relationship between GDC and (a) green product innovation and (b) green process innovation.

The results verify the moderating effects of EC in the relationship between GDC and GPI' in support of **H8a**. The findings suggest that EC is a mechanism through which GDC can affect GPI' (t = 1,687; p < 0.05). When executives devote their limited time and attention to environmental issues on a regular basis, they gain a keen understanding of environmental problems, allowing them to identify and respond to them (Sun & Sun, 2021). The findings imply that with the enhancement of environmental concerns, hotel managers are responsible for green innovation and use green dynamic capabilities to produce green products. Simultaneously, managers' concern for the environment fosters the development of green products by reducing

the production of products that waste resources, and instead, creating products with low energy consumption, and making products that are easily recyclable and biodegradable. This is supported by Huang, Huang, Lu, Chau and Zeng (2020), who state that executives with strong environmental concerns allocate their resources and capabilities in ways that improve green product innovation performance (Xie, Abbass & Li, 2024). This suggests that hotel managers who are concerned about the environment implement ideas for new and existing green services, and they assimilate, identify and implement new green information, knowledge, and resources to help increase green product innovation in their firms.

The results prove the moderating effects of EC in the relationship between GDC and GPI" in support of **H8b**. The results indicate that EC is a mechanism by which GDC affects GPI". This proves that leaders and managers of hotels with strong environmental concern actively integrate GDC by assessing how green changes in the business environment may affect customers, and by evaluating green products and services, utilising green knowledge in new services. Consequently, this will promote green process innovation. Green innovation is heavily determined by firms' environmental concern, providing a unique method for firms to use green dynamic capabilities to achieve green process innovation (Tan et al., 2022). The results reveal that hotel leaders with a high environmental concern are typically anxious about the status of the environment and its implications for the future and have a strong desire to resolve environmental problems that have an impact on their company and society. As a result, new green ideas, knowledge, and resources are developed and put into practice to promote green process innovation. The study's results offer new perspectives on the intricate relationships between green dynamic capabilities and the performance of South African hospitality businesses, with green self-efficacy and environmental concern acting as moderators and green product and process innovation acting as mediators. The next section discusses the implications of the study.

## **8.4 IMPLICATIONS AND RECOMMENDATIONS**

The implications and recommendations of the study consist of the theoretical, empirical, practical and political contributions.

### **8.4.1 Theoretical implications**

The study developed and tested a new theoretical model to link green dynamic capabilities to different areas of performance and underlying mechanisms through which GDC can affect hospitality firms and their actions. Prior research have not dwelled much into literature on the relationship between green dynamic capabilities, green innovation, and performance; therefore, this study is the first of its kind to establish a new model that enhances the theoretical model of dynamic capabilities and performance (financial performance, social performance, environmental performance and green competitive advantage) with the mediating role of green innovation and the moderating roles of green self-efficacy and environmental concern. The addition of mediating and moderating variables in the model helped the researcher identify intervention mechanisms in the relationship between green dynamic capabilities and the performance of firms.

This study contributes to the stakeholder theory, the RBV, the NRBV and dynamic capabilities framework theories. The stakeholder theory posits that a company is only successful when it delivers value to its stakeholders (Fares, Chung & Abbasi, 2021). The RBV suggests that making the most use of available resources and capabilities improves a firm's performance (Barney, 2001; Kero & Bogale, 2023). Similar to the theory of dynamic capabilities, it provides firms with a learning path that aligns with market demands. The theory aids in identifying the procedures used by a company and its community to overcome challenging circumstances (Cabral & van Winden, 2022; Shiferaw & Amentie Kero, 2024). On the other hand, the NRBV incorporates the limitations imposed by the natural environment to conceptualise resources (Hart, 1995). From this viewpoint, the firm's RBV does not clarify why some organisations are proactive, while others are reluctant to use green resources to achieve environmental sustainability (Barney, 1991; Liboni, 2022). As such, the NRBV was adapted for this study with an emphasis on pollution control measures to reduce environmental harm in businesses. The findings of this study reveal that NRBV, directly through green dynamic capabilities, influences green innovation and financial, social,

environmental performance and a green competitive advantage. GDC is an expansion of the dynamic capabilities theory as it considers green practices and environmental measures to address business issues related to the environment to enhance sustainable development. These theories help managers and researchers comprehend the notions of green dynamic capability, green innovation, financial, social and environmental performance, and also green competitive advantage.

The study makes a novel significant contribution in the following ways; traditionally, researchers have explored the effect of dynamic capabilities across different contexts, such as financial performance and competitive advantage. However, the new paradigm is the use of target-specific dynamic capabilities to predict specific outcomes on environmental performance. The integration of dynamic capabilities with greening of the environment is termed green dynamic capabilities (GDC). This is one of the early studies that focuses on how green dynamic capabilities (not dynamic capability) affect not only financial performance, but also social performance, environmental performance and a green competitive advantage. The novelty of the study links green dynamic capabilities not only to financial performance, but to various new mechanisms of performance. To the best of the researcher's knowledge, the mediating and moderating variables in the conceptual model of the study have not been tested in green dynamic capabilities studies. This study used a multidimensional approach in developing a new measure of green innovation (mediating role), while most available studies on green innovation have adopted the uni-dimensional approach (to measure green innovation). This study created a distinctive approach by using the multidimensional approach (green product innovation and green process innovation) to measure green innovation. No other studies have tested the measures of GI on green dynamic capabilities; as such, this study enabled the researcher to identify how measures of green innovation, namely, green product innovation and green process innovation, mediate green dynamic capabilities and the performance of hospitality firms.

