MEASURING SUSTAINABILITY PERFORMANCE OF SMEs IN A DEVELOPING COUNTRY: A STUDY IN THE SOUTH OF VIETNAM

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Dedication

To

Mom, Dad, my younger sister and her family.

Abstract

Given that sustainability performance measurement has gained a lot of momentum in recent years, there has been a shortcoming of sustainability metrics developed from SMEs perspective. This thesis investigated the most appropriate metrics for SMEs in Vietnam, and the key enablers and inhibitors to better help these SMEs measure their sustainability performance.

This study drew on the realistic paradigm, with a positivist perspective in the initial phase and a phenomenological perspective in the latter stage. The application of a realistic paradigm resulted in the utilisation of a sequential explanatory mixed methods design. Also conducted was a three-stage research design encompassing quantitative and qualitative methods and a combination of the two methods in a conclusion.

In the initial quantitative approach, structural equation modelling (SEM) was used to test the theoretical model and hypotheses, based on a sample of 579 respondents from 327 SMEs. This results in 12 sustainability metrics, comprising 4 economic metrics, 3 social metrics and 5 environment metrics. Six hypotheses relating to factors influencing the adoption of sustainability metrics were also confirmed and moderating effects on each hypothesis were highlighted. Following this, the qualitative approach employed semi-structured interviews of 43 participants from 20 SMEs and business customers. Finally, the qualitative data were analysed using a thematic coding technique to further explain the initial quantitative results.

This study used the triple bottom line sustainability concept, employing three theoretical lenses, including stakeholder theory, contingency theory and institutional theory, along with resource-

based viewed, knowledge-based viewed theories to explain how sustainability performance can be adopted as a performance measurement system in the SME setting.

Overall, the results have added theoretical, methodological, and practical contributions to the literature of sustainability performance measurement and managerial implications for SMEs.

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CHAPTER 1 INTRODUCTION

1.1 Introduction

This chapter will first present the research background, research problems and research context. The chapter will then state the aim, objectives and questions addressed in the research and these will underpin the structure of the thesis. The objectives of each section of this chapter are outlined in Table 1.1.

Table 1.1 Objectives of Chapter 1

	Objectives	Section
1	- To present the research background	1.2
2	- To describe the research context	1.3
3	- To state the research aim, objectives, and questions	1.4
4	- To emphasise the contributions and significance of the research	1.5
5	- To present the research structure	1.6

The following section presents research background of the current study.

1.2 Research Background

In a publication released in 1987 entitled "Our Common Future" the World Commission on Economic Development (WCED) defines sustainable development as "the development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43). The WCED publication highlights the importance of harmonising humanity's current consumption with the needs of future generations. The publication strongly advocates securing global equity for future generations by directing resources towards less developed countries, thus encouraging economic growth (Du Pisani, 2006).

It is widely acknowledged that companies have a profound effect on the natural environment, society and the global economy, and that effect is only amplified by the acceleration of climate change; this, in turn, compounds social inequality, social discontent and economic depression (Svensson *et al.,* 2016). However, companies can contribute to the protection of the natural environment and a better quality of life for communities, in both local and global contexts (Roxas and Chadee, 2012). It is now understood that society will never achieve sustainable development without the support of businesses, as they represent an economy's productive resources (Hahn and Figge, 2011).

It can be deduced from the previous research that businesses are increasingly under pressure from their stakeholders to fulfil their responsibilities with regard to promoting sustainability activities to raise trustworthiness, reinforce relationships with said stakeholders and to demonstrate their commitment to environmental, social and economic performances (De Giovanni, 2012; Govindan, Khodaverdi, and Jafarian, 2013; Antolín-López, Delgado-Ceballos, and Montiel, 2016; Font, Garay, and Jones, 2016; Tran, Deng, and Ong, 2018; Küçükbay and Sürücü, 2019). Accordingly,

measuring sustainability performance has become a prominent distinguishing factor among businesses (Searcy, 2012; Kloviene and Speziale, 2015; Maas, Schaltegger, and Crutzen, 2016; Malesios *et al.,* 2020). The measurement is believed that can help companies to effectively measure and obtain better sustainability performance (Gianni, Gotzamani and Tsiotras, 2017; Hogevold *et al.,* 2015).

It is worth mentioning that with the significant proportion of small and medium-sized enterprises (SMEs) dominating the world's economy it is estimated that they are responsible for about 70 per cent of global industrial waste pollution (Caldera, Desha and Dawes, 2019a; Hsu, Chang and Luo, 2017). Their high failure rates still represent a significant challenge in the current global economy (Cardoni *et al.,* 2020). Comparing to larger counterparts, SMEs are often described as having insufficient resources and lacking awareness of sustainability standards (Sommer, 2017), consequently resulting in the inability to effectively handle sustainability performance-related issues (Clarke-Sather *et al.,* 2011; Tremblay and Badri, 2018).

While previous research on sustainability performance measurement has been conducted primarily in large corporations, with limited attention and research applied within the SME sector (Choi, Kim, and Yang, 2018). Although the focus of research has indeed shifted in recent times to concentrate on SMEs. Empirical studies (Feil, de Quevedo, and Schreiber, 2015; Mengistu and Panizzolo, 2021) indicate that selected and developed sustainability metrics/indicators for SMEs are mainly based upon the perspective of external stakeholders such as experts and researchers and, according to Trianni *et al.* (2019), this reflects a shortcoming of sustainability metrics/indicators developed from the perspective of SMEs. It therefore remains unclear which

types of dynamic capabilities are crucial to SMEs to effectively adopt sustainability performance (Eikelenboom and de Jong, 2019).

Looking at this concept from another perspective, extant literature reveals that current research on corporate sustainability is biased towards developed countries, such as the USA, the UK, Europe and Japan (Ahmad *et al.,* 2021; Laskar and Maji, 2016; McMurray *et al.,* 2014). Despite the fact that research on sustainability in developing countries is gaining popularity, the adoption of sustainability activities by corporations has not yet reached a satisfactory level (Dissanayake *et al.,* 2020). Scholars (Singh, Olugu, and Musa, 2016; Fatimah and Aman, 2018) have called for research that establishes appropriate sustainability metrics that will help SMEs, particularly in developing countries, to measure and monitor their sustainability performance. This situation reveals a gap in sustainability performance measurement research that is based on regional focus.

1.3 Research Context

Today, most managers have accepted corporate sustainability as a precondition for conducting their business (Rocha-lona *et al.,* 2015). Notably, in an emerging market, such as the country of Vietnam which is moving towards greater international economic integration, the compliance with social and environmental standards has been suggested as a precondition for global business engagement (Nguyen *et al.,* 2018). Vietnam has shown remarkable progress in poverty reduction and economic development over the past thirty years; in 1990, Vietnam was one of the world's poorest countries, with a gross domestic product per capita of less than USD 100. By 2013, the country achieved a gross domestic product per capita of more than USD 1,700 (Altenburg and Lütkenhorst, 2015), thereby becoming a lower-middle-income country according to the World Bank's classification (UNIDO, 2012, p. 17).

The economic context and institutional transition make Vietnam a good research setting from which more can be learned about corporate sustainability in SMEs. Vietnam's rapid development through the success of private enterprises can be traced back to 1986, when the country's restoration reform policies known as *Doi Moi*, were launched. From a planned economy with a dominance of state-owned enterprises, the country shifted towards a "market-oriented socialist economy under state guidance" (Beresford, 2008, p. 221) in which most private business enterprises were SMEs. In Vietnam today, SMEs account for more than 97% of operating businesses, they make up 40% of the GDP and provide 60% of gainful employment nationally (Bach, Le, and Bui, 2020).

Despite political and military tensions with Cambodia and China, and being at war with the USA until the mid-seventies, Vietnam has progressed over the last two decades to overcome the hardships incurred during the socialist post-reunification era, and has become an emerging economy in South East Asia.

In 1986, Vietnam was listed among the world's poorest countries with a per capita GDP of $203 (Voeten and Naudé, 2013). That same year, *Doi Moi*, the Reform Policy, was introduced. Since then, Vietnam has accelerated changes to ensure a sustainable economy that focuses on the private sector. Vietnam now considers its private sector to be an essential means to achieving economic growth, poverty reduction and social development. The Government has introduced the Enterprise Law and related policies that promote SME performance (Government of Vietnam 2009, 2014b) and in addition, Vietnam's Agenda 21, introduced in 2004, is a strategic program that identifies economic, environmental and social objectives to achieve sustainable development. Regulations

on social welfare and environmental protection have also been introduced to ensure the sustainability of Vietnamese firms (Government of Vietnam 2014c, 2014d, 2014e).

Recognising the importance that the business sector plays within economic development, the Vietnamese Government is paying special attention to promoting and supporting sustainable development. To this end, the Vietnam Business Council for Sustainable Development (VBCSD) was established by the Vietnam Chamber of Commerce and Industry under the Government's approval on 8th September 2010. The VBCSD is a business-led organisation with a mandate that promotes and strongly advocates the active role that the business community has with regard to implementing the Strategic Orientation for Sustainable Development in Vietnam. The VBCSD facilitates and encourages the sharing of experiences, solutions and good practices within the context of sustainable development, and strengthens dialogues and close coordination within the business community, Government and civil organisations.

The factors mentioned in this section – with reference to Vietnam – make SME's suitable for this current study.

1.4 Research Aim, Objectives, and Question

Sustainability research is not a new concept. However, this current thesis proposes to address a gap in the literature. Few studies have measured sustainability performance and identified key metrics in SMEs, l*et al*one in the context of developing countries. More specifically, this study aims to fill this gap by addressing the identification of sustainability metrics from the perspective of SMEs, which is an underdeveloped area of research, with the specific focus on the country of Vietnam.

By focusing on a different empirical context (Vietnam), this study provides significant contributions to the literature on SME sustainability performance measurement, whilst considering the specific conditions of SMEs in Vietnam.

To clarify the formulation of the research objectives, the primary purpose of this thesis is to investigate the most appropriate metrics for SMEs in Vietnam and the key enablers and inhibitors to better help these SMEs measure their sustainability performance. Therefore, this research is organised and developed around the following main research question:

How should the sustainability performance of SMEs in Vietnam be measured?

To investigate this central research question, a concurrent mixed methods research approach incorporating both quantitative and qualitative elements is adopted. Structural equation modelling (SEM) is used to analyse the quantitative data, and thematic analysis is employed to analyse the qualitative data. Therefore, the specific research questions addressed in each part of this thesis are as follows:

Research questions for the quantitative study:

RQ1. What are the most appropriate sustainability metrics (sustainability performance measuring systems) that can be applied in order that SME's can measure and better manage their sustainability performance?

RQ2. What is the motivation that drives SMEs to adopt sustainability performance measurement systems (SPMS)?

RQ3. What are key internal and external factors that influence whether SPMS is adopted?

RQ4. What are the relationships between these factors (RQ2 and RQ3) and SPMS adoption?

RQ5. How strong are the relationships in RQ4?

RQ6: How do the characteristics of the business (size, age, business sector, sustainability experience), and key characteristics of participants in SMEs (gender, age, work experience, managerial position) influence the different relationships between factors and SPMS adoption?

Research questions for the qualitative study:

RQ7. How is the motivation driving the SPMS adoption within SMEs?

RQ8. How are inhibitors and enablers influencing the SPMS adoption within SMEs?

RQ9. How do SMEs overcome their resource constraints in order to adopt SPMS?

From the main research question and sub-research questions, the following research objectives are identified:

1. To review the key aspects and significance of sustainability performance in the SME setting.
2. To identify key theories underpinning SPMS adoption.

3. To investigate key motivation that drives SMEs to adopt SPMS.

4. To explore the key characteristics of SMEs and the internal and external factors that influence SPMS adoption.

5. To identify, from the existing literature, the most appropriate sustainability metrics that can be applied to Vietnamese SMEs in order that they can measure and better manage their sustainability performance.

6. To investigate the characteristics of the business (size, age, business sector, sustainability experience), and the key characteristics of participants in SMEs (gender, age, work experience, managerial position) influence the different relationships between factors and SPMS adoption.

7. To suggest critical strategies that will enable both SMEs' owner-managers and policymakers to facilitate the SPMS adoption in the context of Vietnamese SMEs.

1.5 Contribution and Significance of the Research

The study contributes to the existing body of knowledge in four significant ways.

First, in contrast to several studies that have investigated SME sustainability performance measurement, this study focuses on identifying sustainability metrics, from the perspective of SMEs, in one of the fastest growing emerging markets; Vietnam. This current study is the first to investigate sustainability metrics for SMEs in a Vietnamese context.

Secondly, this study contributes to the existing literature by promoting a better understanding of the motivations for adoption of sustainability metrics, and the factors acting as inhibitors and

enablers that influence SMEs adoption of the sustainability metrics proposed in the literature, with a particular focus on the emerging country of Vietnam. These factors could be different from those commonly observed in developed countries.

Thirdly, this study enriches the empirical literature on how SMEs, because of their resource constraints, can simultaneously address all three aspects of sustainability performance in an integrated manner; these aspects are economic, social and environmental. This topic is not extensively addressed in the literature (Dissanayake *et al.,* 2020; Eikelenboom and de Jong, 2019; Goyannes *et al.,* 2018; Siegel *et al.,* 2019a) and the literature gap is filled by this research.

Fourth, this study is significant because it provides empirical evidence that facilitates a better understanding and identification of appropriate sustainability metrics that have both direct and indirect influence on SMEs growth. It helps potential and existing entrepreneurs, policymakers, regulators and investors to better understand the context of SMEs in Vietnam regarding the adoption of sustainability performance measurement.

1.6 Thesis Structure

This thesis consists of 10 chapters and is organised as follows.

Chapter 1: Introduction

The introduction section presents the research background, context and aim. Research questions and research objectives are formulated here.

Chapter 2: The Theories Underpinning the Sustainability Performance Measurement

This chapter contains a comprehensive review of theories underpinning sustainability performance measurement. Three critical theories are discussed by presenting the core content and influences

that will shed light on sustainability performance measurement. These include stakeholder theory, institutional theory and contingency theory. Thereafter follows a general overview of the triple bottom line concept with the goal of presenting an overall sustainability performance measurement system. These are relevant theoretical frameworks for investigating sustainability performance measurement in Vietnamese SMEs while offering different perspectives on the phenomenon.

Chapter 3: SMEs and Their Adoption of Sustainability Performance Measurement

This chapter provides a critical analysis of the literature that relates to adoption of sustainability performance measurement in SMEs. In this chapter, factors that act as motivators, inhibitors and enablers are identified and discussed; all of these have an influence on SMEs sustainability performance measurement adoption. The research hypotheses are subsequently developed and formulated for testing.

Chapter 4: Identification of Sustainability Metrics for SMEs

This chapter further provides a critical analysis of the literature relating to identifying sustainability metrics that are applicable to SMEs. It also aims to review the pillars of the triple bottom line concept in more detail: economic, environmental and social aspects. A review of previous studies relating to the research topic will follow, with a preliminary list of proposed sustainability metrics. Finally, this chapter concludes with the theoretical framework for the empirical research.

Chapter 5: Overall Review of Research Methodology

This section provides insight into the main paradigms found in business research. After explaining the importance of research credibility, the primary methodologies are discussed in detail. Next, this chapter defines the research strategy and setting, and also explains why a concurrent mixed methods approach is deemed most suitable for the study.

Chapter 6: Quantitative Research Methodology

This chapter explains the methods and procedures used to conduct the quantitative research that will test the previous chapter's hypotheses. The main objective of the quantitative research is to investigate the most appropriate sustainability metrics, key motivation, and internal and external factors that influence SPMS adoption, in addition to examining the relationships between these factors and SPMS adoption and the moderating effect on the relationship.

This chapter covers all main aspects, including quantitative research design, development of measurement models and quantitative sampling. Chapter 6 also includes data analysis, data processing, and estimation techniques used in the statistical model before modification. This section also presents a confirmatory factor analysis of motivation, inhibitors, and enablers influencing the adoption of sustainability performance measurement. In addition, confirmatory factor analysis of sustainability metrics and fit indices are also presented. This chapter then concludes with the description of the complete statistical research model before modification and the higher-order confirmation factor analysis of sustainability metrics.

Chapter 7: Quantitative Research Results and Discussion

This chapter presents the results of hypothesis testing and analysis of those results. The chapter then continues with a discussion of the quantitative results.

Chapter 8: Qualitative Study Design and Data Collection Methods

The main research objective of qualitative investigation is to further explain the initial quantitative result, found in chapter 7, and further explore the motivation and the internal and external factors that influence the SPMS adoption. Another key objective is to explain how SMEs overcome their resource constraints to adopt SPMS.

The primary purpose of this chapter is to describe and explain the qualitative component of the research. This chapter also presents the procedure for qualitative data collection and outlines the process used for data analysis.