The study also used the moderating roles of green self-efficacy and environmental concern. Thus, this research is one of the few that discusses GSE and EC as moderators, meaning that this research supplies a significant contribution to novel knowledge on the importance of encouraging green self-efficacy and environmental

concern among hotel leaders to ensure better sustainable performance. The study confirmed the significant effect of green dynamic capabilities on performance (financial performance, social performance, environmental performance and green competitive advantage). This proposes that rather than directly addressing environmental issues, hotels are more likely to allocate green resources through green dynamic capabilities toward more environmentally productive activities, such as green product innovation and green process innovation, green self-efficacy, and environmental concern to enhance performance.

While studies have focused on DC, this study focuses on GDC. This study contributes significantly to current knowledge of sustainable performance by incorporating green competitive advantage. This study further uses green competitive advantage as a measure of performance to provide further understanding on the relationship between GDC and the performance of hospitality firms. Thus, this is among the first studies to use green competitive advantage to build an understanding of why firms not only achieve performance through the TBL, but why they are more likely to achieve performance through the sustainability measures and green competitive advantage. The study contributes to body of knowledge on the relationship between green dynamic capabilities, environmental, social, and environmental performance, and green competitive advantage, while exploring how green innovation mediates this relationship. The existing literature does not examine empirically the mediating role of green innovation in this relationship. Moreover, this research contributes to knowledge by examining the moderating impact of green self-efficacy and environmental concern on the link between green dynamic capability and green innovation (green product innovation and green process innovation). Previous literature did not use a moderator in green dynamic capability and the relationship with green product and green process innovation. It is therefore, anticipated that the results will be useful to scholars and researchers in the future, who might utilize the findings to carry out additional research

#### **8.4.2 Empirical implications**

Research has mostly focused on dynamic capabilities and firms' financial performance. This study focused on how new constructs of green dynamic capabilities affect performance (financial, social and environmental performance, and green

competitive advantage). Therefore, empirically, the study contributes to knowledge on how an environmental strategy, such as green dynamic capabilities, may impact not only financial performance, but also social and environmental performance, as well as green competitive advantage. Studies on green dynamic capabilities and different sustainable performance measures are scarce. The results encompass research that indicates a significant and positive relationship between GDC and performance (Li, 2022; Sun et al., 2022 and Arshad et al, 2023). A research gap for this study was created by the paucity of studies on the expanded relationships. Arshad (2023) examined the effect of green innovation and green dynamic capabilities in business as a way of achieving long term sustainability and discovered a significant relationship. Nevertheless, the research did not employ the Triple Bottom Line (financial, social and environmental performance) and green competitive advantage as measures of performance. The current study's novelty is that it generates new empirical results on the relationship between GDC and each performance measure, which had not been examined in South Africa. The study further contributes to novel empirical literature by testing the mediation effect of GI (green product innovation and green process innovation) between GDC and performance (financial, social and environmental performance and green competitive advantage). The findings of the study adds to the body of knowledge on green dynamic capabilities, green innovation and sustainable performance in strategic management.

#### **8.4.3 Managerial and practical implications**

This research examined how green dynamic capabilities impact the performance of hospitality firms. By examining the relationships between GDC, performance (FP, SP, EP, GCA); GI (GPI' & GPI''); GSE and EC, this section provides substantial implications for managers and hospitality firms to enhance their sustainability strategies.

##### **➤ Implications on GDC and performance**

The study identified that there is a significant positive relationship between GDC and (a) financial performance, (b) social performance, (c) environmental performance, and (d) green competitive advantage. Based on these findings, it is recommended that managers prioritise enhancing green dynamic capabilities and integrate them into their long-term environmental strategic plans. This suggests that managers may have to

enhance their knowledge and comprehension of environment-friendly practices within their hotels. According to this study, managers should combine their skills and resources to develop green concepts that will also eventually improve their firm's social and environmental performance. These concepts are fundamental to the development of sustainable practices, green strategies, and long-term planning for environmentally conscious firms. Additionally, this study recommends that managers develop the necessary resources, and their internal and external green initiatives and goals that can support actions that are environment-friendly and less harmful to the environment, consequently leading to financial, social and environmental performance. This will also positively address their compliance with the triple bottom line requirements. Firms should aim to achieve have pleasant working environments, where senior management offers guidance, as this is essential to motivating managers and employees to apply their green ideas to address social and environmental problems. These firms should cooperate with stakeholders in the provision of CSR programmes. Moreover, to enhance the green economic and environmental performance of their hospitality businesses, they should also capitalise on consumer's willing to pay extra for green products. The aim of any organisation is to consistently outperform its competitors and improve on its previous financial and market performance. Simultaneously, businesses face numerous challenges in increasing their market share due to shortage of financial and other resources. However, managers and the owners of these businesses can create GDC to enhance financial performance by reducing wasteful expenditure and utilising their green competitive advantage. To foster GDC and generate more income and a green competitive advantage in the green market, managers should proactively recognise and take advantage of environmental opportunities and reorganise their resources to effectively address sustainability challenges.

➤ **Implications on GDC and green innovation**

There has been an increasing emphasis in recent years on firms to “go green” and lessen their adverse environmental impact. Given that there are two different kinds of green innovation, firms should take advantage of both. In addition, when resources are scarce, firms should prioritise green process innovation to stimulate green product innovation. The study identified that there is a significant positive relationship between

GDC and (a) green product innovation and (b) green process innovation. Based on these findings, it is recommended that businesses ought to prioritize on developing their green dynamic capabilities. Acquiring green knowledge and abilities can enhance a green dynamic capability, which results in stimulates innovation in green processes and products. This implies that South African hotels can improve their overall green dynamic capabilities by actively incorporating green knowledge through ongoing learning and training gearing their strategies toward including all important aspects for sustainable development and. This includes training and helping their employees become more knowledgeable about the environment and developing innovative concepts for sustainability. By strengthening their capacities and establishing the groundwork for their green sustainable development, this can effectively and swiftly help firms complete their green process innovation and develop green products. Enterprises need to proficiently develop and incorporate expert environmental technologies and acquire the ability to assess their surroundings and be alert toward rapid and disruptive changes. They have to comprehend the guidelines and advancements of the sector they operate in, and promptly produce environmentally friendly products and processes. These businesses can alter their supplier networks to provide enough resources and competencies to maintain their environmentally friendly operations and products, considering the important role of all stakeholders. Hotels should develop environmentally friendly goods and processes that minimise environmental damage and use green dynamic capabilities and other green resources to accomplish sustainability.

➤ **Implications on green innovation and performance**

The results of the study revealed that green product innovation and green process innovation are significantly positively related to (a) financial performance, (b) social performance, (c) environmental performance, and (d) green competitive advantage. Hospitality firms can emphasize their green innovation programs as a marketing strategy to become more well-known and apparent in the marketplace, which will eventually inform a larger public audience and customers of their green positioning. Since consumers prefer to use green products and services, and support a firm's publicised green processes, changing toward green processes will attract the support

by eco-friendly consumers and will increase sales and revenue of the firm. Another financial advantage of green processes is the firms' ability to save money by reducing wastage and their ecological footprint in workstations. These savings could go toward research and development projects that promote sustainable development, like renewable energy investments. To achieve the best possible outcomes for the environment, society, and business, managers need to embrace sustainability, take calculated risks, and fund green technology innovation projects. Hotels should focus more on raising the calibre of green innovations in their own firms because only substantial, high-quality innovations can genuinely lower production costs, enhance product differentiation over time, and develop an enterprise's range of skills, all of which will enhance both the financial and environmental performance of the firm. The implementation of green product and green process innovation by businesses is not only beneficial to the enterprises themselves, but it is also of benefit to the environment, and even to society. Hospitality firms should give green branding a priority since it increases consumers' awareness of such product differentiation and advantage, however, it will also increase customers' readiness to pay more for ecologically friendly products and process, which increases the market share and social and environmental performance. Hotels can enhance their green reputation by informing guests about the measures they have implemented to safeguard the environment, including recycling energy and water conservation, avoiding single-use items, and reducing or eliminating hazardous releases into the air, water, and soil.

To build a solid but up-to-date business image, firms should proactively address social and environmental concerns of their stakeholders and consider them when developing innovative green products and processes. Furthermore, hotels should proactively cultivate good relationships with stakeholders, as well as put efforts in to acquire and distribute the resources necessary for the development of green products and green processes. According to some experts, a business can achieve green innovation as a long-term breakthrough, while it is still maintaining its green competitive advantage and environmental sustainability (Zhu et al., 2023). Therefore, hospitality firms are encouraged to utilise green innovation since innovative efforts can be realised in the development of green goods and processes, differentiating businesses from their competitors and attracting customers who value sustainability. Among the evident advantages are an increased market share and an enhanced an advantage

over competitors in the environmentally friendly market. The study's outcomes recommend beneficial practices for green process innovation and green product innovation that yield positive results on FP, SP, EP and GCA.

### ➤ **Implications on mediation effects of green innovation**

The findings of this study revealed that green product innovation and green process innovation mediate the relationship between GDC and a) financial performance, (b) social performance, (c) environmental performance, and (d) green competitive advantage. The goal of any organisation is to consistently outperform its previous financial and market performance. Thus, the findings show that managers and leaders can effectively attain improved financial, social and environmental performance and attain and keep a green competitive advantage by utilising green dynamic capabilities to achieve green innovation. The latter is the primary tool for effectively keeping competition at bay in dynamic marketplaces through green products and green processes. Hotels can, therefore, use green dynamic capabilities to combine their resources and abilities resulting in the production of green product and green process innovations, which will improve the financial, environmental and social performance. These concepts are critical to businesses seeking to be environmentally responsible to achieve sustainability and long-term planning. Managers and business leadership should dedicate more time to utilising efficient resources in order to improve their green dynamic capabilities. This because green dynamic capabilities promote the development of green products and processes innovation, leading to enhanced financial, social and environmental performance. Moreover, green knowledge and green learning should be used as proactive strategic behaviours to improve green innovation capabilities and achieve sustainable performance.

Hotels should create positive work environments where management offers direction and through role-modelling motivates employees to apply their creative, green ideas to resolve financial and environmental problems. The study suggests that hospitality firms need to prioritise improving their green dynamic capabilities by learning about the ecological requirements that customers have for their products and by identifying green innovation trends in the sector. In addition, managers need to establish a capable environmental protection division and work closely with the departments of research and development, production, and marketing to create environmental strategies that will achieve financial, social, and environmental performance and ensure a green competitive advantage. Managers must also prioritise the implementation of CSR initiatives and adopt the most appropriate practices for

fostering organisational GDC to implement green products and processes, resulting in improved social performance and a green competitive advantage. Hospitality firms should encourage managers who have strong moral commitments to social responsibility and offer green learning in a setting outside of the office to strengthen these leaders' sense of duty and encourage the green product and processes in the business. Businesses can stand out positively from their rivals, draw in environmentally conscious customers, and grow their market share by creating innovative green products and green process innovations. Thus, the study recommends that managers need to put these tactics and approaches into effect and develop environmental strategies to attain financial, social and environmental performance, and a green competitive advantage.