Chapter 9: Qualitative Findings, Analysis and Discussion

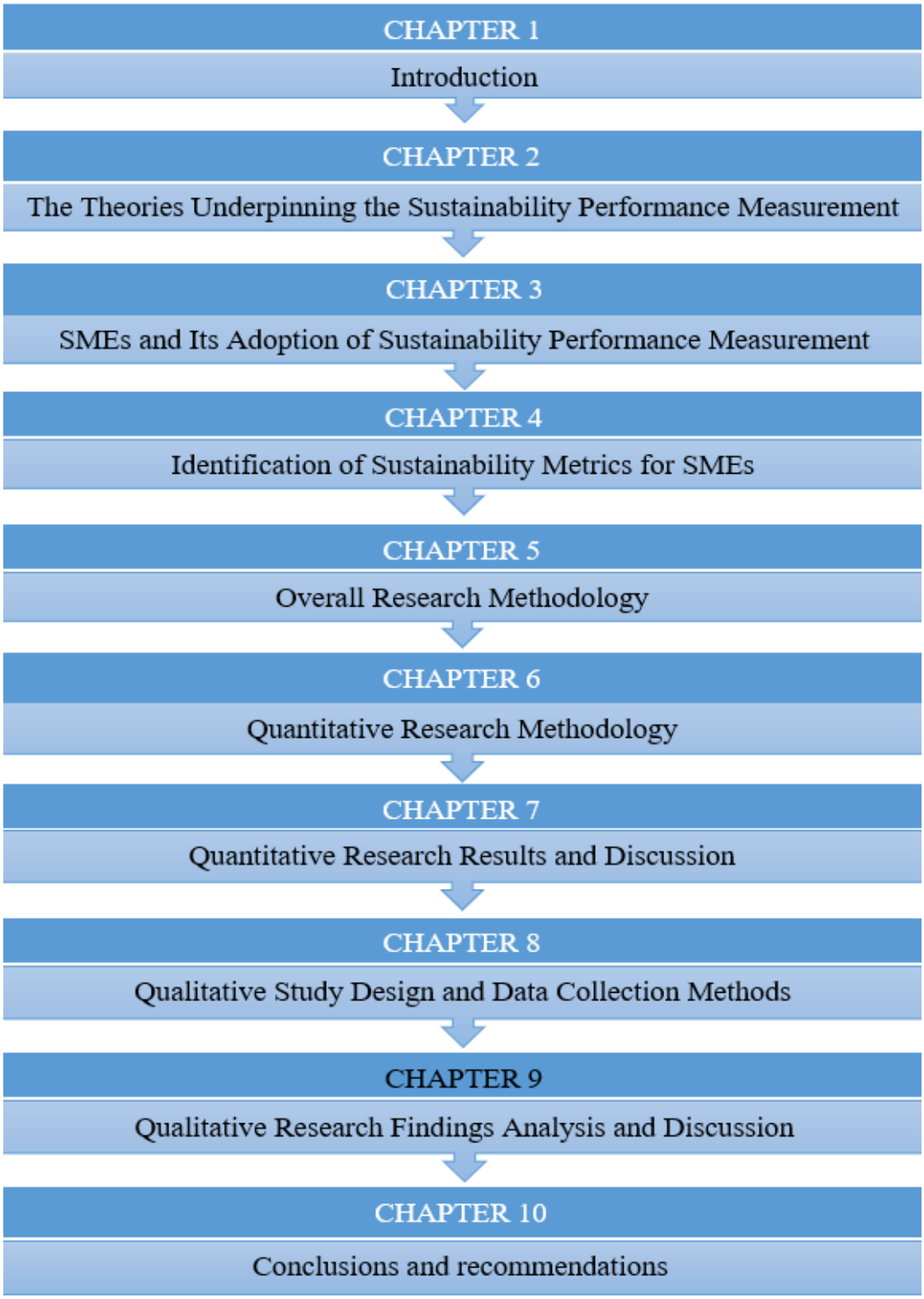
This chapter presents findings and analysis from the interview data. In this chapter, the discussion of quantitative results is included.

Chapter 10: Conclusions and Recommendations

This section presents the conclusions with a summary of the empirical results, and combines and compares the survey and interview data. Based on hypothesis testing and the data analysis, the results, conclusions and recommendations are used to construct a sustainability performance measurement system which is appropriate for adoption by Vietnamese SMEs. Finally, the section concludes with a summary of the results, a view of the limitations of the study and suggestions for further research.

The structure of the thesis is summarised in Figure 1.1

Figure 1.1 Thesis Structure



The next chapter discusses the theories underpinning measuring the performance of sustainability

CHAPTER 2 THE THEORIES UNDERPINNING MEASURING THE PERFORMANCE OF SUSTAINABILITY

2.1 Introduction

This chapter presents the key theories that underpin the adoption of sustainability performance measurement. For each theory, the discussion focuses on two aspects; what the theory is about and how it contributes to shaping the adoption of sustainability performance measurement. This chapter also presents an overview of the triple bottom line concept (TBL), which has been employed as the main framework of sustainability performance. The chapter's objectives and the sections of the chapter that deal with each objective are outlined in Table 2.1.

Table 2.1 Objectives of Chapter 2

	Objectives	Section
1	- To present an overview of sustainability performance measurement and its purpose	2.2
2	- To gain a better understanding of the issues and challenges of the Triple Bottom Line concept (TBL)	2.3
1	To present key theories that underpin the adoption of SPMS - to discuss the stakeholder theory as a theoretical lens to explore motivation driving SPMS adoption - to discuss contingency theory as a theoretical lens to view contextual factors of organisations that influence SPMS adoption - to discuss institutional theory as a theoretical lens to examine the enablers and barriers for SPMS adoption	2.4 2.4.1 2.4.2 2.4.3

This chapter now proceeds with an overview of sustainability performance measurement and its purposes.

2.2 An Overview of Sustainability Performance Measurement and Its Purposes

According to Neely, Gregory and Platts (1995, p. 81) a performance measurement is 'the set of metrics used to quantify both the efficiency and effectiveness of actions.' The author clarify that 'performance measurement' is best understood as the process, while 'a performance measure' refers to a metric employed to quantify the efficiency and effectiveness of action (Neely, Gregory and Platts, 1995). This metric may, however, vary from one situation to another, and from one company to another.

Searcy (2011) considers a sustainability performance measurement system (SPMS) as being similar to all performance measurement systems in terms of the ability to measure performance aimed at business improvement. However, sustainability performance measurement systems are viewed as a nascent subset of performance measurement systems (Neri et al., 2021; Pryshlakivsky and Searcy, 2015). Searcy (2012, p. 240) defines a SPMS as: 'a system of indicators that provides a corporation with the information needed to help in the short and long-term management, controlling, planning, and performance of the economic, environmental, and social activities undertaken by the corporation.'

Searcy's definition of SPMS concentrates on two pivotal aspects: having a long-term focus and addressing three pillars of the triple bottom line (TBL), these being economic, social and environment. Citing an early study conducted by Bititci *et al.* (2005, p.336) on measuring and managing performance, Searcy (2011, p.45) proposes vital characteristics of a SPMS that should "be balanced, be integrated, inform strategy, deploy strategy, focus on business processes that deliver value, be specific to business units, include competencies, and include stakeholder contribution". Having defined such characteristics, Searcy (2011) indicates key elements in areas

relating to the design of a SPMS. As such, Searcy's definition is particularly relevant to the current study, as it directly addresses the notion of the TBL. More specifically, this chosen definition presents a view of sustainability metrics/indicators as something that could vary across contexts; this is also the perspective adopted in the current study. Finally, this chosen definition is simple and comprehensive, which makes it ideally suited to guiding the process of identifying and developing appropriate sustainability metrics for SMEs in Vietnam.

It is crucial to recognise that performance measurement and metrics are two components that are tightly interlinked, and they cannot be isolated singularly. Current research appears to validate the view that metrics facilitate the fundamental activities of measurement (Melnyk, Stewart and Swink, 2004; Neri *et al.,* 2021; Sukkar, 2017). The merit of a sustainability metric/indicator is to help simplify, analyse, summarise and communicate complex and complicated sustainability information (Singh *et al.,* 2012; Tan *et al.,* 2015; Warhurst, 2002). In other words, it provides critical information about sustainability issues, identifying trends or cause-and-effect relationships; as such, it goes beyond simple data (Fan, Carrell and Zhang, 2010; Van Passel *et al.,* 2007; Veleva and Ellenbecker, 2001).

The effective use of sustainability information requires a detailed analysis of the link between the indicator and the issues, which needs to be as direct and straightforward as possible (Chee Tahir and Darton, 2010). In this respect, sustainability metrics and indicators can help decision-makers comprehensively examine and evaluate corporate sustainability performance. Moreover, it provides accurate information that helps planning future actions (Delai and Takahashi, 2011; Faulkner and Badurdeen, 2014; Van Passel *et al.,* 2007).

Simultaneously, sustainability indicators can provide stakeholders with precise material that enables them to understand sustainability information without confusion (Kurka and Blackwood, 2013). A typical and advantageous characteristic of a sustainability metrics/indicator lies in its ability to transmit complex sustainability information as concisely as possible (Azapagic, 2004; Singh *et al.,* 2012). A good sustainability indicator, according to Veleva and Ellenbecker (2001), should have the following three objectives:

1. To raise awareness and understanding.
2. To provide informed decision-making.
3. To measure progress towards established goals.

Similarly, Morioka and Carvalho (2016) claim that an SPMS is useful in enabling the decision-makers within the SMEs to effectively make plans related to sustainability issues, promoting organisational learning and encouraging stakeholder engagement. For this purpose, measuring sustainability performance becomes vital in every organisation and is the primary purpose of a performance measurement system. According to Gunasekaran and Kobu (2007, p. 2820), such a system includes eight critical points:

1. Identifying success.
2. Identifying whether stakeholder needs are met.
3. Better understanding of the processes.
4. Identifying bottlenecks, waste, problems and improvement opportunities.
5. Providing accurate decisions.
6. Enabling progress.
7. Tracking progress.

8. Facilitating more open and transparent communication and co-operation.

According to Searcy (2012), an SPMS can be deemed robust if it can support decision-makers in navigating the challenges of corporate sustainability by providing them with a better understanding of their current situation, as well as their desired end state. However, Searcy (2009) contends that there is no defined end state for corporate sustainability. The author further explained that an SPMS cannot directly reflect how sustainable any particular firm is because it simply measures their progress towards clearly defined goals, objectives and targets (Searcy, 2009).

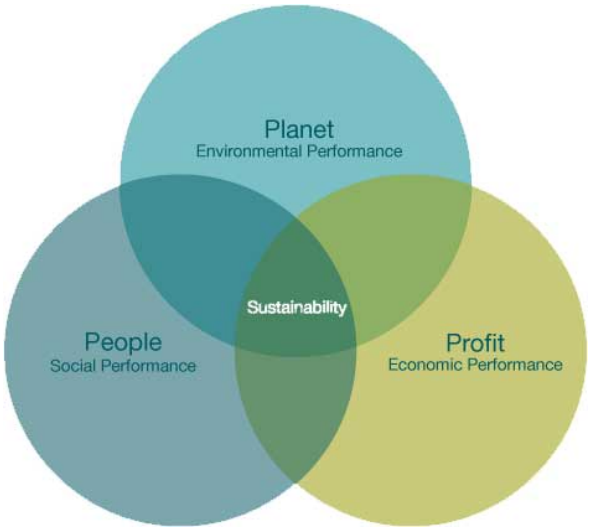
It is important to recognise that SMEs are often described as having unplanned, informal (Sengupta and Chattopadhyay, 2006) and unstructured decision-making processes (Saad, Kumar and Bradford, 2017). Considering all above discussions, it can be argued that through the SPMS adoption, SMEs decision-makers can be equipped with a more effective tool to make productive decisions regarding sustainability activities. This is an interesting but challenging issue for the current study that will generate further our understanding of the phenomenon.

The following section discusses the triple bottom line concept.

2.3 The Triple Bottom Line Concept

In business, sustainability is often viewed as the Triple bottom Line (TBL) sustainability (Delai and Takahashi, 2011; Sartori, Latrônico, and Campos, 2011; Padin *et al.,* 2016). The term TBL was initially coined in 1994 by Elkington, who defines it as a balance of economic, environmental, and social sustainability dimensions (Elkington, 1994; Seuring and Müller, 2008). The concept is illustrated in Figure 2.1.

Figure 2.1 The Triple Bottom Line



(Source: Azapagic, 2003, p. 304)

In essence, the TBL approach differs remarkably from a limited economic perspective and includes two more dimensions: social and environmental (Slaper and Hall, 2011). It is believed that businesses adopting the TBL approach can capture a whole set of values, issues and processes to maximise the positive impact of their sustainability-related activities (Elkington, 1997). Companies, however, need address all three pillars of TBL in an integrated manner to attain sustainable development (Khurana, Haleem and Mannan, 2019; Slaper and Hall, 2011). This is because, tackling any one of the dimensions in isolation might result in unintended consequences in another dimension (Rachuri, Sriram, and Sarkar, 2009). This practice perhaps reflects why TBL approach is considered a unified sustainability conception of business activity performance (Elkington, 2001; Slaper and Hall, 2011).

The prominence of TBL adoption as a framework to measure sustainability performance is widely cited in the existing literature. This can be due to the TBL approach can establish clear basic

principles for developing sustainability performance measurement systems (Hubbard, 2009; Searcy, 2016), enabling businesses to give closer attention to the impact of their operations (Ekwueme, Egbunike, and Onyali, 2013). As such, it provides a holistic framework and metrics that add value to businesses existing management systems (Gianni, Gotzamani, and Tsiotras, 2017). The engagement with TBL, as such, can support businesses in responding to stakeholders' concerns regarding sustainability issues (Norman and Macdonald, 2004).

Following the above trend, academics and researchers in the field have increasingly employed the TBL framework to investigate sustainability performance-related issues. Due to specific research purposes, some scholars have focused solely on environmental performance (Rao *et al.,* 2009; Sundin, Nässlander, and Lelah, 2015), while others (e.g. Hasan, 2016) primarily concentrate on social performance. What is missing in the studies mentioned here is the consideration of balancing all three dimensions of sustainability and their interactions. This gap is also confirmed in recent works (Goyannes *et al.,* 2018; Siegel *et al.,* 2019; Dissanayake *et al.,* 2020), implying that research is needed to further our understanding of how economic, environmental, and social performances are integrated and balanced in the context of SMEs business practices.

Considering the above, the current study fills the existing research gap by systematically examining a SPMS in an integrated manner, including all three sustainability performances: economic, social, and environment. The purpose is to better understand the factors, inhibitors, and enablers that affect the adoption and use of sustainability metrics in Vietnamese SMEs.

A primary challenge is recognised, caused by inherent pitfalls of the TBL concept. In essence, the TBL approach embraces multifaceted aspects that cover a wide range of economic, social, and environmental issues (Bodini, 2012; Hassini, Surti, and Searcy, 2012; Ahi and Searcy, 2013;

Sridhar and Jones, 2013; Antolín-López, Delgado-Ceballos, and Montiel, 2016; Omri, Courrent, and Chasse, 2018). Moreover, each aspect is further complicated by the fact that each has a wide range of measurement scope and options, with no consensus on a standard, or a commonly agreed-upon reporting framework (Hubbard, 2009; Searcy, 2016). Such complexities mentioned here might explain why TBL does not consider these three pillars to be equal factors.

Taking into account the above information, the development of sustainability metrics for SMEs is closely linked to the need of a careful consideration with regard to optimising the sustainability efforts of the SME, whilst also paying attention to exploring the best way of integrating these metrics into their business model (Aragón-Correa *et al.,* 2008; Shields, Welsh and Shelleman, 2018). As such, the current study employs a systematic, structured and holistic approach that properly considers corporate sustainability related-issues in the context of SMEs (Bourlakis *et al.,* 2014; Searcy, 2016; Sheehan, Garavan and Carbery, 2014). This means that variables, interactions and controversies need to undergo a thorough examination (Bodini, 2012). The purpose of these aims to define and identify most appropriate metrics that can be applicable for SMEs, which help them to measure and better manage their sustainability performance.

Before examining each pillar of the TBL and its critical aspects related to the context of SMEs, it is worth mentioning that corporate sustainability (CS) and corporate social responsibility (CSR)[1] are interchangeably used in the existing literature. However, a significant difference between the terms was noted by van Marrewijk (2003), who pointed out that CS focuses on value creation, environmental management, environmentally friendly production systems and human capital

[1] "Corporate Social Responsibility is a concept whereby companies integrate social and environmental concerns into their business operations and in their interaction with their stakeholders on a voluntary basis". (European Commission, 2002, 347 final, p. 3)

management, while CSR relates to stakeholder dialogue transparency and sustainability reporting. Both concepts, CS and CSR share the same vision regarding balancing economic responsibilities with social and environmental responsibilities (van Marrewijk, 2003; Teck Hui, 2008). This clarification is probably beneficial for research being undertaken on the sustainability of SME in the context of developing countries, where businesses do engage in CSR activities but usually do not disclose these activities under the title of CS (Das and Rangarajan, 2017). The approaches of CS and CSR can be integrated as long as the two constructs are appropriately considered different or equivalent (Lo and Sheu, 2007; Montiel, 2008). And no less importantly, this enables more relevant articles to be identified and irrelevant ones to be eliminated, which greatly assist in finding the answer to the research question of the current study (Soilemezi and Linceviciute, 2018).

This section has described an overview of the TBL concept. It should note that throughout this current study, terms such as “sustainable development”, “sustainability”, “corporate sustainability”, and “triple bottom line” are interchangeably used. This is because although each term might be the best fit for a specific circumstance in a business context, they are all broadly in line with the WCED's definition of sustainable development. Whichever term is used refers to the balance that exists between the three pillars: environmental, economic, and social (Sartori, Latrônico, and Campos, 2011; Svensson *et al.,* 2016). The current study now turns to a discussion of each pillar of the TBL.

The following section discusses economic performance of the TBL.

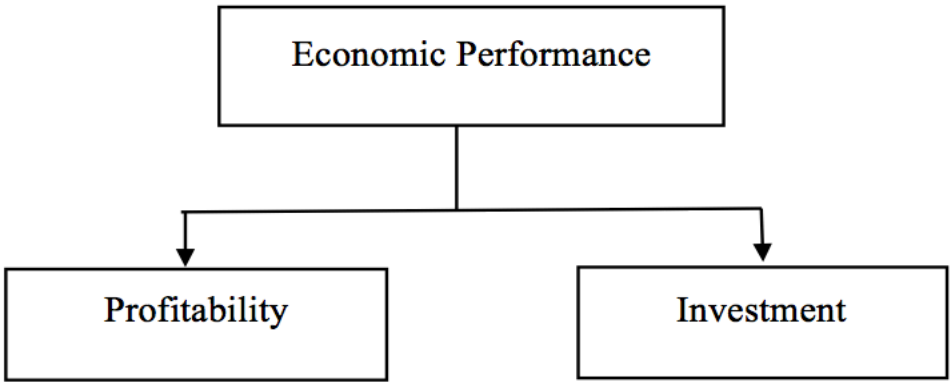
2.3.1 Economic Performance

Economic performance pertains to enhancement and value creation with reference to the financial performance of a business. (Bansal, 2005; Kim *et al.,* 2015). Generally, it is viewed as the most

accurately understood and has received the most attention among the TBL pillars (Kim *et al.,* 2015). It is recognised that the main risk for the SME is that they will fail to survive (Jenkins, 2004; Nwobu, Faboyede and Onwuelingo, 2015; Tan *et al.,* 2015; Feil *et al.,* 2015; Joung *et al.,* 2013). As such, it comes as no surprise that financial performance has become the SMEs most significant consideration. In fact, the efforts of businesses towards sustainability are not based solely on altruistic reasons but on maintaining and increasing profit (Svensson and Wagner, 2015).