➤ **Implications on moderating effects of green self-efficacy**

The research proves the function of green self-efficacy as a mediating factor in the relationship between green process and product innovation and green dynamic capabilities. This study emphasises that managers who have higher levels of green self-efficacy, confidence, and self-belief can generate better green innovative ideas for products and services by utilising green resources and capabilities, which lower production costs, boost sales for businesses, and protect the environment. Therefore, it is recommended that green training programmes be developed to enhance hotel managers' green self-efficacy. Training, as a learning process, gives leaders and managers the tools they need to become more conscious and competent in green activities. This helps to improve their views of their own competence in coming up with novel ideas for environmentally friendly products and processes, as well as in implementing innovative steps toward achieving and maintaining sustainability efforts. Eco-friendly actions will increase managers and employees' performance by giving them more confidence in their ability to meet environmental goals and generate innovative solutions.

Managers should integrate their market orientation into their innovation strategies and help employees build green self-efficacy to improve performance. Green product innovation implications will reduce the pollution caused by the hospitality industry in the environment, and managers can gain knowledge about how these practices can

assist their businesses and the government to address environmental problems. The study provides policymakers with recommendations for raising companies and leaderships' green self-efficacy to ensure greater green dynamic capabilities, and the implementation of green product and process innovation in South African hospitality firms. Enhancing these strategic resources can be done with training centres, organisational development, through universities and research institutions. These organisations offer training courses, programmes that promote self-confidence, and hospitality orientation programmes. For hotel managers, there could be some knowledge-enrichment programmes on green innovation, green dynamic capabilities, and environmental protection. Managers need to know how to control and reduce any actions or practices that their firm may have that negatively impact the environment. Instead, they have to be taught to understand the advantages of creating green products, services and processes that will have a beneficial effect on both their financial performance and the environment.

Environmental policies can be developed by businesses and the government to impose green production in business operations. Many hospitality firms already may have a green policy statement outlining their commitment to sustainable environmental management and emphasising to management and employees how important it is to provide environmentally friendly products and processes. Government can also establish environmental policies specifically aimed at the hospitality industry, which requires businesses to follow specific laws and regulations in order to minimise environmental pollution by implementing innovative green products and green processes. Green environmental policies created through consultation with the sector and enforced by businesses and government will help develop green production and innovation as leaders and workers will make a sustainable environment their priority.

➤ **Implications on moderating effects of environmental concern**

The results of the study highlight that environmental concern significantly mediates the relationship between green dynamic capabilities and green product innovation and green process innovation. Managers' concern for the environment is a unique resource that can either increase or decrease the enterprise's value. It has a big influence on the business' sustainable environmental and financial performance. The more managers examine environmental problems, the more environmentally

concerned they become, which increases the likelihood that firms will innovate green products and processes to increase their firm's sustainability and competitiveness. The study recommends that environmentally conscious managers should fully utilise their green dynamic capabilities, such as green internal and external resources and their green knowledge and improve resource flexibility and departmental communication as a means to enhance green products and green process innovation. Hotels should also use resource flexibility to address the issue of low resource utilisation rates, which will encourage the development of green processes and products.

The importance of managerial environmental concern enhances the impact of green dynamic capabilities on green product and process innovation. Thus, by establishing the environment a managerially meaningful and prominent concern, businesses may foster green innovation as a performance improvement strategy. Government policy can promote green innovation by using penalising mechanisms, such as tariffs and quotas, or progressive policies like grants and reimbursements. By doing this, managers' perceptions of green innovation become more prominent, which encourages managerial environmental concern and the enhancement of green dynamic capabilities. The government of South Africa has pledged to reduce emissions and environmental pollution by signing the Paris Climate Agreement. Promoting and funding (directly or indirectly through tax rebates), green innovation is a significant tool for reducing emissions. Additionally, environmental management systems (EMS) certifications, such as ISO 14001 or the Eco-Management and Audit Scheme (EMAS) ought to be promoted extensively. There should be an increase in the penalty for breaking environmental protection regulations. Taxes can be used in tandem to enhance eco-innovation performance. The next subsection covers the political implications of the study.

#### **8.4.4 Policy implication**

The obtained results have significant implications for developing environmental strategies for South African hospitality firms. The study suggests that the governmental and non-governmental agencies responsible for creating laws and regulations increase the awareness of green innovation, green dynamic capabilities and capacities, and sustainable performance. To help lessen the harmful effects on

the environment and the resulting problems, such as pollution and resource emissions, government needs to effectively execute initiatives such as the Green Development Programmes. This should help increase business's awareness of the problems, raise their moral (and financial) sense of responsibility and accountability regarding the caused environmental issues and thereby also enhance business's financial, environmental, and social performance. Environmental agencies of the government should develop legislations that prevent environmental degradation, specifically targeted at the biggest culprits in the various industries. Therefore, the study aims to stimulate policymakers to develop new, effective green programmes that will support and enhance environmental sustainability. Such programmes could open the door for creation and application of successful green rules, practices and approaches in the hospitality industry, which would ultimately result in beneficial environmental outcomes. Furthermore, it is recommended that the government take proactive measures to develop environmental regulations that are tailored to the specific industry, size, and sub-category of the hospitality industry. This will ease the integration of green product innovation by hospitality firms, allowing them to improve their green dynamic capabilities and strengthen their market position.

The study suggests that to encourage green dynamic capabilities and green innovation, government policies should make use of either punitive tools like tariffs and quotas or progressive ones like grants and rebates. Government can also implement the objectives of continuous emission reduction and sustainable environmental management in a better monitored, controlled manner by providing incentives for green innovation initiatives with a significant green content and by subsidising the price of green products. Such activities could strengthen managers' views of green product and process innovation, while every implementation of such GI actions and their successful translation into financial performance would increase managers' green self-efficacy and address their environmental concern in an active, positive manner. In 2023, South Africa ratified the Paris Climate Agreement, demonstrating its commitment to lowering emissions and halting environmental deterioration. Therefore, the study highlights that government's support for green dynamic capabilities and green innovation is essential because, in the absence of such support, hospitality firms may be less likely to adopt these strategies. This would have a negative impact on the green competitive advantage and sustainable

performance of the hospitality firms. The study's findings and recommendations should be helpful in forming South Africa's environmental hospitality policy framework, which calls for businesses and the government to work together to adopt solutions to address and lessen environmental issues. Despite numerous contributions, a number of limitations need to be carefully taken into account before drawing any final conclusions. The next section presents the study limitations and potential areas for further study.

## **8.5 LIMITATIONS OF THE STUDY AND AREAS FOR FUTURE STUDIES**

Although this study contributes significantly to theory, with empirical, practical, and political implications, it has several limitations that should be considered by researchers in future studies. The cross-sectional approach was adopted to conduct this research, and therefore, the researcher is not certain that the identified GDC, GI, GSE, EC, FP, SP, EP and GCA in hospitality firms would offer identical results over a prolonged period. Therefore, future scholars could use the longitudinal approach in a similar context to extend the generalisability of the results. Since the data was collected through self-report measures, the results may inevitably contain some self-reported and social desirability biases. It is also possible that individuals other than the targeted participant completed the survey on their behalf. The study collected data for statistical analysis only from hospitality firms situated in the Gauteng and Limpopo provinces in South Africa. As a result, the findings may not be generalisable to other geographical areas in South Africa, therefore, future research should widen the area of the study to other regions in South Africa and internationally

The study examined a sample of hospitality firms in South Africa, with a focus on leaders. Future research may use a sample from various industries, such as manufacturing, retail, or agriculture, to evaluate the impact of green dynamic capabilities and green innovation on firm performance (financial, social, and environmental performance and green competitive advantage). Researchers could draw comparisons between the results of this study and those from other industries, noting any possible reasons for similarities or discrepancies.

This study used a uni-dimensional measure of GDC. Therefore, future search can utilise a multidimensional approach to measures GDC. This should enable researchers to identify how measures of GDC, such as green sensing, green learning, green coordination and green integration, affect firms' performance. Furthermore, the study adopted financial, social and environmental performance and a green competitive advantage as measures of performance. Future studies could examine new measures of performance, such as innovation performance. Green self-efficacy and environmental concern were utilised as moderators. However, evaluating GSE and EC as multidimensional constructs with different precursors can assist to capture GSE and EC in a more precise manner. Therefore, a result, the study suggests that future researchers measure GSE and EC in a multidimensional approach. In addition, future research can investigate new moderating variables, such as environmental volatility and mediating variables, such as green marketing.

Another limitation is using a single method for data collection. For this study, a quantitative research methodology was utilized. Further research can develop novel constructs to expand the model by further exploring in depth the dimensions of GDC, GI, GSE, EC and GCA through a qualitative approach. This is because future studies may benefit from qualitative approaches, establishing in depth the reasons for certain behaviour by management in the hospitality industry regarding the environment. Such investigations may yield findings, ultimately resulting in a greater understanding of further specific moderators and mediators. This can also be used to build a conceptual model that has more theoretical and practical implications.

## **8.6 SUMMARY**

This chapter's main goal was to summarize the study's major results. The chapter provided a summary of the results based on the purpose and primary objective of the study as well as each of the many hypotheses that were investigated. Results from the statistical tests were obtained. This chapter laid out the implications rising from the findings and the recommendations made based on these findings. These included theoretical, empirical, managerial, practical and policy implications. The study also provided a discussion of the study's limitations and recommendations for future research areas. These were designed to give the study's field significance by

establishing the relationship between firms' green dynamic capabilities and financial, social, and environmental performance, as well as green competitive advantage

Overall, the study's goals were met as each hypothesis was examined and tested. The study's evident conclusions were that hospitality firms may benefit greatly from environmentally friendly activities, as evidenced by positive and significant correlations between GDC, GPI', GPI'', GSE, and EC with performance measures, such as financial performance, social performance, environmental performance, and a green competitive advantage. In summary, the researcher concluded that by developing green products and implementing green processes through green dynamic capabilities, green self-efficacy and managers' environmental concern, hospitality firms will be able to achieve sustainable performance, hence promoting their own enhanced economic and environmental performance, but also contribute meaningfully to a South African economic growth and development.