From a broad view, economic performance reflects a company's ability to make enough profit to survive and benefits the economic systems at both local and national levels. In SMEs, this performance typically focuses on two main aspects; profitability and investment (Feil *et al.,* 2015; Tan *et al.,* 2015; Joung *et al.,* 2013). These two aspects are crucial because they are related to an organisation's long-term sustainability (Delai and Takahashi, 2011), which are illustrated in Figure 2.2.

Figure 2.2: Key aspects of economic performance



(Source: author's drawing)

2.3.1.1 Profitability related measures

Profitability should not be viewed as a dominant motivation in the short term, but as an indicator of how businesses can survive and grow in the long term. Some typical profitability indicators that can be applied to businesses of all sizes include sales, gross profits, net profit, operating profit, operating expenses and tax payments (Borga *et al.,* 2009; Feil, de Quevedo and Schreiber, 2015; Global Reporting Initiative, 2015; Tan *et al.,* 2015).

2.3.1.2 Investment-related measures

Investments are critical aspects of economic growth. Investment indicators are commonly used to compute the impacts of a company overall and eco-friendly investments, which collectively measure financial health (Joung *et al.,* 2013). Specifically, Delai and Takahashi (2011) note that an investment metric provides an overview of the number of financial resources that are used to increase, replace or renew assets to guarantee long-term profitability. Kucharčíková, Mičiak and Hitka (2018) view it as an indicative metric and highlighted certain limitations; for instance, they expressed concern that the calculation of these metrics is probably affected by the accounting methods used in a company profit and loss statement that might not consider inflation and changes in the exchange rate (Kucharčíková, Mičiak and Hitka, 2018). Thus, although investment-related metrics can be crucial to SMEs economic performance (Hsu, Chang and Luo, 2017; Neri *et al.,* 2021), they need to be treated with caution as an accurate form of benchmarking when comparing businesses.

The following section discusses environmental performance of the TBL.

2.3.2 Environmental Performance

Environmental sustainability is considered a strategic construct within a business and is a reflection of how well a company monitors, controls and decreases the impact of its activities on the natural environment (Baumgartner and Ebner, 2010; Chow and Chen, 2012; Elkington, 1997; Govindan *et al.,* 2013; Roxas and Chadee, 2012). This pillar of TBL sustainability, in the business context, refers to the process through which a company utilises and deals with energy and other resources and also the ecological footprint which they leave behind from their operations (Gimenez, Sierra, and Rodon, 2012). However, such a process is complicated because businesses have to deal with waste reduction, pollution reduction, energy efficiency, emissions reduction and reduction of the consumption of hazardous/harmful/toxic materials (Baumgartner and Ebner, 2010; Gimenez *et al.,* 2012).

Rao *et al*. (2009) emphasise the importance of environmental protection, positing that it is no longer optional but a necessity. Zorpas (2010) pointed to tightening legislation and environmental protection guided by administrative and legal regulations.

To achieve environmental sustainability, some companies adopt internationally recognised, industry-certified environmental management systems (EMS) such as ISO 14001 (Büyüközkan and Ifi, 2012; Lee, 2009; Singh *et al.,* 2014, 2015). Others use technologies and pursue a green business strategy to minimise harm to the environment (Leonidou *et al.,* 2017). By engaging in environmental sustainability, businesses can generate cost savings and meet the demands of stakeholders who want better environmental performance (Lucato, Costa and de Oliveira Neto, 2017). As a result of providing environmental sustainability, companies will obtain a competitive advantage leading to improved operational performance (Lewis, Cassells and Roxas, 2015).

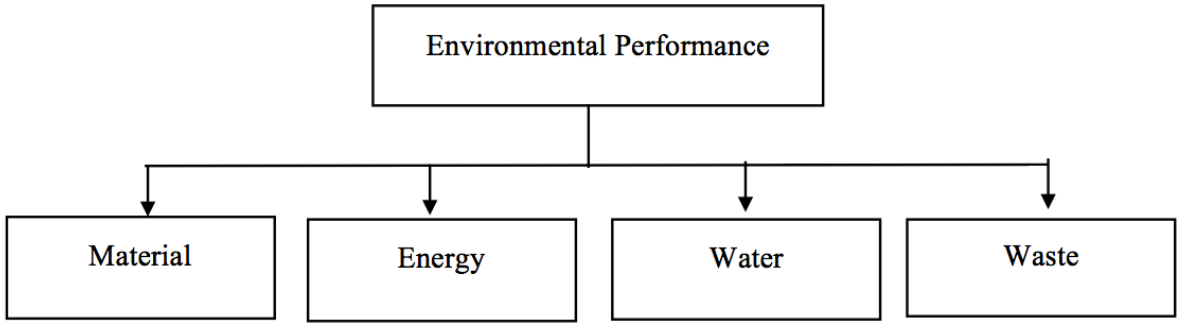
However, a highly formalised environmental management system might not suit the informal management systems of the SME (Klewitz and Hansen, 2014). Indeed, many SMEs cannot afford the consultancy costs, auditing and training involved in environmental management programmes (Chan, 2011; Rao *et al.,* 2009; Purba Rao *et al.,* 2006). For instance, an empirical study conducted by Jeppesen *et al*. (2012), that surveyed a sample of SMEs in South Africa and Vietnam, highlighted this phenomenon by providing evidence that only a minor percentage of their sample implemented formal environmental certification such as ISO 14001. The authors found that SMEs are likely to use other appropriate tools or different approaches to measuring and better managing their environmental performance.

The measurement of environmental performance depends on how well a corporation manages the environmental aspects of its activities, products, and services. Businesses traditionally view water, energy and waste as minor factors in their organisation's cost equation (Bi *et al.,* 2015). However, changes are now taking place. In this regard, Cohen *et al*. (2014) state that the costs of water, raw materials and energy are forming an increasingly important part of the cost calculations for modern corporations. Gudmundsson *et al*. (2016) claim that creating waste residuals can have negative environmental and economic consequences. Consequently, improvements in environmental performance have been implemented that not only reduce pollution, water waste, solid waste and the use of hazardous materials but that also support the reuse of materials and this positively affects cost reductions (Lozano, 2015; Saeed *et al.,* 2018). It can be argued that measuring environmental performance is crucial in enabling SMEs to indirectly improve their financial performance.

For this reason, waste minimisation and cost reduction should be the fundamental principles and driving forces for any business activity. SMEs should keep and maintain their waste levels as low

as possible while increasing the benefits of significant resources (energy, waters, and materials) (Singh *et al.,* 2016). The measures considered for the environmental aspect of sustainability are material, energy, water consumption and waste (Krajnc and Glavic, 2003), as illustrated in Figure 2.3.

Figure 2.3 Key aspects of environmental performance



(Source: author's drawing)

2.3.2.1 Material usage related measures

It is indisputably the case that achieving sustainable resource use, and ensuring that flows of materials are managed efficiently, is becoming crucial (OECD, 2008). From the standpoint of SMEs owner/managers and other stakeholders interested in the company's financial state, material consumption relates directly to overall operational costs (Schwarz *et al.,* 2002; Krajnc and Glavic, 2003). Recycling helps reduce costs through the more efficient use of materials and other consumables (Montabon *et al.,* 2007). Using ready-to-use raw materials is another option for reducing waste and freshwater usage in the production process (Wattanapinyo and Mol, 2013). Tracking material consumption can facilitate the monitoring of material efficiency and the cost of material flows (Global Reporting Initiative, 2015). Therefore, material consumption, virgin

material consumption, recycled material consumption, and reused materials are often seen as subcategories of material consumption measures.

2.3.2.2 Energy consumption related measures

The increase in primary energy consumption and greenhouse gas emissions from fossil fuels has drawn public policymakers' attention to industrial energy efficiency (Global Reporting Initiative, 2015). Energy consumption directly (or indirectly) impacts the environment (Mansi, 2015). Therefore, implementing cost-effective energy efficiency measures has become fundamentally important for the competitiveness of companies (International Energy Agency, 2017). Energy consumption directly affects operational costs and can increase exposure to fluctuations in energy supply and prices (Global Reporting Initiative, 2015). For some organisations, electricity is the only significant energy that they use, while others may use energy sources such as fuel and coal. Identifying and thoroughly evaluating the energy inefficiencies associated with the entire operation may be difficult for SMEs as they sometimes lack the necessary skills (Trianni and Cagno, 2012). Ergo, with regard to the SME, the measures suggested can be more effective in calculating ratios of energy cost, energy consumption and renewable energy (Rao *et al.,* 2006; Tan *et al.,* 2015; Singh *et al.,* 2016).

2.3.2.3 Water consumption related measures

Unsurprisingly, water consumption is now included in a large number of both international and national environmental indicator sets (OECD, 2008). In regions where water sources are highly restricted, the patterns of water consumption within an organisation can also influence other stakeholder pressure (Global Reporting Initiative, 2015). When used widely as a measure, water consumption can reflect the efficiency of the operation (Krajnc and Glavic, 2003). From a macro

perspective, it is believed that reducing water consumption over time, through reusing and recycling, is likely to contribute to local, national or regional goals for managing water supplies (Global Reporting Initiative, 2015).

2.3.2.4 Waste-related measures

Companies can achieve sustainability through waste elimination, which reduces extraction from nature, eliminates waste, improves economic efficiency and makes more resources available to all (Krajnc and Glavic, 2003). While some SMEs hold the view that sustainable green practices are costly in terms of conducting business (Yacob, Wong and Khor, 2019), other SMEs consider that the reduction of waste contributes directly to their goal of cost reduction (Dey *et al.,* 2019; Yadav *et al.,* 2018). It is also argued that reduction in waste can contribute to the SMEs customer satisfaction, better public relations and competitive advantage (Gadenne, Kennedy and McKeiver, 2009). Therefore, waste-related measures can be important for SMEs. Previous studies identify specific waste measures, including total waste, recycling of waste, hazardous waste, and waste disposal (Mengistu and Panizzolo, 2021; Neri *et al.,* 2021; Singh, Olugu and Fallahpour, 2014).

The following section presents social performance of the TBL.

2.3.3 Social Performance

Social sustainability refers to how organisations provide equitable opportunities, encourage diversity, promote connectedness within and outside the community, ensure quality of life and provide democratic processes and accountable governance (Elkington, 1997; Pullman *et al.,* 2009; Gimenez *et al.,* 2012). It should be noted that social sustainability is the least well defined and most complex aspect of the TBL pillars (Anisul Huq *et al.,* 2014; Carter and Rogers, 2008; Lawrence *et al.,* 2006; Sarkis *et al.,* 2010; Slaper and Hall, 2011). The reason for this is that this

pillar encompasses a multitude of social interactions, behavioural patterns and values that vary between people (Roberts and Tribe, 2008; Cronin, 2017). These interactions take place in both internal and external communities (Pullman *et al.,* 2009). The complexity is driven by the levels of variability within these interactions (Wiengarten *et al.,* 2017).

A general agreement exists that businesses have social responsibilities; to give example, they have a responsibility not to detract from the well-being of others. In other words, they need to care about the well-being of their employees and that of their embedded communities (Pullman *et al.,* 2009). Hence, in a business context, social sustainability implies that companies should take on broader responsibilities towards community stakeholders in order to meet their needs and improve their level of commitment (Baumgartner and Ebner, 2010; Roxas and Chadee, 2012). However, due to a lack of resources and time constraints, SMEs often lack a commitment to social compliance (Larrán Jorge *et al.,* 2015). They view social performance as a cost-intensive burden (Dey *et al.,* 2019) that reduces their profitability objectives (Nawi *et al.,* 2020). For instance, Hsu and Cheng (2012) have found that the cost of social compliance is perceived as a hindrance to implementing CSR in some Taiwanese SMEs.

Nevertheless, existing research on SMEs has reported that they often unknowingly adopt social responsibility or pursue a silent version of CSR. These SMEs have a strong relationship with key stakeholders who are willing to forgo some of their profits to serve a greater goal (Azmat, 2010; Jenkins, 2006). For example, Choongo (2017) has identified that, over time, a a positive relationship developed between social responsibility engagement and employee commitment within Zambian SMEs. The level of social performance engagement thus depends upon decisions

made by senior managers within the SME (Agle and Mitchell, 2016) based upon their understanding of cost-benefits (Larrán Jorge *et al.,* 2015).

According to Azapagic and Perdan (2000), social sustainability comprises three aspects: 1) social welfare, particularly education and providing a healthy and safe working and living setting; 2) equal opportunities for the community (non-discrimination); and 3) ethical concerns through the observance of human rights (non-exploitation of young or immigrant workers). Such a classification is considered broad and may not accurately capture a company's social impact (Azapagic, 2003). However, this categorisation provides a better understanding of the key constructs of social sustainability performance.

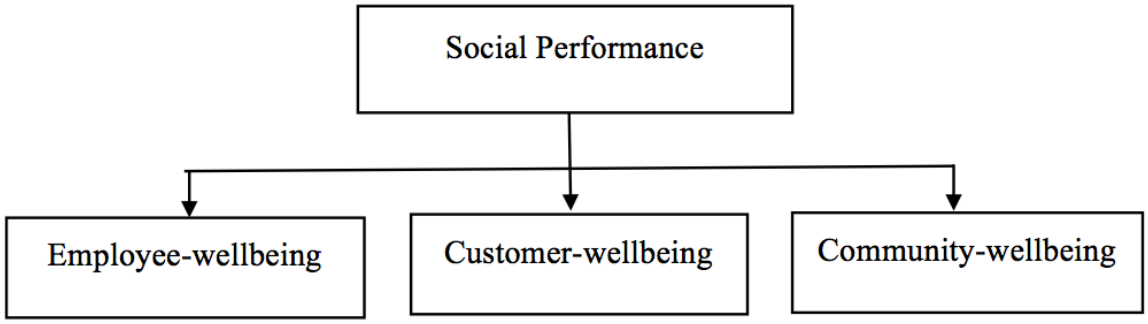
The difficulty of quantifying social performance, compared to economic and environmental performance, highlights it as the most neglected pillar of the TBL (Elkington, 1997; Norman and Macdonald, 2004). Social impacts appear difficult to assess quantitatively because they are often expressed in qualitative terms (Adisa Azapagic, 2004; Veleva and Ellenbecker, 2001). Supporting this view, Azapagic and Perdan (2000) contend that multiple social domain variables, such as protecting cultural values or equity, are scarcely quantifiable and cannot be defined.

A critical question raised by Slaper and Hall (2011) is that if economic aspects can be measured in monetary units, then social and environmental impacts can be measured in the same way. Therefore, identifying standard criteria to measure sustainability performance in a meaningful, consistent and comparable way among the three pillars of the TBL is relevant but remains challenging.

Social performance can be measured by evaluating the impact that the organisation's decisions and activities have upon the society in which the organisation operates; the organisation should ideally contribute towards sustainable development by upholding the health and welfare of the community, meeting stakeholders' expectations, complying with applicable laws and striving for integration throughout the organisation (Global Reporting Initiative, 2015). As stated previously, although social performance involves several complex issues, the previous studies undertaken on the SMEs social sustainability measurements have been conducted in a more focused way, especially in terms of priorities. Earlier studies undertaken (e.g. Singh *et al.,* 2014; Tan *et al.,* 2015), that centred upon the SMEs social performance, encompassed an holistic focus on the employee, customer and community well-being. However, these studies might have different priorities when developing social metrics for SMEs; Singh *et al*. (2014) have focused primarily on the SMEs main characteristics to develop social indicators for companies, while Tan *et al*. (2015) have focused on the main concerns in the domestic context of Singapore-based SMEs. These studies demonstrate that both internal and external environments must be considered when developing sustainability performance measurements for SMEs.

Drawing upon the existing literature, social performance measures will include three main aspects: employee well-being, customer well-being and community well-being, as illustrated in Figure 2.4.

Figure 2.4: Key aspects of social performance



(Source: author's drawing)

2.3.3.1 Employee well-being related measures

Employee well-being concerns the company's attitude towards the treatment of employees. Due to limited resources, SMEs often exhibit less devotion to human resource management (Jafari-Sadeghi *et al.,* 2020; Koirala, 2019; Sardi *et al.,* 2020). To give example of this, Ates and Bititci (2011) point out that SMEs focus mainly on the hard aspects (operational) and less on managing the soft aspects (organisational and people). It is important to note that a better understanding of employee well-being is crucial for SMEs (Lee, Herold and Yu, 2016) because it could help them increase the efficient allocation of resources and capabilities (Lee, Rocco and Shuck, 2020).

It is maintained that employee well-being and empowerment are important in order to engage employees (Anitha, 2014; Eldor and Vigoda-Gadot, 2017). In their recent study, Govender and Bussin (2020) have provided empirical evidence of this, suggesting that if employees are not empowered to raise questions, it will cause them to be demotivated, which will then in turn lead to a lack of improvement not only within themselves, but also to the organisation within which they are employed. As such, employee empowerment through coaching, mentoring and recognition are crucial (Govender and Bussin, 2020). As further suggested by Kwahk, Yang and Ahn (2020), power sharing, participative decision-making, conflict/risk tolerance, cross-functional

communication, support/collaboration and learning/development culture are all crucial elements needed in order to engage employees in implementing a new business project and to gain business sustainability. It is believed that the presence of higher levels of employee engagement means better productivity, financial returns and sales (Young *et al.,* 2018) and that it will significantly reduce turnover intentions (Reio and Ghosh, 2009). For these purposes, it means that owners/managers of SMEs have to be more open and accepting of these changes in order to better engage their employees.