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## ANNEXURES

### ANNEXTURE 1 QUESTIONNAIRE

Dear Participant

My name is Mpho Mokgaetji Chidi a student from the University of Limpopo, currently studying Doctor of Commerce in Business Management. I am conducting research on Green Dynamic Capabilities and Performance of Hospitality firms in selected municipalities in Limpopo and Gauteng provinces. The findings of my research will help the researcher to analyse and make recommendation that will help managers to implement green dynamic capabilities which will benefit the hotels as well as guests. This questionnaire is for academic purposes only and confidentiality will be highly maintained. As a participant you are not obliged to disclose your name. I would like to have a small period of your time to answer the following set of questions. However, completion of the questionnaire is voluntary.

#### SECTION A: DEMOGRAPHIC INFORMATION

Please mark the right answer with an X

1. Position

|       |                         |                 |
|-------|-------------------------|-----------------|
| Owner | Chief Executive Officer | General Manager |
| 1     | 2                       | 3               |

2. What is your gender?

|             |  |
|-------------|--|
| Male<br>1   |  |
| Female<br>2 |  |

3. What is your age?

|          |       |       |       |       |          |
|----------|-------|-------|-------|-------|----------|
| Below 20 | 20-30 | 31-40 | 41-50 | 51-60 | Above 60 |
| 1        | 2     | 3     | 4     | 5     | 6        |

4. What is your level of education?

|            |        |             |
|------------|--------|-------------|
| Pre-matric | Matric | Post matric |
| 1          | 2      | 3           |

5. What is the scale of your hotel?

|               |               |              |
|---------------|---------------|--------------|
| 3 stars hotel | 4 stars hotel | 5-star hotel |
| 1             | 2             | 3            |

6. Number of years in hotel operation (Experience)

|         |               |                |                |                 |
|---------|---------------|----------------|----------------|-----------------|
| Below 5 | 6-10<br>years | 11-15<br>years | 16-25<br>years | 26 and<br>above |
| 1       | 2             | 3              | 4              | 5               |

7. How many employees do you have in your hotel?

|       |        |           |
|-------|--------|-----------|
| 11-50 | 51-250 | Above 250 |
| 1     | 2      | 3         |
|       |        |           |

## SECTION B: GREEN DYNAMIC CAPABILITIES

Read the statements below about green dynamic capabilities measurements and indicate your level of agreement or disagreement. Please mark the right answer with an **X**

| <b>Green Dynamic Capabilities</b>                                                                                             | <b>Strongly disagree<br/>1</b> | <b>Disagree<br/>2</b> | <b>Neutral<br/>3</b> | <b>Agree<br/>4</b> | <b>Strongly agree<br/>5</b> |
|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-----------------------|----------------------|--------------------|-----------------------------|
| 1. Our hotel continuously search the environment for new green business prospects.                                            |                                |                       |                      |                    |                             |
| 2. Our hotel assesses how green changes in the business environment may affect customers.                                     |                                |                       |                      |                    |                             |
| 3. Our hotel constantly evaluate green products and services to ensure that they meet the needs of the clients.               |                                |                       |                      |                    |                             |
| 4. Our hotel spends a great deal of time implementing ideas for new green services and improving our existing green services. |                                |                       |                      |                    |                             |
| 5. Our hotel has effective routines to identify, value and import new green information and knowledge.                        |                                |                       |                      |                    |                             |
| 6. Our hotel has appropriate routines to assimilate new green information and knowledge.                                      |                                |                       |                      |                    |                             |

|                                                                                                                          |  |  |  |  |  |
|--------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| 7. Our hotel is effective in transforming existing green information into new green knowledge.                           |  |  |  |  |  |
| 8. Our hotel has is effective in utilising green knowledge in new services.                                              |  |  |  |  |  |
| 9. Our hotel is effective in developing new green knowledge that has the potential to influence service development.     |  |  |  |  |  |
| 10. In our hotel, employee's individual green ideas are channelled to the management through their departmental head.    |  |  |  |  |  |
| 11. In our hotel, employees have a global understanding of each other's green tasks and responsibilities.                |  |  |  |  |  |
| 12. In our hotel, employees are fully aware of who in the firm has relevant green skills and knowledge.                  |  |  |  |  |  |
| 13. In our hotel, employees carefully interrelate green actions between members of the firm to meet changing conditions. |  |  |  |  |  |
| 14. In our hotel, employees manage to successfully                                                                       |  |  |  |  |  |

|                                                                                                                        |  |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| interconnect their green activities.                                                                                   |  |  |  |  |  |
| 15. Our hotel ensures appropriate allocation of resources (e.g. information, time, reports to green ideas and action). |  |  |  |  |  |
| 16. In our hotel, employees are assigned to green tasks commensurate with their relevant knowledge and skills.         |  |  |  |  |  |
| 17. Our hotel ensures that employees' green expertise is compatible with the work processes they are assigned to.      |  |  |  |  |  |
| 18. In our hotel, the green ideas and actions of our employees are well coordinated.                                   |  |  |  |  |  |

## SECTION C: GREEN INNOVATION

Read the statements below about the components of Green Innovation and indicate your level of agreement or disagreement. Please mark the right answer with an **X**

| <b>Green Innovation</b>                                                                                                 | <b>Strongly disagree<br/>1</b> | <b>Disagree<br/>2</b> | <b>Neutral<br/>3</b> | <b>Agree<br/>4</b> | <b>Strongly agree<br/>5</b> |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------------|-----------------------|----------------------|--------------------|-----------------------------|
| <b>Green Product Innovation</b>                                                                                         |                                |                       |                      |                    |                             |
| 1. Our hotel takes into consideration the environment in developing products and services for our customers.            |                                |                       |                      |                    |                             |
| 2. Our hotel uses technology to make energy and water savings and reduce pollution.                                     |                                |                       |                      |                    |                             |
| 3. Our hotel uses innovative and environmentally friendly product materials that produce the least amount of pollution. |                                |                       |                      |                    |                             |
| 4. Our hotel would deliberately use products that are easy to recycle and reuse.                                        |                                |                       |                      |                    |                             |
| <b>Green Processes Innovation</b>                                                                                       |                                |                       |                      |                    |                             |
| 1. Our firm uses recycled and reused material in the process of providing services to customers.                        |                                |                       |                      |                    |                             |
| 2. Our hotel uses less material in the in the process of providing services to customers.                               |                                |                       |                      |                    |                             |

|                                                                                                                                          |  |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| <p>3. Our hotel has reduced pollution and emission of hazardous substances in the in the process of providing services to customers.</p> |  |  |  |  |  |
| <p>4. Our hotel uses low energy and water in the process of providing services to customers.</p>                                         |  |  |  |  |  |

## SECTION D: PERFORMANCE

Read the statements below about the components of sustainable performance and green competitive advantage and indicate your level of agreement or disagreement.

Please mark the right answer with an X

| <b>Sustainable Performance</b>                                                              | <b>Strongly disagree<br/>1</b> | <b>Disagree<br/>2</b> | <b>Neutral<br/>3</b> | <b>Agree<br/>4</b> | <b>Strongly agree<br/>5</b> |
|---------------------------------------------------------------------------------------------|--------------------------------|-----------------------|----------------------|--------------------|-----------------------------|
| <b>Financial Performance</b>                                                                |                                |                       |                      |                    |                             |
| 1. The profit of our hotel has increased in the last three years.                           |                                |                       |                      |                    |                             |
| 2. The fixed assets of our hotel have increased in the last three years.                    |                                |                       |                      |                    |                             |
| 3. The working capital of our hotel has increased in the last three years.                  |                                |                       |                      |                    |                             |
| 4. The sales of our hotel have increased in the last three years.                           |                                |                       |                      |                    |                             |
| <b>Social Performance</b>                                                                   |                                |                       |                      |                    |                             |
| 1. There is an increase in customer satisfaction in our hotel.                              |                                |                       |                      |                    |                             |
| 2. There is a decrease in staff turnover in our hotel.                                      |                                |                       |                      |                    |                             |
| 3. There is increased employee satisfaction in our hotel.                                   |                                |                       |                      |                    |                             |
| 4. Our hotel has increased contribution to the local community for social and green issues. |                                |                       |                      |                    |                             |

|                                                                                                                                                                                                     |  |  |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| <p><b>Environmental Performance</b></p> <p>1. These are improvement in the efficiency of raw materials and reduction in resource consumption (energy and water).</p>                                |  |  |  |  |  |
| <p>2. There is an increase in recycling of materials.</p>                                                                                                                                           |  |  |  |  |  |
| <p>3. There is a reduction in the cost of environmental compliance and increased overall reputation in respects of products and services.</p>                                                       |  |  |  |  |  |
| <p><b>Green Competitive Advantage</b></p> <p>1. Our hotel has competitive advantage of low cost in the area of environmental management and green innovation compared to its major competitors.</p> |  |  |  |  |  |
| <p>2. The quality of the green products or services that our hotel offers are better than of our major competitors.</p>                                                                             |  |  |  |  |  |
| <p>3. Our hotel is more capable of investing in environmental development and green innovation compared to its major competitors.</p>                                                               |  |  |  |  |  |
| <p>4. Our hotel is more capable of environmental management compared to its major competitors.</p>                                                                                                  |  |  |  |  |  |

**SECTION E: LEADER’S GREEN SELF-EFFICACY AND LEADER’S CONCERN FOR THE ENVIRONMENT**

Read the statements below about the components of leader’s green self-efficacy and concern for the environment and indicate your level of agreement or disagreement.

Please mark the right answer with an **X**

| <b>Green self-efficacy</b>                                                                                                      | <b>Strongly disagree 1</b> | <b>Disagree 2</b> | <b>Neutral 3</b> | <b>Agree 4</b> | <b>Strongly agree 5</b> |
|---------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------------------|------------------|----------------|-------------------------|
| 1. I can succeed in accomplishing green environmental ideas.                                                                    |                            |                   |                  |                |                         |
| 2. I can achieve most of the green environmental goals and I believe in performing effectively on green environmental missions. |                            |                   |                  |                |                         |
| 3. I can overcome green environmental problems and find creative solutions to green environmental problems.                     |                            |                   |                  |                |                         |
| <b>Leader’s concern for the environment</b>                                                                                     |                            |                   |                  |                |                         |
| 1. I am extremely worried about the state of the world’s environment and what it means for the future.                          |                            |                   |                  |                |                         |
| 2. Mankind is severely abusing the environment.                                                                                 |                            |                   |                  |                |                         |
| 3. When mankind interferes with nature, it often produces disastrous consequences.                                              |                            |                   |                  |                |                         |
| 4. I think that environmental problems are important, and we should care about them.                                            |                            |                   |                  |                |                         |