Employee well-being refers to issues such as employees' overall health and safety, professional development and employee satisfaction (Murray, 2010). Within the SME, employee satisfaction and commitment is often considered a priority (Kadiresan *et al.,* 2016). At an organisational level, employee satisfaction is indicative of the overall organisational climate (Wesarat, Sharif and Abdul Majid, 2017) that reflects the level of social sustainability of a business in relation to its employees. Progress can be measured in many ways, such as working conditions and fair salary (Mengistu and Panizzolo, 2021). Studies have shown that an improvement in employee satisfaction leads to a higher level of the employees' job commitment and work ethic; this can be achieved by the organisation properly valuing their employees' contributions as well as supporting their needs (Chavez *et al.,* 2020; O'Driscoll and Randall, 1999).

It is the owners/managers of the business, who have the strongest role in determining appropriate ways implement these measures within the whole organisation. It should be noted that whichever method is used, it needs to match the organisational context and unique culture (Raziq and Wiesner, 2016) in order that core competencies, strengths and employee relations can be used as

a foundation upon which the employees will prosper from strength to strength (Simpson, Padmore and Newman, 2012).

Employee turnover measures the number of employees who leave the organisation for reasons such as dismissal, retirement or death in service. This metric is important because it indicates uncertainty and dissatisfaction among employees or signals a fundamental change in the organisation's core operational structure, which could help senior management realise that they need to foster better employee-wellbeing and ensure that more effective decisions are made. Although it is a surrogate measure and may not always reflect actual conditions due to other mitigating factors, it is an objective metric for measuring working conditions (Sarkis and Dhavale, 2015).

Employee job satisfaction is a strong indicator of how a company manages the satisfaction and retention of their human capital, which is often measured by the percentage of employees who are satisfied with their jobs (Global Reporting Initiative, 2015). On this basis, this metric is crucial because it demonstrates an employees' dissatisfaction or satisfaction with their work (Cumberland *et al.,* 2018). Extant literature reveals several positive consequences of employee job satisfaction. For example, Fairlie (2011) has found meaningful work characteristics have a positive correlation with job satisfaction and work engagement organisational commitment. Other research also highlights that a high level of job satisfaction leads to better productivity and better company performance (Delai and Takahashi, 2011) while resulting in a lower level of absenteeism and turnover (Salanova, Agut and Peiró, 2005; Schaufeli, Bakker and Salanova, 2006). As such, job satisfaction contributes to long-term corporate sustainability (Boley and Uysal, 2013; Global Reporting Initiative, 2015). As Schaufeli (2013) claim, job satisfaction can be deemed as

employees who are willing to go beyond what is in their job description with regard to their business engagements.

To achieve a high level of employee job satisfaction, owners/managers have to reward the employees' serving behaviour, behave ethically and help subordinates grow and succeed (Brohi *et al.,* 2018); this can be achieved through the managers' leadership styles that should have a strong influence on employee satisfaction (Cumberland *et al.,* 2018; Franco and Matos, 2015).

It is observed that although SMEs have been gradually engaging with sustainability initiatives (Alkhoraif, Rashid and McLaughlin, 2019; Ngaochay and Walsh, 2017) there is still a general reluctance to push forward (Bai, Yuan and Pan, 2017). Possible explanations are that there could be insufficient financial resources, or that SMEs cannot afford the level of formal education and training required for employees (Mahmood *et al.,* 2019; Piyathanavong *et al.,* 2019; Siegel *et al.,* 2019). Urban and Naidoo (2012) contend that a low level of education and training is a prominent reason for poor business efficiencies among SMEs. This explains why the employee training and development is a critical contribution to motivating improvement at both personal and organisational levels (Global Reporting Initiative, 2015). Employee training and development can be measured by the average hours of training per employee (Tan *et al.,* 2015).

Employee health and safety are also critical in the context of a businesses duty of care and are regulated by law (Murray, 2010). This metric reflects whether health and safety management practices result in fewer occupational health and safety incidents (Delai and Takahashi, 2011). Low injury and absentee rates are generally linked to positive staff morale and productivity (Global Reporting Initiative, 2015). Health and safety can also be assessed by looking at and measuring the average of missed workdays due to accidents per employee. Given the importance of employee

training and development and employee health and safety, these two aspects are critical social cost aspects for SMEs (Laurinkeviciute and Stasiskiene, 2011).

2.3.3.2 Customer-wellbeing related measures

In general, SMEs are characterised as operating in limited markets and relying on a few main customers with whom they conduct their business (Herr and Nettekoven, 2018; Parker, Redmond and Simpson, 2009). It is recognised that, as suppliers, SMEs often rely on customer knowledge and appreciation to gain a market advantage over their less knowledgeable competitors (de Moura and Saroli, 2020). Measurements of customer well-being have, therefore, become crucial. Such measures can also provide insights into how well a firm is delivering core products and services in a manner that considers the needs of the customer (Delai and Takahashi, 2011). These measures could help SMEs reduce costs and improve the quality of their product and services to their customers (Dey *et al.,* 2019).

Most scholarly works have placed great emphasis on customer well-being being a dominant factor in the existence of an organisation (Dissanayake and Divakara, 2019; Joung *et al.,* 2013; Tan *et al.,* 2015). Customer well-being is also a crucial measurement outcome for corporate sustainability (Suriyankietkaew, 2016).

A consensus exists that a better understanding of customer satisfaction leads to a better approach with reference to the enhancement and strengthening of relationships with customers (Shashi *et al.,* 2018). Customer well-being is usually assessed by indicators such as measuring the ratio of customers that are satisfied against the total number of customers (Tan *et al.,* 2015) and also by measuring the number of complaints compared to the total number of customers (Delai and Takahashi, 2011).

2.3.3.3 Community-wellbeing related measures

Community well-being refers to how companies contribute to improvements in society (Gallo and Christensen, 2011; Olaru *et al.,* 2010). It is believed that those companies that are interested in improving their operations should also find suitable opportunities to support the general good of the community (Arend, 2014; Olaru *et al.,* 2010). Such a viewpoint is relevant to SMEs, which often operate in limited markets (Johnson, 2015). They usually have a better awareness of local issues than their larger counterparts (Fakhrudtdinov, 2012) and strive to improve communities and their locality (Lopez-Perez, Melero and Javier Sese, 2017). The local community's involvement could reinforce the SMEs organisational culture and form a routine part of their identity (Svensson and Wagner, 2015).

Murray (2010) has posited that community well-being measures could enhance a healthy relationship between businesses and the community through corporate philanthropy, community involvement or charitable donations.

The following section reviews main theories that underpin the SPMS adoption.

2.4 Main Theories that Underpin the adoption of SPMS adoption

According to Shibin *et al.* (2018), good research is grounded in relevant theories. There are a multitude of theories which are relevant to the current study, such as institutional theory, resource-based view, natural resource-based view, contingency theory, organisational theory, contractual/agency theory, evolutionary theory, transaction cost, resource dependence theory, stakeholder theory, strategic choice theory and social network theory (Gianni, Gotzamani and Tsiotras, 2017; Küçükbay and Sürücü, 2019; Lozano, 2015; Montiel and Delgado-Ceballos, 2014; Parisi, 2013a; Searcy, 2011; Yu and Ramanathan, 2016). However, the present study focused on

institutional, stakeholder and contingency theories. This choice is motivated by three main reasons. First, stakeholder theory can illuminate the dynamics between stakeholders and the roles they play in SPMS adoption (Arena, Azzone and Bengo, 2015; Saeed *et al.,* 2018). Second, contingency theory was employed to explore the influence of contingency factors on SPMS adoption (Searcy, 2011). Third, institutional theory was applied to further investigate how institutional factors and pressures influence the propagation of SPMS adoption in the context of Vietnamese SMEs (Tran, Deng and Ong, 2019). These three theories are found to be useful for understanding sustainability performance measurement in Vietnamese SMEs, offering differing perspectives of the phenomenon.

In this section, the three critical theories are discussed by presenting the core content and influences that each brings to sustainability performance measurement. Following this, these views are combined to clarify the phenomena.

2.4.1 Stakeholder Theory

As previously mentioned, company stakeholders are placing increasing pressure on SMEs, to improve their sustainability performance. Scholars have argued that researchers should use the lens of stakeholder theory to investigate sustainability issues through the motivations of businesses (Wiesner, Chadee and Best, 2017; Zhang *et al.,* 2019). There is also pressure from the stakeholders for business sustainability issues to be closely examined (Elkington, 1997; Cordano, Marshall, and Silverman, 2010; Shevchenko, Lévesque, and Pagell, 2016; Wiengarten *et al.,* 2017). Drawing on these arguments, this section of the current study highlights the businesses motivation to adopt SPMS as a response to the needs, concerns (Siew, 2015), requirements, expectations and

preferences of relevant stakeholders (Yu and Ramanathan, 2015) through the review of the literature relating to this theory.

For many years, companies believed they only needed to focus on producing goods and delivering services as efficiently as possible (Jamali, 2006). Companies strove to concentrate on optimising key factors, such as cost, price, quality and flexibility, to achieve positive economic performance or financial bottom line (Norman and Macdonald, 2004; Atu, 2013; Govindan, Khodaverdi, and Jafarian, 2013). The critical business goal was to pursue profit maximisation, and socially responsible activities were not their priority, but fell within the remit of governments (van Marrewijk, 2003). Such views seem to be consistent with the main ideas of shareholder theory, proposed by Friedman (1970), who opines that businesses do not have any moral obligations or social responsibilities other than to maximise their profits. From this school of thought, corporations are mainly built around shareholder benefits, and shareholder return is primarily used to measure overall business performance (Hubbard, 2009; van Marrewijk, 2003).

In contrast to the above viewpoint, stakeholder theory, initially developed by Freeman (1984), implies that businesses do have social responsibilities in as much as they should not detract from the well-being of others, and perhaps may even be obligated to charitably promote the well-being of others (Freeman, 1984). Creating value for stakeholders by creating economic success through voluntary corporate environmental or social activities is inspired by stakeholder theory and sustainability management. Sustainability management requires creating value for the firm or its shareholders and other stakeholders (Hörisch, Freeman and Schaltegger, 2014). In this light, sustainability-based value creation for stakeholders directly relates to stakeholder theory, which

argues that creating value for stakeholders and linking these benefits to different stakeholders is of central importance (Freeman *et al.,* 2010; Bellantuono, Pontrandolfo, and Scozzi, 2016).

It has been recognised that internal forces for change toward corporate sustainability are facilitated by internal stakeholders' ethical goals (shareholders, managers and employees) associated with production, processes, or supply and by the goal of maximising financial savings through waste management and improved energy efficiency (Hörisch, Freeman, and Schaltegger, 2014). External forces for change in corporate sustainability are a response to the concerns of stakeholders: regulators, customers, supply chain partners, the public, media and community groups, all of whom call for greater corporate accountability towards the natural environment and society as a whole (Markley and Davis, 2007; Singh, Olugu, and Musa, 2016; Mabhungu and Van Der Poll, 2017). The two primary sources of change mentioned here might also explain why stakeholders are often divided into two groups: internal and external (Hörisch, Freeman and Schaltegger, 2014; De La Torre and Agabriel, 2017; Lozano, 2015).

Given the above clarification, it is crucial to recognise that stakeholders are diverse and varied (Harding, 2006; Jamali and Mirshak, 2007), they may have different expectations (Polonsky, 1995) and their interests may be conflicting (Adams and Frost, 2008; Dobers and Halme, 2009). Under this circumstance, businesses are faced with varied stakeholder demands, continually shifting priorities (Searcy, 2012), and a multitude of alternatives to address their sustainability challenges (Sarkis, Gonzalez-Torre, and Adenso-Diaz, 2010; Clifton and Amran, 2011; Searcy, 2012; Seuring, 2013; Anisul Huq, Stevenson, and Zorzini, 2014).

In a wider sense, the term ‘stakeholder’ is defined as "any group or individual who can affect or is affected by the achievement of the organisation's objectives" (Freeman, 1984, p. 46). However, in

a narrower perspective, Garvare and Johansson (2010) propose a definition of stakeholders as being actors that provide essential means of support required by a firm and are able to withdraw their consent if their wants or expectations are not being met, causing the firm to fail or inflicting unacceptable levels of damage. The implication is that stakeholders can be divided into those who support and those who do not, which helps to manage stakeholder-oriented relationships (Garvare and Johansson, 2010). As further noted by Garvare and Johansson (2010), this framework can also be used to explain organisational behaviours and sustainability. Stubblefield Loucks, Martens and Cho (2010) share a similar viewpoint and extend that the ultimate objective of an organisation is to achieve the ability to maintain equilibrium among the conflicting demands and needs of its stakeholders.

Although stakeholder theory has been broadly received, and has increasing relevance in business and academia, the theory has also attracted some criticism. Interestingly, nearly two decades after the theory was initially developed, Freeman has collaborated with other scholars to refine and defend the theory because they have asserted that the theory seems to be used as an excuse for management opportunism (Phillips, Freeman and Wicks, 2003).

Sundaram and Inkpen (2004) revisited the theory and posited that stakeholder theory makes the corporate governance more complicated and strongly hinders entrepreneurial risk taking.

Looking at this from a different viewpoint, Kaler (2006) has pointed out a limitation of the theory by identifying conflicting interests between stakeholders. Given the criticism mentioned here, it is undeniable that the theory provides a more informed understanding of the phenomenon being investigated, especially when one needs to capture a range of different perspectives (Imbrogiano,

2020). Also, it is within a micro-framework, which can help identify relevant stakeholders who are interested in firm sustainability activities (Cormier, Gordon and Magnan, 2004).

In line with the above discussion, Lozano (2005) emphasises that defining a relevant stakeholder does not mean limiting an actor, but the interpretation and understanding of this relationship is more important. This means that businesses should change their approach to links with the relevant stakeholders, moving from managing relationships to building relationships.

Such a relationship, according to Lozano (2005), should be approached as an opportunity to learn about interests and conflicts in order to gain a deeper understanding of one's place within the relationship. By adopting such a proactive approach, businesses are able to respond to the needs, concerns, requirements, expectations and preferences of their relevant stakeholders far more effectively, rather than focusing on a wider range of stakeholders. As already mentioned, stakeholders are not equally relevant; thus, it is necessary to prioritise them. To do so, businesses can distinguish stakeholders as follows: primary (e.g, customers, suppliers and regulators) and secondary (e.g, the media, non-governmental organisations). The former are more essential for the survival of a company than the latter (Gualandris and Kalchschmidt, 2014; Rebs *et al.,* 2018). Businesses might also characterise stakeholders according to their importance, or salience, relying on three drivers, namely: urgency, power and legitimacy (Agle and Mitchell, 2016; Bellantuono, Pontrandolfo and Scozzi, 2016; Mitchell, Wood and Agle, 1997).

Although it is sometimes assumed that stakeholder theory is only associated with large corporations, and SMEs are favoured by shareholder theory (Jenkins, 2006; Russo and Perrini, 2010), Azmat (2010) argued that corporations of all sizes hold their stakeholder interests as a high priority. Previous studies on SMEs sustainability issues, grounded in stakeholder theory, can be

found in the literature. For instance, Nejati, Amran, and Hazlina Ahmad (2014) have used the lens of stakeholder perspective to explain why, among the primary stakeholders, only employees and customers significantly influenced the SMEs environmental performance. In addition, Hoogendoorn, Guerra, and van der Zwan (2015) have employed stakeholder theory as a meaningful perspective to explore what drives SMEs to engage in environmental practices.

Massa, Farneti, and Scappini (2015) have found that managers (internal stakeholders) play a vital role in developing sustainability reports within SMEs. The evidence mentioned here indicates that SMEs are now accountable to shareholders and other stakeholders (Heng *et al.,* 2012). Such a shift from maximising shareholder profits to maximising stakeholder value implies very different goals with a broader set of beneficiaries (Padin *et al.,* 2016).

Scholars have employed the stakeholder theory as an instrumental lens to investigate different aspects of sustainability engagement. For example, Searcy (2009) has observed that many companies have developed sustainability performance measurement systems so that progress towards their sustainability goals, objectives and targets can be measured. The author suggested that a primary task at the beginning stage is to focus on relevant stakeholders, communicate with them, and work with them to gain a comprehensive understanding of their claims and requirements (Searcy, 2009), while Jamali (2006) has proposed a framework that links corporate sustainability and organisational learning and employed the lens of stakeholder theory to explore how this link would be facilitated.

Jamali (2006) has highlighted the importance of maintaining close and regular interactions with relevant stakeholders by creating a forum for learning and by building interactive teams to foster an effective learning environment. The author emphasised that in a continuous learning process

and interaction, stakeholders could identify common problems and explore higher-order solutions. This proposal not only helps organisations move in a desirable direction, it also helps to ensure that they react in a way that satisfies all concerned stakeholders (Jamali, 2006).

Generally, it is agreed that stakeholder theory is still an option, but this is being challenged by alternative concepts (Mitchell, Wood, and Agle, 1997; Lozano, 2005; Clifton and Amran, 2011). Stakeholder theory has mainly investigated fundamental questions such as "who (or what) are the stakeholders of the firm?" "to whom (or what) do managers pay attention?" (Mitchell, Wood, and Agle, 1997, p.853), and "who benefits?" (Stubblefield Loucks, Martens and Cho, 2010, p.180). Considering the development of stakeholder theory in comparison with the original concept proposed by Freeman (1984), the theory could now accommodate the exploration of stakeholders' attitudes, interactions and motivations to engage in sustainability. This reflects why stakeholder theory is a crucial organisational theory which underpins corporate sustainability research (Fraser *et al.,* 2006; Hubbard, 2009; Freeman *et al.,* 2010; Hörisch, Freeman and Schaltegger, 2014; Montiel and Delgado-Ceballos, 2014; Bellantuono, Pontrandolfo, and Scozzi, 2016; Küçükbay and Sürücü, 2019).