**Thank you for your participation**

**ANNEXTURE 2**  
**PERMISSION LETTER**

Mpho Chidi  
P O Box 26  
Ga - Mothiba  
0726  
27 February 2023

The Manager/Owner

**Request for permission to conduct a research study at your organisation.**

I am a Doctoral of Commerce Student in business management at the University of Limpopo. As part of my studies, I have to conduct research the impact of green dynamic capabilities on performance of firms in the hospitality sector, particularly in Limpopo and Gauteng provinces. I hereby request permission to conduct research using a questionnaire which will be distributed to you, a manager or the owner of the business. The questionnaire will have questions relating to my study, where you will be required to fill it with answers. Once I have received a permission from you, the study will be submitted to the University of Limpopo's Research Ethical committee for final approval. The findings of this study will remain confidential and anonymous. The names, addresses and contact details of the participant and institution will not be mentioned in the research report. For any additional information you can contact me or contact my study supervisor, Professor Olawale Fatoki, tell no: (015)268-2646 and email: [olawale.fatoki@ul.ac.za](mailto:olawale.fatoki@ul.ac.za) for the confirmation of my research.

Your approval to conduct this study will be greatly appreciated.

Sincerely

Ms Chidi Mokgaetji Mpho

Cell no: 082 694 8056

[Mphochidi4@gmail.com](mailto:Mphochidi4@gmail.com)

**ANNEXTURE 3**  
**CONSENT FORM**

**UNIVERSITY OF LIMPOPO**  
**DEPARTMENT OF BUSINESS MANAGEMENT**  
**FACULTY OF MANAGEMENT AND LAW**

**CONSENT FORM FOR PARTICIPATION IN AN ACADEMIC RESEARCH STUDY.**

*Green Dynamic Capabilities and Performance Of Hospitality Firms In Selected Municipalities In Limpopo and Gauteng provinces, South Africa: A Moderated Mediated Model*

Research conducted by:

Ms Chidi M.M

Cell no: 0826948056

Email: mphochidi4@gmail.com

Dear participant

You are invited to participate in an academic study conducted by Mokgaetji Mpho Chidi, a Doctor of Commerce Student in business management at the University of Limpopo.

**Purpose of the study**

The purpose of this study is to examine the relationship between Green Dynamic Capabilities and Performance of Hospitality Firms in Selected municipalities in Limpopo and Gauteng provinces, South Africa, looking at Green Innovation (green product innovation and green process innovation); green self-efficacy and environmental concern of managers.

**Please note the following:**

- This study will include a distribution of a self-administered questionnaire, where you will be required to fill in answers in the given questionnaire. Your participation in this study is important to me because it will help to know and see the results of the relationship between GDC and its effects on the performance of hospitality firms.
- Your responses to this research will be anonymous. Your names and addresses will not appear in the research report and the answers you give will be kept confidential. Your identity cannot be revealed because of the provided answers in your questionnaire.
- Your participation in this study is voluntarily. You may choose to take part in this study or withdraw from participation without any negative concerns. The results of this research will be used for academic purpose only and may be published in an article. A summary of the findings will be provided on request.
- Respect and dignity will be ensured when participating in this study, politeness, obedience and following the rules will ensure a good communication between the participant and the researcher. The information and comments given will be respected and used effectively.
- There will be no physical risks, economic risks or social risks involved when participating in this study.
- If you have questions or comments about this study, please contact my study supervisor, Professor Olawale Fatoki, tell no: (015) 268-2646 and email: olawale.fatoki@ul.ac.za.

**Consent**

I have read and understand the information provided above. I understand that my participation is voluntary, and I give my consent to participate in this study.

Participant's signature \_\_\_\_\_ Date \_\_\_\_\_

I believe the participant is giving informed consent to participate in this study.

Researcher's signature \_\_\_\_\_ Date \_\_\_\_\_

**APPENDIX 4**  
**PROOF OF ENGLISH EDITING**

Barbara Wood  
Tel: +27 44 873 5145  
cell: 082 9022 571  
E-mail: woodlandmedia@gmail.com  
8 Suikerbossie Street  
Bergsig, George 6529  
Western Cape, South Africa

To whom it may concern

**Editing Certificate**

I, Barbara Wood, hereby confirm that I am a registered professional researcher and editor and have edited the following academic document:

**GREEN DYNAMIC CAPABILITIES AND PERFORMANCE OF HOSPITALITY  
FIRMS IN SELECTED MUNICIPALITIES IN LIMPOPO AND GAUTENG  
PROVINCES, SOUTH AFRICA: A MODERATED MEDIATED MODEL**

by

**MOKGAETJI MPHO CHIDI**

(201304709)

Submitted in fulfilment of the requirements for the degree of

**DOCTOR OF COMMERCE**

in

**BUSINESS MANAGEMENT**

in the

**FACULTY OF MANAGEMENT & LAW**

(School of Economic and Management)

at

**THE UNIVERSITY OF LIMPOPO**

**SUPERVISOR: PROFESSOR O.O. FATOKI**

July 2024

Signed:

  
Barbara Wood

**APPENDIX 5**  
**TURNITIN REPORT**

**GREEN DYNAMIC CAPABILITIES  
AND PERFORMANCE OF  
HOSPITALITY FIRMS IN  
SELECTED MUNICIPALITIES IN  
LIMPOPO AND GAUTENG  
PROVINCES, SOUTH AFRICA: A  
MODERATED MEDIATED  
MODEL**

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# GREEN DYNAMIC CAPABILITIES AND PERFORMANCE OF HOSPITALITY FIRMS IN SELECTED MUNICIPALITIES IN LIMPOPO AND GAUTENG PROVINCES, SOUTH AFRICA: A MODERATED MEDIATED MODEL

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