Considering the above discussion, stakeholder theory is employed in this current study to explore the motivation driving SMEs to adopt SPMS (sustainability performance measurement system). The motivation usually stems from the relationships with relevant stakeholders. It should be noted that CSR is a contextual and culture specific concept (Ahmad *et al.,* 2021), influenced by context-specific organisational actions (Aguinis and Glavas, 2012) and as such, the adoption of SPMS in the SME setting cannot be understood by employing only the lens of stakeholder theory. Accordingly, the next section discusses contingency theory.

2.4.2 Contingency Theory

This section presents the definitions and development of the concept and approach known as contingency theory. The core principle of this theory is that no universally appropriate framework applies equally to all organisations and all contextual conditions (Cardoni *et al.,* 2020; Medne and Lapina, 2019). Instead, contingency theory primarily depends upon many specific organisational and contextual factors (Wadongo and Abdel-Kader, 2014; Williams, Ashill, and Naumann, 2017). Considering performance measurement, the theory implies that there is no standard performance measurement suitable for all organisations and all circumstances; meaning that performance measurement is primarily dependent on contextual organisational factors (Cardoni *et al.,* 2020; Heng *et al.,* 2012).

It is recognised that contingency theory has become the primary theoretical lens for many studies on performance measurement. Indeed, there is a constantly growing literature of theoretical and empirical works that employ contingency theory to characterise the contingencies affecting choices of measures and controls as broad dichotomies (Garengo and Bititci, 2007; Searcy, 2011; Parisi, 2013; Wadongo and Abdel-Kader, 2014; Cardoni *et al.,* 2018).

For instance, in Franco and Bourne's (2003) research, through a framework with a focus on organisational context, the authors found nine functional factors that had a significant impact on the way organisations manage through measures: (i) organisational culture (ii) management leadership and commitment (iii) compensation linked to the strategic performance measurement system (iv) education and understanding (v) communication and reporting (vi) review and updating of the system (vii) data processing and information technology support (viii) business and industry and (ix) the performance measurement system framework. Their findings indicate

that designing performance measures depends on functional factors that require an organisation to put adequate mechanisms in place to increase the system's success (Franco and Bourne, 2003).

In the context of SMEs, a study by Garengo and Bititci (2007) operationalised the lens of contingency theory and developed a research framework. Four potential contingent factors were confirmed that would likely influence the adoption and use of performance measurement: (i) corporate governance structure (ii) management information systems (iii) the business model and (iv) organisational culture and managerial style. This framework provides knowledge helpful to SMEs as they define a methodology and managerial tool for measuring performance. The authors admitted that, in their proposed framework, these four contingency factors should be addressed in a concurrent manner to make them more integrated, rather than studied independently (Garengo and Bititci, 2007). Given this, their findings provide a helpful guide for SMEs and suggest that organisational changes need to be well prepared for; a favourable context should be in place before introducing performance measurement (Garengo and Bititci, 2007).

A contingent approach also needs to take into consideration the importance of aligning the search for performance metrics and business strategy. Prior studies have demonstrated a strong linkage between strategic alignment and performance measurement (Simpson, Padmore, and Newman, 2012; Klovienė and Speziale, 2015). The existing literature in sustainability suggests that businesses need to align their performance measurement systems with their strategic goals to promote sustainability performance measurement (Nigri and Baldo, 2018); in other words, to obtain an effective adoption of SPMS, companies need to match their structure and processes to the environment in which they operate (Yu, Ramanathan and Nath, 2017, p.161).

As argued by Garengo, Biazzo, and Bititci (2005), such a linkage is crucial for SMEs because these companies commonly lack formalised strategies. Implementing a performance measurement system could support the formalisation of a business strategy. Hudson, Smart, and Bourne (2001) supported this view by emphasising that a structured approach to performance measurement is needed to help SMEs improve their strategic control. Nigri (2018) further maintained there is still a need to integrate sustainability indicators and strategic performance measurement systems.

McAdam, Miller, and McSorley (2019) employ a contingency theory perspective with which they attempted to shape strategic alignment between the SMEs performance measurement and their environments. The authors proposed an integrated framework that considers flexibility in performance measurement systems when businesses such as fast-growing SMEs face dynamic shifts from mechanical to more organic structures in increasingly complex business environments. The results indicated that the shaping process occurred in ways unique to each SME and their respective environment rather than in an overarching best practice manner (McAdam, Miller, and McSorley, 2019). This approach seems to be somewhat neglected in the literature (Yu, Ramanathan and Nath, 2017), making the case for further exploration to develop a contingency approach in the SME sustainability performance measurement adoption literature.

Another proposal for studying the moderating effect of sustainability performance is found in a recent study by Cardoni *et al*. (2020). The authors considered how businesses managed knowledge and the contingency theory of performance measurement systems. They tested the impact of two alternative knowledge management approaches (exploitation and exploration) upon SMEs economic sustainability. The findings indicate that a specific knowledge management approach supports SMEs economic sustainability performance.

Some researchers have integrated the research on absorptive capacity and organisational learning to determine the role of organisational learning in successfully implementing new sustainability initiatives. For example, Goddard *et al.* (2016) proposed that absorptive capacity focuses on how SMEs sustainability knowledge is interpreted, used and implemented in organisational processes. Organisation learning drives and facilitates this process, increasing the capacity for implementing new sustainability standards. It should be noted here that in previous studies (Wadongo and Abdel-Kader, 2014; Sodhi and Tang, 2018; Abbas *et al.,* 2019), organisational learning capacity has been considered to be a contingency factor that influences the measurement and management of organisational performance.

In a recent study, Imbrogiano (2020) has revisited contingency theory with a strong focus on factors that enable sustainability performance in businesses. The author emphasised the need to understand different internal determinants occurring in businesses related to sustainability performance. The internal determinants considered were how stakeholders, especially key actors, understood sustainability performance in companies and under what conditions of the organisational environment the companies adopted appropriate sustainability performance measures (Imbrogiano, 2020). Furthermore, considering issues related to research methodology employed during the study of sustainability performance in businesses, the author suggests that whenever possible, using a mixed method is a better choice than concentrating on a single method. A mixed-method approach in which quantitative and qualitative methods are combined to utilise the strengths and mitigate the limitations of each would be better for studying the contingency factors associated with sustainability performance in businesses (Imbrogiano, 2020). The mixed-method approach should push the field forward toward a better understanding of sustainability performance (Imbrogiano, 2020).

Contingency theory has been further developed with the aim of understanding the aspects of organisations' internal and external environments that have influence on the adoption of sustainability initiatives. Some researchers have focused on exploring one aspect of these contextual factors while others have taken a more holistic approach; categorising contextual factors, determining how different types are linked together, and proposing new types. In addition, existing literature reveals that organisational context can be divided into internal and external contextual categories (Lopes de Sousa Jabbour, Ndubisi, and Roman Pais Seles, 2020). This categorisation provides a convenient way to organise contextual factors (Gualandris, Golini, and Kalchschmidt, 2014). The discussion thus implies by far that contingency theory has become a critical theoretical lens for studying a wide range of contextual organisational factors (Fallis, 2013). These factors can either enable or constrain the adoption of performance measures within an organisation (Garengo and Bititci, 2007).

Although contingency theory provides researchers with advantages when exploring factors influencing performance measurement, the approach also has some limitations; first, Olarewaju and George (2014) contend that dealing with a wide range of factors can be very challenging for managers who are always short of time and have to consider many factors before making a decision using contingency theory. In addition, Salzmann, Ionescu-Somers and Steger (2005) have stated that situational and organisational aspects are difficult to separate. Secondly, contingency theory is commonly viewed as lacking theoretical clarity and failing to specify the forms of interaction among the variables (Husted, 2000). Thirdly and finally, if the research model is not rigorously specified, measurement error might lead to conflicting findings (Ferreira and Otley, 2009). Husted (2000) wrote the more that hidden assumptions of contingency theories are made explicit, the more amenable to statistical testing it is.

Considering all the above discussion, the contingency theory is employed as the central theoretical lens in this study, considering the previous warnings and learnings of earlier researchers' experience. Using the contingency theory, this current study can specify and construct a testable theory of sustainability performance measurement. Accordingly, this current study will take into consideration the most appropriate characteristics of SMEs and the Vietnamese context in which they are operating. To do so, the institutional theory as a means to understand and take into consideration the context in which SMEs are operating is also employed.

The following section discusses the institutional theory.

2.4.3 Institutional Theory

Institutional theory was initially developed to address the influence that external institutional factors have on implementing organisational practices. Hirsch (1975) posits that organisations operate in a social environment encompassing several institutional elements (Scott, 2008; Gianni, Gotzamani, and Tsiotras, 2017). The institutional framework contains formal rules and laws put in place by the government, while the market and many informal rules, norms, beliefs, cultures and expectations arise from various organisational interactions with the business environments (DiMaggio and Powell, 1983; Scott, 2008). Thus, according to institutional theory, external influences shape and drive organisational actions (DiMaggio and Powell, 1983).

Mizruchi and Fein (1999) revisit institutional theory by examining 26 articles in which researchers operationalised the institutional perspective. The authors proposed that external institutions likely influence an organisation's performance and outcomes (Mizruchi and Fein, 1999). A later study by Scott (2008) reviews the development of institutional theory relating to organisations and the author concluded that companies operating in a particular field or sharing the same environment

tend to implement similar practices and develop similar structures by way of responding to the external environment through legitimate motives (Scott, 2008). The same author claimed that companies could adopt different response strategies ranging from conformance to reshaping these pressures, with the goal of responding to both changes in and pressures from their environment (Scott, 2008).

For institutional theory, DiMaggio and Powell (1983) suggest three fundamental mechanisms: coercive, mimetic and normative, through which isomorphic institutional change occurs. In this light, the theory has been employed in prior studies on corporate sustainability and these studies indicate that three mechanisms of isomorphism drive sustainability and business operations' alignments (Wahga, Blundel, and Schaefer, 2017; Zhang *et al.,* 2019).

Sridhar and Jones (2013) confirm that businesses adopt triple bottom line sustainability (TBL) which includes three pillars: economic, social, and environmental, as their reporting framework. The three pillars are influenced by coercive, normative, and mimetic isomorphism, respectively. From this perspective, the institutional theory demonstrates that the notion of sustainability to be located in the central and controlled Vietnamese system context which is advocating a socialist market economy with considerable influence from the state (Edwards and Phan, 2013; Nguyen, Bensemann and Kelly, 2018). From the standpoint of the institutional approach, this current study can obtain a rich insight into the adoption of SPMS in the Vietnamese SME setting, which is influenced by the system's surrounding SMEs that shape their social and organisation behaviour (Verma, Sharma and Kumar, 2017).

Theoretically, coercive isomorphism is driven by pressures from influential stakeholders such as government authorities and customers that push the company to engage in sustainability initiatives

(Abdalla and Siti-Nabiha, 2015; Zhang *et al.,* 2019), while normative isomorphism is typically based on voluntary diffusion of norms (Escobar and Vredenburg, 2011). This form involves pressures influencing companies to be more aware of sustainability, understand new social rules and new thinking, and to adopt sustainability initiatives (Caldera, Desha, and Dawes, 2019). In comparison, mimetic isomorphism occurs when companies perform in a specific manner by imitating other businesses in the same field that have successfully addressed sustainability issues (Abdalla and Siti-Nabiha, 2015; Escobar and Vredenburg, 2011; Peña-Vinces and Delgado-Márquez, 2013). This review reflects the three isomorphic mechanisms of institutional theory are helpful in capturing how businesses conform to institutional pressures from influential stakeholders.

Prior studies have demonstrated a strong linkage between institutional factors and organisational performance. For example, Zulu-Chisanga, Chabala and Mandawa-Bray (2020) proposed an integrated framework that considers government support, inter-firm collaboration, and managerial connection. The findings indicate that SMEs depend on external relationships to improve performance and have firm-specific skills and resources available to transform external resources into superior performance. However, this study failed to confirm a significant relationship between government support and company performance (Zulu-Chisanga, Chabala, and Mandawa-Bray, 2020).

Existing literature reveals that researchers tend to choose institutional theory as one of the theoretical lenses through which to conduct studies on the adoption of sustainability initiatives in the context of developing countries (Jamali, Lund-Thomsen, and Khara, 2017; Soundararajan, Jamali, and Spence, 2018; Tran, Deng, and Ong, 2018). For example, Tran, Deng, and Ong (2018)

investigated the decision of a Vietnamese firm to adopt social sustainability practices. The author developed a framework focusing on three aspects: institutional pressures, managerial climate, and organisational characteristics. Considering all discussions, the current study employs the lens of the institutional theory to explore whether the institutional-level interactions can be mediated to facilitate SPMS adoption in SMEs in the context of emerging economies like Vietnam.

In summary, the association and coordination of three theories; institutional, stakeholder and contingency, as theoretical lenses provide a better comprehension of SPMS adoption. In this manner, the present study provides diverse insights into the identification of appropriate sustainability metrics in the context of Vietnamese SMEs, while simultaneously considering factors that influence its adoption.

2.5 Concluding Remarks

This section has presented an overview of sustainability performance measurement systems, its key characteristics and main purposes. The review has achieved an understanding about two key elements of an SPMS, including ‘performance measurement’ and ‘a performance measure’, and has employed the definition of a SPMS for this current study.

The overall understanding of SPMS had led to the review of the TBL concept, which has given a better understanding of the issues and challenges of the concept. Despite the complexities resulting from the innumerable sustainability indicators that have been increasingly proposed, the TBL provides a holistic view, which is chosen as the main framework guiding the identification of appropriate sustainability metrics for SMEs.

This chapter has discussed three key theories that guided this current study, including stakeholder, institutional and contingency theories. These three theories have been employed as key theoretical lenses and each has provided specific insights into the SPMS adoption as summarised as below:

- The lens of the stakeholder theory has been useful in exploring the motivation of companies that drive SPMS adoption, and their responsiveness to the needs, concerns requirements, expectations, and preferences of relevant stakeholders.
- The lens of contingency theory has been helpful in viewing contextual factors of organisations that influence SPMS adoption.
- The lens of institutional theory has been useful in examining factors from the external environment, that influence SPMS adoption

While the current literature recognises some of the links and overlaps among these three theories, the application of the theoretical lenses, together with a more mixed-method approach, is a novel and original theoretical approach.

The next chapter discusses SMEs and their adoption of SPMS.

CHAPTER 3 SMALL AND MEDIUM-SIZED ENTERPRISES (SMEs) AND THEIR ADOPTION OF A SUSTAINABILITY PERFORMANCE MEASUREMENT SYSTEM (SPMS)

3.1 Introduction

The primary purpose of this second chapter of the literature review is to examine factors influencing the sustainability performance measures that are undertaken within SMEs. This includes a discussion of the theoretical underpinnings of sustainability performance measurement. Following this, the theoretical framework and development of hypotheses for the current study will be presented. The chapter also proposes a protocol for identifying sustainability metrics that can be applied within the SME. The objectives of the chapter are outlined in Table 3.1, along with the sections that address each objective.

Table 3.1 Objectives of Chapter 3

	Objectives	Section
1	- To present main internal factors that influence the adoption of sustainability performance measurement in SMEs. - To discuss the motivation for sustainability engagement. - To identify internal motivations driving SPMS adoption. - To identify external motivations driving SPMS adoption.	3.2 3.2.1 3.2.1.1 3.2.1.2
2	- To highlight inhibitors and enablers that influence SPMS adoption. - To highlight managerial perception and main issues faced by SMEs. - To examine organisational alignment towards SPMS adoption. - To highlight the role of senior managers and human resource capital. - To show why absorptive capacity is a key enabler facilitating SPMS adoption. - To show why the learning capacity of the organisation is a key enabler facilitating SPMS adoption.	3.3.2 3.3.2.1 3.3.2.2 3.3.2.3 3.3.2.4 3.3.2.5
3	- To highlight main external factors that influence SPMS adoption in the SME setting.	3.5

The following section presents the main internal factors that influence the adoption of a sustainability performance measurement system by SMEs.

3.2 Main internal Factors that Influence the Adoption of SPMS by SMEs

It is essential to recognise that measuring corporate sustainability is a complex problem that requires the input of a significant amount of time and effort. For this reason, Searcy (2009b) suggests that it is crucial to survey both the internal and external environments in which the corporation operates when an SPMS is in the very early stages of creation.

Searcy usefully provides situational, goal, and implementation diagnostic questions. This can assist the decision-makers and academic researchers in both making and building upon the structure of thinking and discussions that need to be around the key issues that should be addressed (see Searcy, 2009b).

Following Searcy's (2009b) instructions, this section discusses the prominent internal factors that influence the adoption of SPMS by SMEs. The first sub-section presents the motivation for sustainability engagement among SMEs.

3.2.1 The motivation for Sustainability Engagement among SMEs

It can be deduced from the previous research, as above, that companies are increasingly addressing sustainability activities through operational practices (Font, Garay, and Jones, 2016; Anlesinya and Susomrith, 2020) and strategies (Stubblefield Loucks, Martens, and Cho, 2010; Nayak *et al.,* 2019). This means they have been looking beyond the traditional focus of immediate profit and have begun to shift their focus to concentrating on sustainability performance management and measurement (Husgafvel *et al.,* 2014). Still further, both practitioners and academic researchers of corporate sustainability have recognised the benefits that can be derived from the sustainability performance of the SME (Lo and Sheu, 2007; Bourlakis *et al.,* 2014; Sajan *et al.,* 2017; Nigri, 2018; Caldera, Desha and Dawes, 2019; Prashar and Sunder, 2020).

It has been observed through prior research that SMEs have increasingly been implementing sustainability initiatives which are driven by certain motivations and these can often be categorised into two types: internal motivations and external motivations (Bianchi, 1998; Masurel, 2007; Lozano, 2015; Meath, Linnenluecke and Griffiths, 2016). In a recent study by De Steur *et al*. (2020) it was highlighted that SMEs tend to consider that internal motivations are more important than external ones. Both motivations, however, are important drivers that motivate the SME to integrate sustainability metrics into daily decision-making (Nigri and Baldo, 2018).

The following sub-section discusses the main internal motivations for sustainability engagement among SMEs.

3.2.1.1 Internal Motivations

Internal motivations refer to the activities and processes inside an organisation (Lozano, 2015) that will drive businesses toward sustainability engagement. Several benefits and drivers have been widely cited in the existing literature: cost and resource efficiency, corporate image and reputation enhancement, potential customer attraction, employee retention and loyalty, improvements in working conditions, waste and discharge reduction, differentiation and competitive advantage. These are summarised in Table 3.2.

Table 3.2 Internal Motivations to Engage with Sustainability Initiatives

Internal drivers	Supporting literature
To achieve cost efficiency	Gadenne *et al*. (2009), Shnayder *et al*. (2015), Wiesner *et al*. (2017)
To achieve resource efficiency	Revell and Blackburn (2007), Kumar (2017), Pacheco *et al*. (2018)
To enhance corporate image and reputation	Masurel (2007), Lozano (2015), Hsu and Cheng (2012), Zhang *et al*. (2019)
To increase the retention rate among employees and gain their loyalty	Pullman *et al*. (2009), Baum and Patterson (2016), Garbie (2016)
To improve working conditions	Zorpas (2010), Lee and Torm (2017), Choongo, (2017), Kumar *et al*. (2018)
To reduce waste and discharge	Gadenne *et al*. (2009), Chen *et al*. (2017), Jiang *et al*. (2018)
To differentiate and compete	De Steur *et al*. (2020), Reyes-Rodríguez *et al*. (2016), Ghazilla *et al*. (2015b), Wiesner *et al*. (2017)

3.2.1.2 External Motivations

External motivations refer to the impacts outside of an organisation (Gimenez and Tachizawa, 2012) and within the macro environment (Das, Rangarajan and Dutta, 2020). However, the external motivations for sustainable practices do vary from country to country, depending on regulatory pressure, stakeholders' demand (Lozano, 2015), social-economic status and cultural differences (Das, Rangarajan and Dutta, 2020). Despite several external motivations, have been widely cited in the existing literature, that drive SMEs to engage with sustainability initiatives (summarised in Table 3.3). Little is known about how these influence SPMS adoption with regard to the SME setting, particularly in the context of developing countries (Agyemang and Ansong, 2017; Leonidou *et al.,* 2017).

Table 3.3 External Drivers to Engage with Sustainability Initiatives

External Drivers	Supporting literature
To comply with laws and regulations	Frondel *et al*. (2008), Russo and Perrini (2010), Hahn *et al*. (2015), Leonidou *et al*. (2017)
To enter a new market	Schrettle *et al*. (2014), Engert *et al*. (2016), De Steur *et al*. (2020)
To strengthen the partnership	Veleva and Ellenbecker (2001), Revell and Blackburn (2007), Hutchins and Sutherland (2008), Song and Choi (2018)
To attract potential customers	Revell and Blackburn (2007), Revell *et al*. (2010), Parrish (2010), Rahbauer *et al*. (2018), Zhang *et al*. (2019)
To meet the demands of the customers who require sustainable products	Dharam and Singh (2015), Reyes-Rodriguez *et al*. (2016), De Steur *et al*. (2020)
To improve the relationship with the local community	Tsalis *et al*. (2013), Iraldo *et al*. (2010), Hasan, (2016)
To improve the relationship with stakeholders	Hillary (2004), Johnson and Schaltegger (2016), Ngoc *et al*. (2014), Gong *et al*. (2018)

Overall, the above arguments propose that a higher level of motivation in order to adopt sustainability measures indicate a more notable ability to adopt SPMS. The current study suggests that the motivation (perceived benefits) for SMEs to engage in good sustainability practices is one of the best predictors of future SPMS adoption. It is, therefore, reasonable to propose that motivation is positively associated with the adoption of sustainability performance measurement in Vietnamese SMEs. The following hypothesis is therefore formulated:

H1: Motivation has a significant and positive impact on the adoption of SPMS

3.2.2 Key Inhibitors and Enablers that can affect the Adoption of SPMS in the SME setting

It is important to reiterate that measuring sustainability performance is becoming crucial for companies of all sizes (Searcy, 2016), in order that they may address their sustainability activities and maintain their status and competitiveness within a business environment. (Bourlakis *et al.,* 2014; Trianni *et al.,* 2019). Although benefits can clearly be derived from employing good sustainability practices, reluctance and resistance remain in the context of SMEs.

A key point of fact must be to remember that SMEs are not a "scaled-down" version of larger corporations. SMEs have unique characteristics that significantly affect the way in which they are managed (Hill, Nancarrow and Wright, 2002; Jenkins, 2006; Masurel, 2007; Bos-brouwers, 2009; Preuss and Perschke, 2010; Darcy *et al.,* 2014; Tran and Jeppesen, 2016; Saad, Kumar and Bradford, 2017).

From the perspective of the resource-based view (RBV) it is important to acknowledge that each SME has a distinctive set of resources and capabilities (Yu and Ramanathan, 2016; Zhang *et al.,* 2019; Al-kalouti *et al.,* 2020) that enable them to be able to effectively manage and create more capabilities that will enable them to adopt SPMS (Suh and Lee, 2018). A potential challenge that the SME will come up against in the decision-making process that will be used to implement SPMS is how to balance priorities, particularly costs, and how to effectively manage short-and long-term trade-offs (Roehrich, Grosvold and Hoejmose, 2014). As Eikelenboom *et al*. (2019) claim, little is known about firstly, whether, and secondly, how the SMEs, because of resource constraints, would be able to utilise organisational capabilities that would simultaneously address economic, social, and environmental sustainability performances. Drawing on these arguments, the remainder

of this section will examine key inhibitors and enablers that influence the adoption of SPMS within the setting of the SME.

The following sub-section discusses managerial perception and challenge towards the adoption of SPMS.

3.2.2.1 Managerial Perception and Main Challenges faced by SMEs towards the Adoption of SPMS

Extant literature reveals that in most SMEs, the owner controls and manages the business , which means the ownership and control are the responsibility of the same person (Wickert, 2014; Raziq and Wiesner, 2016). This common form allows them to significantly control over the resource allocation for the business to grow and engage with sustainability initiatives (Darcy *et al.,* 2014; Eikelenboom and de Jong, 2019). Notwithstanding, the lack of awareness about sustainability issues (Dissanayake *et al.,* 2020), and the absence of perceived benefits from implementing sustainability management tools (Johnson and Schaltegger, 2016) can be barriers preventing SPMS adoption in the SME setting.

As previously stated, in SMEs, the SPMS adoption is primarily influenced by managerial mind-set of the owners. Despite it might differ from one to another, it is important to recognise that SMEs' managerial perceptions towards SPMS adoption can be subjective (Aragón-Correa *et al.,* 2008). Often, managers tend to avoid adopting sustainability initiatives if they believe their organisations do not have capabilities to afford them. In fact, understanding about relevant capabilities to effectively adopt SMPM is not always an easy thing. As Yu and Ramanathan (2016) claim, there has been a shortcoming of guidance on how to create and develop relevant capabilities, which help companies to effectively implement a sustainability initiative.

Managerial mind-set can be viewed as two main typologies, namely a growth mind-set or a fixed/traditional mind-set of business operation (Nguyen, 2019; Tumpa *et al.,* 2019; Zhang and Morse, 2014). It is generally agreed that managers with a growth mind-set tend to drive companies to engage in sustainability management and foster SPMS adoption within their organisation (Eikelenboom and de Jong, 2019). It is believed that having positive influences throughout an organisation because it creates resilience and tenacity, it enhances collaboration, communication and engagement, and also facilitates motivation for learning and development (Nguyen, 2019).

On the opposite side, a fixed mind-set is considered profit-driven above all other goals, rather than using the approach of profit-sacrificing sustainability (Hasan, 2016; Kumar *et al.,* 2018; Lee, Herold and Yu, 2016; Pham, Yong and Truong, 2019). While the decision regarding the adoption of SPMS does mean that SMEs have to accept potential trade-offs. In this case, a business will be willing to accept less profit when initially setting up adoption of SPMS. Ergo, it appears that a growth mind-set will drive a company to adopt SPMS, while a fixed mind-set probably demotivates it. In this current study the term 'mind-set' refers to that of all management levels and employees within the SME setting.

Extant literature reveal that SMEs often focus on a range of short-term goals (Preuss and Perschke, 2010; Sommer, 2017). And at the same time, they have different problems to deal with (Sousa and Aspinwall, 2010), and often have an informal approach to the sustainability engagement (Darcy *et al.,* 2014; Jenkins, 2006; Russo and Tencati, 2009). SMEs are frequently characterised by growth through internal financing (Moore and Manring, 2009; Sommer, 2017). SME are also found that fear of accrual debt if a new business idea implemented is successful, particularly SMEs in the context of Vietnam (Phan *et al.,* 2015; Rand and Tarp, 2020). As such, the opinions on cost

efficiency associated with SPMS adoption, to a large extent, might not always be favourable to SMEs. This is because most SMEs probably expect immediate outcomes from their investment (Jahanshahi, Brem and Bhattacharjee, 2017; Jia *et al.,* 2018; Khurana, Haleem and Mannan, 2019). This explains why SMEs rarely set or make no formal allocation of a separate sustainability budget (Shields and Shelleman, 2015; Caldera, Desha and Dawes, 2019). Therefore, these issues mentioned here can be significant barriers of SMEs that may impede their ability to adopt SPMS.

Assuming that the owner of a SME has a growth mind-set, and he or she perceives penitential benefits that their company can reap from SPMS adoption. It is, however, vital to recognise that businesses engaging in sustainability initiatives require sufficient resources, this is inevitable (Jenkins, 2006; Palmer, Russell and McIntosh, 2012; Chen *et al.,* 2014; Leonidou *et al.,* 2017; Ayuso, 2018; Ye and Kulathunga, 2019). It has been found that SMEs can resist investing in sustainability initiatives if they perceive that it requires more human resources and thereby incur more financial cost (Revell and Blackburn, 2007; 2010; Lourenco *et al.,* 2012; Kallmuenzer *et al.,* 2017). Previous studies have shown that due to limited resources, in terms of finance, human and time, SMEs often lack effort with regard to developing SPMS (Singh, Olugu and Musa, 2016; Trianni *et al.,* 2019). Therefore, resource constraints can be significant inhibitors hindering SPMS adoption.

Another significant challenge can be faced by SMEs is the impact of organisational alignment on the effective adoption of SPMS (Parisi, 2013; Morioka and de Carvalho, 2016; Ghadge, Kaklamanou and Bourlakis, 2017). Empirical evidence has supported this viewpoint; Caldera, Desha and Dawes (2019, p. 583) have found that "most SMEs are used to engaging in traditional practices… it was challenging to move from 'business as usual' to new ways of doing business."

Similarly, Shi *et al.* (2008) note that SMEs' senior managers often worry that changing current operational processes will be risky.

The above discussion is in line with the extensive research, which have attempted to develop a SPMS that can be applied to the SMEs, connecting with their existing integrated performance measurement systems. For example, in their work, Hsu, Chang and Luo (2017) points out that, in practice, it is extremely difficult for SMEs to simultaneously implement all the performance measures. A possible explanation is that existing integrated performance measurement systems, such as the balanced scorecard, have often been poorly understood and incorrectly applied by SMEs (Garengo, Biazzo and Bititci, 2005; Pešalj, Pavlov and Micheli, 2018). As Azapagic (2004) claim, the application of an advance performance measurement is quite complex, expensive and time-consuming. Technically, this is a challenging task that is difficult to align intricate complexities related to organisational aspects such as internal networks, processes (Alagaraja and Shuck, 2015). There are other characteristics of SMEs which can impede their ability to effectively implement an advance performance measurement. SMEs are often described as having simple organisational structures (Cordano, Marshall and Silverman, 2010), informal rules, routine and process (Cassells and Lewis, 2011; Saad, Kumar and Bradford, 2017; Wickert, 2014). Additionally, SMEs are found to have limited knowledge and expertise to effectively implement sustainability initiatives (Singh, Olugu and Musa, 2016; Caldera, Desha and Dawes, 2019; Trianni *et al.,* 2019; Cardoni *et al.,* 2020). Such foreseeable difficulties, SMEs can be reluctant to take on a challenge (Sirsly and Sur, 2014), or fear of dealing with change (Sroufe *et al.,* 2010) towards adopt a new sustainability initiative likes SPMS.

It is inevitable the developmental process, or adoption of SPMS, is likely to be a complicated task, which requires continuous monitoring and adjustments over time (Buller and McEvoy, 2012) and might be financially costly (Abbasi and Nilsson, 2012). This reflects why managers of SMEs often complain about the adverse effects of implementing sustainability initiatives in terms of increased costs and complexities (Danso *et al.,* 2019), which also explain why initial sustainability investment and hidden costs are very often significant obstacles for SMEs (Ghadge *et al.,* 2020; Hwang, Shan and Lye, 2018; Trianni, Cagno and Farné, 2016). It is highlighted that uncomfortable experiences with a previous sustainability initiative implementation can hinder the adoption another in the future (Chan, 2011).

Considering the above discussion, it is reasonable to propose that a lack of managerial perception and internal shortcomings will demotivate SMEs from adopting SPMS. Therefore, this thesis proposes that:

H2a: A lack of managerial perception has a significant and negative impact on the adoption of SPMS.

H2b: Internal shortcomings have a significant and negative impact on the adoption of SPMS.

3.2.2.2 Organisational Alignment towards SPMS Adoption

As previously stated, the adoption of SPMS necessitates SMEs to accept potential trade-offs. At the organisational level, it depends on entrepreneurial sustainability orientation (Danso *et al.,* 2019; DiVito and Bohnsack, 2017). It is about the integration of entrepreneurial orientation and the TBL sustainability (Criado-Gomis, Cervera-Taulet and Iniesta-Bonillo, 2017). In other words,

it is viewed as a strategic resource that enables a company to integrate sustainability goals into their organisational mindset (Filser *et al.,* 2019).

Inevitably, trade-offs can be varied from one situation to another and also from one company to another; for example, a business is willing to accept less profit when initially setting up adoption of SPMS, or trade-offs between selecting economic, environmental, and social metrics. As Hahn *et al.* (2010) state, trade-offs can occur between available and desirable sustainability performance metrics. To this end, it is important to acknowledge that there seems to be trade-offs throughout the developmental process of SPMS (Govindan *et al.,* 2015; Hák, Moldan and Dahl, 2007) and actions taken to improve one dimension might either depress, or indeed have no effect at all on performance (Murphy, Trailer and Hill, 1996; Simpson, Padmore and Newman, 2012).

A relative strength of the SME is often described as lying within the owner's entrepreneurial mind-set, which in turn enables businesses to be flexible, adaptive (Branicki, Sullivan-Taylor and Livschitz, 2018). This strength can help SMEs to effectively manage their trade-offs to create and develop relevant capabilities in terms of SPMS adoption. It is, however, influenced by SMEs' entrepreneurial resilience and their perception about importance for sustainability issues (Ates and Bititci, 2011; Moore and Manring, 2009); it can be related to extreme events, such as the global crisis of the COVID-19 pandemic (Susanto, 2021). Successful SPMS adoption can be linked with the need of SMEs to build resilient organisations in order to integrate perspective of TBL concept, focus on addressing the needs of key stakeholders and adopt a long-term perspective (Ahi and Searcy, 2013).

To understand the SPMS adoption within the SME setting, it is important to uncover the mechanisms that underly the decision-making trade-offs which are signalled through the

entrepreneurial sustainability orientation (DiVito and Bohnsack, 2017); this relies on the contextual condition of entrepreneurial businesses (Mahmud, Soetanto and Jack, 2021). To the best knowledge of the researcher of this current study, this issue has not been studied very rigorously.

With respect to support SMEs with the challenge of organisational alignment, a practical approach is to align SPMS with organisational short-term and long-term strategic goals (Parisi, 2013; Pryshlakivsky and Searcy, 2015; Morioka and de Carvalho, 2016). From this starting point, it is critical to recognise that an effective SPMS adoption is the coordination with relevant stakeholders (Garengo, Biazzo and Bititci, 2005; Harding, 2006; Jamali and Mirshak, 2007; Cory Searcy, 2009). As for SMEs, they often act as suppliers for large companies (Bos-brouwers, 2009; Granly and Welo, 2014). For this reason, SMEs' objectives of SPMS adoption need to align with their key stakeholders' expectations. In this way, SMEs can engage with them and create a basis for rich communications about their sustainability performance (Melnyk, Stewart and Swink, 2004; Perrini and Tencati, 2006; Searcy, 2012). As a consequence, SMEs can better evaluate their measurement system, develop recommendations (Pádua and Jabbour, 2015), and then develop an appropriate strategy for SPMS adoption (Searcy, 2011).

In the same line with the above reasoning, SMEs can respond to requirements, expectations and preferences of the relevant stakeholders' interests (Yu and Ramanathan, 2015). From that point, they can also open up win-win opportunities (Dey *et al.,* 2019; Shaw, Grant and Mangan, 2021; Yu, Ramanathan and Nath, 2017). Notwithstanding, it is important to recognise that in the real world, win–win opportunities often go unnoticed, and sustainability issues are complex, with varied trade-offs and different conflicts. Hence, a practical strategy is to follow the rule rather than

the exception to avoid being overly optimistic (Hahn *et al.,* 2010). This approach necessitates the SME to be flexible (Ates *et al.,* 2013) to effectively manage trade-offs in order to transform opportunities into win–win outcomes (Cubas-Díaz and Martínez Sedano, 2017).

Needless to say, sustainability is complex and challenging as it covers several aspects. In this case, it requires a certain level of resources and capabilities that SMEs may not have (Ghadge *et al.,* 2020; Wu *et al.,* 2019). This clearly necessitates SMEs to utilise flexibility (Grigorescu *et al.,* 2020; Nguyen, 2019) whenever necessary in order to select appropriate metrics on condition that best suited to their available resources and business model (Aragón-Correa *et al.,* 2008; Shields, Welsh and Shelleman, 2018). To this end, SMEs can deal with conflicts between priorities (Martins *et al.,* 2007), emerging issues, uncertainties and unavoidable iterations (Searcy, 2009). For the most part, a practical and straightforward approach for a SME in effective implementing SPMS is to focus on the relevant capabilities that they have or can create and develop; and simultaneously avoid complexities that cannot afford (Yu and Ramanathan, 2016).

For some SMEs, the organisational alignment and SPMS adoption can utilise and consolidate existing sustainability management tools in administrative processes like Kaizen and ISO 14001 (Caldera, Desha and Dawes, 2019). This implies that they need to review existing processes and identify overlapping areas of existing sustainability tools and SPMS, which can be interdependent and synergistic. From another perspective, many SMEs have been presented having difficulties in developing effective mission, vision, and values (Ates *et al.,* 2013); it turns out that SPMS adoption can be an opportunity to formalise their strategies (Garengo, Biazzo and Bititci, 2005). If so, an awareness of these cumulative benefits is crucial, which can guide SMEs to generate the most effective impact under resource constraints.

In this section, it has been explained that the importance of organisational alignment towards the effective adoption of SPMS. The following section discusses the role of top managers and human resource capital with regard to adopting SPMS adoption within the SMEs setting.

3.2.2.3 The Role of Top Manager and Human Resource Capital towards SPMS Adoption

Most of the literature has placed a greater emphasis on the positive relationship between human capital resources and the sustainability performance of the SME (Masood, Soomro and Ali, 2018; Küçükbay and Sürücü, 2019). Human capital refers to "the skills, knowledge, business management experience and formal educational training of owners/managers of businesses…. [this] is considered intangible capital which can be leveraged to a firm's competitive advantage" (Roxas and Chadee, 2017, p.2). It is regarded as the most important intangible asset that drives SMEs' survival and development (Tiep, Huan and Hong, 2021; Zulu-Chisanga, Chabala and Mandawa-Bray, 2020).

Human resource support is a crucial enabler facilitating SPMS adoption (Siegel *et al.,* 2019), as well as obtaining positive sustainability performance outcomes (Raziq and Wiesner, 2016; Nguyen and Tran, 2020). In contrast, lack of adequate human resources might prevent SMEs effectively implementing sustainability initiatives (Johnson and Schaltegger, 2016; Caldera, Desha and Dawes, 2019). Within the SME, top managers are responsible for choosing and accepting effective sustainability metrics (Taylor and Taylor, 2014 AlNuaimi, Al Mazrouei and Jabeen, 2020). Given this, it is beneficial to have employee involvement, because if an employees are involved, this can limit the amount of resistance to change (Franco and Bourne, 2003) and enhance the employees'

engagement /interest, as well as promoting responsibility-sharing (de Villiers, Rouse and Kerr, 2016).

Moreover, employee involvement can also help top managers to avoid subjectivity and bias (Franco and Bourne, 2003); to give one example, when making decisions on employee-related metrics. As explained by stakeholder theory in chapter 2, stakeholders often have different demands and conflicting interests. With this practical approach, SMEs can meet both the needs and expectations of employees, a primary internal stakeholder group. As highlighted in the existing literature, this group has influence over implementation of select SPMS decisions (Adams and Frost, 2008; Papert, Rimpler and Pflaum, 2016; Searcy, 2016), sustainability performance outcomes (Das, Rangarajan and Dutta, 2020; Nguyen and Tran, 2020) and the way that businesses operate (Nejati, Amran and Hazlina Ahmad, 2014).

Studies on SMEs have shown that low employee engagement can deleverage the adoption of a sustainability initiative. (AlNuaimi, Al Mazrouei and Jabeen, 2020; Pham, Yong and Truong, 2019). Wiesner, Chadee and Best (2017) have attempted to explain the phenomenon by investigating how SMEs managed the change towards environmental sustainability. The authors have used the following comment from an SME owner to shed light on this phenomenon: “There was a lot of resistance because they couldn’t see why we were doing this” (Wiesner, Chadee and Best, 2017, p.18).

One essential point that is linked with the responsibility of top managers is that a shared vision to all company staff should be implemented (Dzhengiz and Niesten, 2020; Saratun, 2016; Xin *et al.,* 2020). This implies that it is simply not enough for employees to know their managers’ objectives, rather, it entails a shared feeling that the objectives of the company are crucial and that all

employees may contribute to defining them (Aragón-Correa *et al.,* 2008). This can develop employee capabilities in terms of accumulated skills (Yu and Ramanathan, 2016), leadership and key internal stakeholder management, which is necessary for implementation of SPMS adoption. Its success or effectiveness, however, likely depends on the communication skills of each top manager.

It would be appropriate to indicate that in the early stages of the developmental process of SPMS, it is not wise to punish or blame individuals. It is far more appropriate to provide clear and concise information in a straightforward way to all employees throughout the organisation (Tarí and Molina-Azorín, 2010) that will help the organisation to take the appropriate actions with the ultimate goal of adopting SPMS. SMEs have notable strengths, including small company-sizes that can easily communicate and discuss metrics (Ingwersen *et al.,* 2014), there is often an informal culture (Graafland, Van de Ven and Stoffele, 2003), less bureaucracy and a direct and informal communication system that can facilitate exchange of information (Fuller and Lewis, 2002). SMEs can consider developing a roadmap that will navigate the developmental process of SPMS adoption, which can be long and complex. The level of detail is closely linked to the objectives of each SME. The discussion here reflects that effective communication is a significant enabler facilitating SPMS adoption.

Even when the identification of sustainability metrics is complete, the implementation of SPMS is not always a straightforward task. Prior research undertaken on SMEs has highlighted that employee involvement is crucial to the success of integration of a sustainability initiative, such as the EMS (environmental management system) (Curkovic, Sroufe and Melnyk, 2005; Zorpas, 2010). Literature reveals that the alignment of SPMS with organisational strategy, as previously

discussed, can be achieved if a company has a robust system that enables employee involvement and support (Parisi, 2013; Ghadge, Kaklamanou and Bourlakis, 2017; Siegel *et al.,* 2019). This necessitates that top managers ensure that their employees are empowered to take part in the decision-making processes that are relevant to issues of SPMS adoption, which is viewed as an effective tool to intrinsically motivate people (Busse *et al.,* 2016). Yusoff *et al*. (2016) support this viewpoint by providing empirical evidence indicating that employee empowerment has a positive association with social, environmental, and economic performance of Malaysian manufacturing SMEs. As Sousa and Aspinwall (2010) claim, a lack of employee empowerment may result in exceeding initial cost estimates whilst implementing performance measurement among SMEs.

However, it is vital to acknowledge that the true benefit of empowerment can only be realised if employees experience empowerment in the real sense, and this demands a key role of authentic leadership (Govender and Bussin, 2020); lack of strong leadership may result in a fake involvement with top management demanding more and acquiescing less (Smith, 2018). This can be important within the SME, where leadership and management styles typically follow a top-down hierarchical approach (Wrana, Xuan and Nguyen, 2019) in which operational personnel must gain permission from top management (Busse *et al.,* 2016). This necessitates that a top manager is flexible with regard to promoting employee empowerment. Also, managers should deliver, throughout the process of SPMS adoption, an appropriate attitude (Burke and Gaughran, 2007), openness and proactive behaviour (Nguyen and Tran, 2020).

The influences of top management have been highlighted in the existing literature, stating that they can help facilitate sustainability-oriented engagement (Jahanshahi and Brem, 2017) and enhance the training provided to employees (Khurana, Haleem and Mannan, 2019). They can also

encourage middle managers to take on sustainability responsibility (Bao, Wang and Sun, 2019; Nguyen and Tran, 2020). It is crucial to recognise that within the SME, middle managers play a critical intermediary role between the 'top' and 'bottom' of the organisation, interpreting and communicating data, information and knowledge emanating from different organisational actors (Camuffo and Comacchio, 2005). Although they may not have the skills to implement change (Smith, 2018), they will sometimes play the role of "change-agent" for the self-revolution of the organisation (Nonaka, 1994).

In line with the above reasoning, it is crucial to note that within the SME, employees are typically absorbed by their daily operational tasks, leaving no room for activities that are not directly related to the day-to-day business (Johnson and Schaltegger, 2016; Sommer, 2017) and top managers also have little time for tasks beyond managing the core business of the company (European Commission, 2002; Cassells and Lewis, 2011; Granly and Welo, 2014; Sommer, 2017). Under this circumstance, it necessitates that top management to be flexible and effectively manage trade-offs that give empowerment through proactive negotiations with employees about mutual benefits (Tuan and Rowley, 2015). Accordingly, fair accountability and responsibility toward the adoption of SPMS need be applied to both individuals and teams, and clear instruction needs to be in place and clearly communicated to enhance employees' trust and motivation and promote their self-performance management (Sardi *et al.,* 2020).

As discussed in chapter 2, employee empowerment has a positive influence upon job satisfaction, employee retention and also corporate culture (Srisathan, Ketkaew and Naruetharadhol, 2020). Employee empowerment can help SMEs mitigate the problem of successfully retaining qualified staff who can support the adoption of SPMS (Rao *et al.,* 2006; Raderbauer, 2011; Tran, Deng and

Ong, 2018; Siegel *et al.,* 2019). This shows that employee empowerment is a crucial enabler facilitating SPMS adoption.

Most of the literature has placed a great emphasis on managerial capabilities as a key determinant for the success of implementing a sustainability initiative (Khurana, Haleem and Mannan, 2019; Roxas, 2021). A dynamic managerial capability refers to "the capacity of managers to create, extend or modify the knowledge resource base of an organization" (Volberda, Foss and Lyles, 2010, p.940). Existing literature highlights that managerial skills may be lacking within SMEs (Rachidi and El Mohajir, 2021; Sardi *et al.,* 2020; Shi *et al.,* 2008; Tien, Anh and Ngoc, 2020) and that this is a common issue (Sardi *et al.,* 2020), particularly in developing countries such as Vietnam, where both top management and employees have been tasked to build upon the fundamental managerial skills of planning, organising, communication, coordinating, decision-making, team-building and leadership (Bruwer and Smith, 2018; Chandra, Paul and Chavan, 2020; Etuk, Etuk and Michael, 2014; Quan, 2015; Tran and Pham, 2020; Tran, Deng and Ong, 2018; Urban and Naidoo, 2012). It can be argued that even both top managers and employees are involved both personally and interactively during the developmental process of SPMS and if they lack necessary managerial skills, their decision-making ability can be limited. This indicates that there is a need for SMEs to be flexible and for trade-offs to be effectively managed in order that entrepreneurial managerial capabilities will move forward and foster organisational resources (Roxas, 2021). It is within the managers role to encourage, motivate and offer opportunities for employees to develop new skills and competencies that will support the SPMS adoption (Siegel *et al.,* 2019). Ergo, managerial capabilities are crucial enablers.

Considering the above discussion, it seems clear that within SMEs, the top managers have a strong influence within the context of the organisational environment, and this helps to create the necessary organisational changes towards the adoption of SPMS. They play a central role in identifying, developing and allocating relevant resources for the adoption of SPMS. It is crucial that they are flexible, and that trade-offs are effectively managed whenever necessary in order to develop and build the relevant internal capabilities; their key role can be also viewed as a vital intangible capability. This explains why most literature has placed a great emphasis that top management support is vital and significantly influences the effective implementation of SPMS (Parisi, 2013; Johnson, 2015; Aboelmaged, 2018).

Top management support refers to the degree to which top managers consider the activities of a new project an essential priority and this support is critical to a company's effectiveness (Jarvenpaa and Ives, 1991). It is imperative to recognise that SPMS adoption involves an organisational change through which new behaviours, habits, attitudes, and values are generated and developed within organisational structure and processes (Goddard *et al.,* 2016). Such phenomena typically occurs at both corporate and individual levels (Sroufe *et al.,* 2010; Shevchenko, Lévesque and Pagell, 2016). Importantly, in SMEs, top managers need to be well prepared to commit from the very outset of the project (Siegel *et al.,* 2019). But predominantly, their support need to be signalled through active involvement, encouragement and supervision to introduce appropriate changes conducive to commitment, engagement and motivation to SPMS adoption in the organisation (Dora, Kumar and Gellynck, 2016; Tran, Deng and Ong, 2018). Evidence from extensive literature has also indicated that top management support has a positive relationship with sustainability performance implementation and its outcomes (Parisi, 2013; Nguyen, 2019; Nguyen and Tran, 2020). In the same vein, prior studies have highlighted that it has a positive impact on not just as

the adopting sustainability management tools (Johnson, 2015), but also on the implementing performance measurement (Taylor and Taylor, 2014). Therefore, the current study considers top management support a critical enabler facilitating the implementation of SPMS in SMEs. Thus, the third hypothesis is as follows:

H3: Top management support has a significant and positive impact on the adoption of SPMS

3.2.2.4 Absorptive Capacity and SPMS Adoption

It should be highlighted that the adoption of SPMS require an SME to have a certain amount of prior knowledge (Ahi and Searcy, 2013a; Høgevold *et al.,* 2015; Simpson, Padmore and Newman, 2012) which primarily depends on a firm's absorptive capacity to address its needs more effectively (Ahi and Searcy, 2013a; Cohen and Levinthal, 1990; Høgevold *et al.,* 2015; Shahzad *et al.,* 2020). An early study by Cohen and Levinthal (1990), who initially proposed the concept of 'absorptive capacity', suggests that an organisation's capacity for innovation is determined by absorptive capacity or prior knowledge; prior knowledge is defined as "an ability to recognise the value of new information, assimilate it, and apply it to commercial ends" (Cohen and Levinthal, 1990, p.128.). An analogous notion of absorptive capacity also exists for individuals, hence, organisation's absorptive capacity depends on the absorptive capacity of individuals in the organisation (Francalanci and Morabito, 2008). As Riikkinen, Kauppi and Salmi (2017) pointed out, absorptive capacities are crucial in defining and identifying sustainability metrics.

On the basis, absorptive capacity incorporates a set of four critical processes: knowledge acquisition, assimilation, transformation, and exploitation (Cohen and Levinthal, 1990). In most cases, absorptive capacity can be divided into two types: potential, and realised absorptive

capacities (Zahra and George, 2002). The former focuses on knowledge acquisition and assimilation while the latter centres on knowledge transformation and exploitation (Albort-Morant *et al.,* 2018; Muathe and Muithya, 2020).

From an absorptive capacity perspective, SMEs can acquire external knowledge and integrate it with existing internal knowledge (Cohen and Levinthal, 1990; Csillag *et al.,* 2019). Often, the external knowledge can inflow from collaboration with external stakeholders; these include customers, suppliers, trade associations, local authorities, competitors and consultants (Johnson, 2017; Mishra, 2019; Seo *et al.,* 2016). In this point, SMEs have novel strengths that can support this process: motivation, a good network, greater proximity to market (Ngah and Jusoff, 2009), dynamic behaviour and close proximity to customers and suppliers (Meixell and Gargeya, 2005). Alternatively, the knowledge acquisition and assimilation of SMEs can be supported by internal capabilities in two ways (Isensee *et al.,* 2020; Johnson, 2017) ; firstly, SMEs can utilise previous related knowledge and experience that has been gained from sustainability-related programmes such as ISO. Secondly, they can seek assistance from employees who have educational qualifications and expertise (Johnson, 2017).

In a recent study by Csillag *et al*. (2019), the evidence shows that within SMEs, the owner-managers are responsible for bringing external knowledge into the organisation. Here, it needs to be clarified that external collaborations and strengths mentioned above do not ensure that SMEs can effectively acquire external knowledge and transfer this to their own experiences. Its success, however, depends on proactive behaviours in acquiring such knowledge (Liao *et al.,* 2003). Notably, such proactive behaviours subsequently lead to the development of their networking capability (Koirala, 2019; Roxas *et al.,* 2017). In effect, it enables SMEs to exchange both

knowledge and experience, which can be crucial for the developmental process of SPMS (Eikelenboom and de Jong, 2019; Horisch, Johnson and Schaltegger, 2015). Notwithstanding, it is important to recognise that SMEs have weaknesses that can impede them in the quest to acquire external knowledge; to give example, limited resources and time (Liao et al., 2003; Johnson, 2017). This serves to heighten the importance of SMEs being flexible and effectively managing their trade-offs in order to devote more resources to developing external knowledge acquisition capability. This not only helps SMEs to facilitate the development of SPMS, but also helps them contribute to their sustainable strategic management (Engert, Rauter and Baumgartner, 2016) as well as creating and sustaining corporate competitive advantage (Liao *et al.,* 2017; Song and Choi, 2018).

In essence, the absorptive capacity is often developed and accumulated over time through initial investment (Cohen and Levinthal, 1990). This necessitates that SMEs can utilise their strengths, small company-size, and flexibility (Saad, Kumar and Bradford, 2017), as well as effectively manage trade-offs to provide initial necessary knowledge and skills necessary related to SPMS adoption. This is vitally important because it can build each employees' ability to recognise and acquire new, external knowledge at a personal level (Tilleman, 2012; Johnson, 2017). It is important to recognise that new knowledge, such as SPMS adoption, imparted within the setting of the SME needs to be practical and useful, rather than delivered in a conceptual form (Saad, Kumar and Bradford, 2017). This can be beneficial for SMEs in the mitigation of varied perceptions and different levels of awareness of SPMS adoption across the organisational structure (Caldera, Desha and Dawes, 2018).

Inspired by the early work of Cohen and Levinthal (1990), several studies (e.g. Jahanshahi and Brem, 2017; Aboelmaged and Hashem, 2019) have placed a significant emphasis on the positive links between knowledge absorptive capacity and the sustainability performance in the context of SMEs. Prior studies have also identified a positive relationship between absorptive capacity and SMEs' sustainability integration. For example, Johnson (2017) contends that sustainability knowledge is an essential enabler facilitating the implementation of sustainability management by SMEs. In a similar fashion, Aboelmaged and Hashem (2019) suggest that absorptive capacity as a strong predictor of sustainable capabilities and demonstrate its positive effects upon SMEs' adoption of green innovations. Therefore, it is a reasonable view that the better the development of absorptive capacity, the better the implementation of sustainability initiatives. Based on this line of argument, the current study considers absorptive capacities to be one of the determinants that influence the adoption of SPMS in SMEs. This thesis proposes that:

H4: Absorptive capacity has a significant and positive impact on the adoption of SPMS

3.2.2.5 Organisational Learning Capacity and SPMS Adoption

In relation to the above discussion, it is important to note that absorptive capacity exists within both tacit and explicit knowledge (Cegarra Navarro, Eldridge and Wandosell, 2016). In an organisation, tacit knowledge is more difficult to formally transmit or transfer than explicit knowledge, which is often presented in written form and can be easily searched for by using manuals and databases, and it can be easily shared among individuals and groups (Shahzad *et al.,* 2020). This is because tacit knowledge is deeply rooted in experience, skills and know-how (Bierly, Damanpour and Santoro, 2009). It is often described as being personally bounded, non-verbalisable and context specific (Meier, 2011).

Literature highlights a strong link between absorptive capacity and organisational learning (Dzhengiz and Niesten, 2020; Goddard *et al.,* 2016; Saad, Kumar and Bradford, 2017; Zahra and George, 2002). Organisational learning refers to knowledge-sharing systems comprising explicit and tacit knowledge (Dibella, Nevis and Gould, 1996; Nonaka, 1994). On this basis, organisational learning is constructed by organisational individuals and groups involved in interactions and the sharing of experiences and knowledge (Curado, 2006; Tsang, 1997). It is generally agreed that within SMEs, tacit knowledge is a valuable and potential resource (Bierly, Damanpour and Santoro, 2009; Ngah and Jusoff, 2009) which is often harnessed and stored in the minds of the owner-manager and/or key staff members (Jiang, Ritchie and Verreynne, 2021; Saad, Kumar and Bradford, 2017). As such, if these actors act in isolation, it subsequently deleverages the density of knowledge sharing as well as decreasing the benefits of organisational learning. Such situations, therefore, can be crucial inhibitors that can impede or delay the SPMS adoption.

In essence, organisational learning is social interaction working at a corporate level and implies a degree of learning over time (Curado, 2006; Goddard *et al.,* 2016). As Zahra and George (2002) claim, both absorptive capacity and organisational learning capacity often involve a set of organisational routines. As such, this necessitates a knowledge-sharing process that should be aligned with existing working habits and routines, and company goals and values (Wang and Noe, 2009). In this regard, SMEs have novel strengths that can support this process, including their small size, their flat, organisational structure (Das, Rangarajan and Dutta, 2020a) and informal climate (Massa, Farneti and Scappini, 2015). Nevertheless, it is important to note that SPMS adoption can be long, demanding and costly. Thus, SMEs need to be flexible and effectively manage trade-offs to develop more formal structures, procedures and processes to motivate employees to transfer their individual learning into the organisational learning (Csillag *et al.,* 2019;

Curado, 2006; Saad, Kumar and Bradford, 2017). Additionally, an effective information system is considered necessary to facilitate knowledge sharing across the organisation (Jamali, 2006b; Sroufe, 2017). These issues mentioned are central with regard to developing organisational learning capacity.

The knowledge sharing process is influenced by corporate culture (Arsawan *et al.,* 2020; Lam *et al.,* 2021; Wang and Noe, 2009), including internal factors such as attitudes, beliefs, value formation and ethics/norms (Isensee *et al.,* 2020). It is noted that a positive corporate culture often relies on relationships which are built on trust and mutual understanding and they develop as a result of a long-term collaboration (Chee Tahir and Darton, 2010; Kucharčíková, Mičiak and Hitka, 2018; Kucharska and Kowalczyk, 2016). Laforet (2016) supports this viewpoint and points out that a positive corporate culture often encourages knowledge sharing. Therefore, it is imperative that SMEs review corporate culture, incentive and reward systems in order to ensure both employees and groups are encouraged to use and share their knowledge, information and skills with others the organisation (Bari, Ghaffar and Ahmad, 2020; Gianni, Gotzamani and Tsiotras, 2017; José Tarí and Molina-Azorín, 2010; Mabhungu and Van Der Poll, 2017).

Horisch, Johnson and Schaltegger (2015) employ the knowledge-based view (KBV) as an extension of the RBV, and they argue that SMEs, despite their inherited limited resources, can establish learning processes throughout the organisation that will leverage the level of implementation of sustainability management tools. Eikelenboom *et al*. (2019) support this viewpoint by highlighting that through establishing a process of continuous adaptive learning, SMEs can better manage their knowledge resource capabilities, leading to lower costs, costs that are of vital importance pertaining to sustainability issues. Among other capabilities, this current

study focuses primarily on absorptive capability and organisation learning capacity as key enablers facilitating SPMS adoption in the SME setting.

From a strategic perspective, organisational learning capability also plays a central role in respect of development of organisational capability (Ghasemzadeh *et al.,* 2019), supporting organisational improvement (Taylor and Taylor, 2014), and contributing to sustainable strategic management (Engert, Rauter and Baumgartner, 2016).

Drawing upon all the above arguments, the current study proposes that organisation learning capacity is an important enabler facilitating SPMS adoption. Thus, the fifth hypothesis is as follows:

> *H5: Organisational learning capacity has a significant and positive impact on the adoption of SPMS*

In summary, inhibitors and enablers that have been identified from the literature that can influence SMEs to adopt SPMS are presented in Table 3.4. and Table 3.5 below.

Table 3.4 Key inhibitors that hinder SMEs from adopting SPMS

Inhibitors
• Limited resources in terms of finance, humans, time • Initial investment and hidden costs • The short-term goal of immediate profitability • Simple/less formal organisational structures, routines, and rules • Uncomfortable experiences arising from sustainability • More costly and risky to change current operational processes • Unable/unwilling to take the challenge • Lack of awareness and absence of perceived benefits • Lack of sustainability knowledge • Lack of skills and expertise • Limited provision of education and training in general and for sustainability issues • Resistance to change • Lack of employee engagement • Difficult to recruit and retain skilled personnel • Limited managerial capacity • Inappropriate leadership and management styles • Lack of top management commitment, involvement, and support

Table 3.5 Key enablers that facilitate SMEs to adopt SPMS

Enablers
• Top management commitment, involvement, and support • Appropriate leadership and management styles • Employee empowerment • Acquiring better managerial skills • Effective information system • Fair accountability and responsibility for measures applied to individuals and teams • Providing education and training regarding sustainability • Absorptive capacity development • Facilitating knowledge-sharing • More formal systems, procedures, rules, and routines • Organisational learning promotion • Fast decision-making processes • Strong informal climates, flat organisational structures • Flexibility and adaptability, less bureaucracy, quicker communication lines • Smaller firms tend to be more involved • Positive corporate culture • Incentives and rewards

3.3 Main External Factors that Influences the Adoption of SPMS in SMEs

The characteristics of SMEs can vary; to give example, in geographical and socio-economic differences (Bala and Feng, 2019; Ghazilla *et al.,* 2015b; Kumar *et al.,* 2018; Malesios, 2018). Vietnamese cultural values and social beliefs are influenced by the introduction of Buddhism from India, Confucianism, and Taoism from China (Kane *et al.,* 2021). The fundamental virtues of Vietnamese traditions are embedded within the four-syllable expression *Tam cuong, Ngu thuong* (Three Bonds, Five Principles) in which the three bonds or relationships are *Vua-Toi* (king-subject), *Cha-Con* (parent-child) and *Chong-Vo* (husband-wife), while the five principles includes *Nhan* (benevolent love), *Nghia* (righteousness), *Le* (propriety), *Tri* (wisdom) and *Tin* (faithfulness) (Nguyen, Bensemann and Kelly, 2018; p.3).

It is believed that individuals are strongly influenced by social and cultural forces and environments around them (DiMaggio and Powell, 1983). Previous studies have shown that SME sustainability engagement is influenced by the owners' values, and religious beliefs (Hasan, 2016; Lee, Herold and Yu, 2016; Mukherjee, 2019; Paterson, Specht and Duchon, 2013; Uygur, 2009). Also, it is affected by their perceptions of duty, obligations and correct behaviour (Marrewijk and Werre, 2002), ethical beliefs (Alniacik, Moumen and Alniacik, 2020; Shrestha, 2017) and entrepreneurial orientations (Mukherjee, 2019). In some cases, employees' attitudes, beliefs and their relationships with the owner influence the business practices and CSR engagement of SMEs (Chou, Chang and Han, 2016). This is an interesting issue and further research will help us understand about how they affect the SPMS adoption in the Vietnamese SME setting.

From an institutional perspective, it is indicated that government support would be important for motivating sustainability engagement among businesses. In the context of emerging economies

such as Vietnam, however, SMEs mostly experience barriers, such as a lack of economic incentives and training programmes, and positive support from the government regarding sustainability engagement (Pham, Yong and Truong, 2019). Prior studies have been conducted in the context of Vietnam, highlighting institutional voids that include inefficient and bureaucratic systems (Ha, Nam and Thanh, 2021; Quan, 2015), lack of clarity surrounding laws and regulations and vague guidelines, all of which make it confusing and difficult for businesses to both apply and comply (Nguyen and Pham, 2020). These external barriers can demotivate SMEs towards SPMS adoption. Therefore, this thesis proposed that:

H6: External barriers have a significant and negative impact on the adoption of SPMS

3.4 Chapter Summary

This section has highlighted factors that influence SPMS adoption in the context of SMEs. The literature review has highlighted consistent themes concerning the unique characteristics of SMEs. This creates further knowledge as to which factors are enablers, or inhibitors, that influence sustainability performance measurement among SMEs. The review of the literature thus leads to three major conclusions;

1. The SPMS adoption in SMEs is a complex and challenging task, which frequently requires an SME to effectively manage trade-offs in order to develop relevant capabilities that are closely linked to specific motivations, conditions, organisational contexts and objectives of each SME.

2. The implementation or adoption of sustainability measurement in SMEs needs to be considered alongside critical factors such as inhibitors and enablers, relevant stakeholder

expectation and requirement in order that identification of appropriate sustainability metrics can be introduced. At the organisational level, certain conditions must be presented in terms of developing more formal structures, processes, procedures and information systems for a successful SPMS adoption.

3. Organisational support in terms of top management commitment, involvement, and support are the main priorities. However, other forms of support such as leadership, human resource capital, knowledge acquisition and assimilation, knowledge-sharing and organisational learning are also required for effective implementation.

4. Social-cultural environments, barriers, the institutional environment are all main external factors that can influence SPMS adoption in the SME setting.

After having identified and discussed the main factors that influence the implementation of sustainability performance of SMEs, the next chapter identifies appropriate sustainability metrics, from the literature, that can be applicable for SMEs.

CHAPTER 4 IDENTIFICATION OF SUSTAINABILITY METRICS FOR SMEs

4.1 Introduction

As stated in Chapter 1, the main purpose of this chapter is to examine sustainability performance measurement issues with regard to the identification of sustainability metrics that SMEs could employ to measure their sustainability performance. The objectives of the chapter are outlined in Table 4.1, along with the sections of the chapter that will deal with each objective.

Table 4.1 Objectives of Chapter 4

	Objective	Section
1	- To highlight main characteristics and desirable requirements of sustainability metrics	4.2
2	- To highlight approaches and methodologies used for identifying and defining sustainability metrics	4.3
3	- To propose a preliminary set of sustainability metrics	4.4
4	- To propose the theoretical research framework	4.5

The following section presents an overview of sustainability performance measurement.

4.2 Main Characteristics and Desirable Requirements of Sustainability Metrics that Relate to the SME Setting

It has been priorly highlighted that developing sustainability performance measurement for SMEs is an important but challenging task (Rosen and Kishawy, 2012). Considering the unique characteristics of SMEs, scholars have suggested that a straightforward structure of sustainability metrics/indicators would be suitable (Feil, de Quevedo and Schreiber, 2015; Nigri and Baldo, 2018; Sousa and Aspinwall, 2010).

There has been little discussion about key characteristics of sustainability metrics and indicators in the context of SMEs (Fatimah and Aman, 2018; Hsu, Chang and Luo, 2017). This section, therefore, will discuss the main characteristics of sustainability metrics in relation to the SME setting and will aim to achieve a comprehensive understanding of the subject matter in order to select identifying appropriate key characteristics and indicators for them.

In relation to the discussion in section 2.2, as to the benefits of a metrics, it is important to acknowledge that the term ‘metric’ is interchangeably used with ‘indicator’ within discussions and research surrounding sustainability performance measurement. Both terms refer to the assessment of the progress made by a company endeavouring to promote sustainable development, both internally and externally, over a given period of time (Székely and Knirsch, 2005; Brandi, Daroda and Olinto, 2014; Cohen *et al.,* 2014; Ahi and Searcy, 2015; Gustafson *et al.,* 2016).

In line with the above reasoning, such an interchangeable use, if not clearly clarified, might lead to confusion within the SME, as these organisations often have a limited knowledge of sustainability performance measurement (Aragón-Correa *et al.,* 2008; Mengistu and Panizzolo,

2021). This might result in ineffectiveness when trying to obtain a clear and concise picture of their sustainability performance. Technically, a ‘metric’ and an ‘indicator’ are different; an indicator is a parameter that provides information about a state while a metric is a measurable quantity that is used to track an indicator (Ahmad, Wong and Rajoo, 2019). An indicator can be used more broadly, encompassing quantitative measurements and critical aspects that need to be managed, whilst a metric is almost always used solely to refer to quantitative or semi-quantitative measures, or indices (Tanzil and Beloff, 2006).

Considering this, it is important that the terms ‘metric’ and ‘indicator’ are used together due to each of their critical functions; they can respectively complement each other (Brandi, Daroda and Olinto, 2014) and taking this approach can be both more practical and favourable for SMEs. More specifically, the critical function of a ‘metric’ enables SMEs to navigate and pinpoint their objectives of measuring sustainability performance, which is closely linked to their short-term and long-term strategies. SMEs then can utilise flexibility, one of their key strengths, to select appropriate indicators, or even to efficiently adapt to apply a new indicator whenever necessary. It benefits the SME to effectively manage trade-offs in a more integrated way, considering each one’s individual condition and contextual factors that may unexpectedly arise from both internal and external environments, or from the expectations or requirements of relevant stakeholders. Such situations, as already discussed, are varied from one to another and differ from one company to the next.

The above gives explanation of why the term ‘metric’ and ‘indicator’ are interchangeably used throughout the current study in order to help define appropriate sustainability metrics for SMEs.

It is of vital importance to highlight that sustainability metrics can be categorised into two classes: leading and lagging metrics. Leading metrics track the activities that occur before the impact, and they affect future performance, while lagging metrics only reflect outputs (including those which are recent) and are reported after an impact occurs (Tanzil and Beloff, 2006). It appears that a combination of these metrics can be more effective than relying solely on lagging or leading metrics, because lagging metrics without leading metrics would not indicate the output (Székely and Knirsch, 2005). In other words, a leading metric can inform top managers of how they might achieve the desired outcomes of sustainability performance, while a lagging metric measures the current sustainability performance.

Despite leading metrics and lagging metrics being opposed, from a managerial perspective each can complement the other; a leading metric can be dynamic but hard to measure, a lagging indicator is easy to measure but difficult to change. Perhaps, the adoption of SPMS can be a long and complex process and from this viewpoint, the use of leading metrics (past results and future-oriented) can help SMEs to mitigate some their significant weaknesses. They includes, for instance, firefighting management style (Ates and Bititci, 2011) and short term orientation (Li and Rees, 2020). And no less importantly, lagging metrics provide 'current' results, which likely support SMEs in effectively managing their trade-offs and using resources in a much more efficient and effective manner (Horisch, Johnson and Schaltegger, 2015). Accordingly, a combination of leading and lagging metrics can benefit SMEs in terms of formulating corporate strategy and planning (discussed section 3.2.2.2).

A metric can also be classified differently according to how an item is defined and measured. For example, a positive or a negative metric, or sometimes a combination of both, is used to measure

a single item (Schwarz *et al.,* 2002; Antolín-López *et al.,* 2016); the Global Reporting Initiative (GRI) denotes the item "energy" as "total energy consumption", a negative metric; and "reduction of energy consumption", a positive metric (Global Reporting Initiative, 2015). This reflects the fact that a negative metric follows the rule that "lower is better", while a positive metric indicates that "higher is better" (Schwarz *et al.,* 2002). However, a set of metrics that cover both positive and negative values might be driven by the differing concerns of stakeholder groups (Antolín-López *et al.,* 2016) resulting in difficulties and confusion (Delmas and Blass, 2010; Minor and Morgan, 2011) and thus exacerbating the difficulties faced by SMEs with regard to their resource constraints, insufficient knowledge and a lack of skills with which to operationalise such a metric (Arena and Azzone, 2012). As discussed, SMEs often have what is termed as 'simple' stakeholders, normally comprising employees and key customers. Thus, a metric with either a positive or a negative value can be more effective than using a combination in a metric, which likely creates more confusion for SMEs.

With respect to the verifiable measure of a metric, research indicates that it can be stated in either qualitative or quantitative forms, when compared to a reference point (Azapagic and Perdan, 2000; Melnyk, Stewart and Swink, 2004). A quantitative metric illustrates values in a numerical form, while a qualitative metric captures outputs in a nominal form (Melnyk, Stewart and Swink, 2004). Quantitative metrics are mainly used to measure economic and environmental impacts, which are well suited to a positivist approach. Hence, the effects of these two components are potentially quantifiable (Ahi and Searcy, 2015; Sridhar and Jones, 2013). By comparison, a relatively high number of qualitative metrics are employed to measure social impacts through a TBL perspective, and this requires a more interpretivist approach. As Norman and Macdonald (2004) claim, a social metric can be quantified into a single number using various formulae for any company. Despite

the fact that it can be treated as either qualitative or quantitative (Garbie, 2016), the latter is believed to more practical and favourable (Lundin, 2002). It appears that a metric in quantitative form is more likely to be beneficial in terms of quantifying sustainablity outcomes.

Most metrics can be categorised as either absolute or relative. An absolute metric "expresses operational performance in terms of what overall levels of performance are in specific areas of interest (e.g., water use) for an organization as a whole" (McElroy and van Engelen, 2012, p. 62). By comparison, a relative metric expresses "operational performance in terms of how performance in one area (e.g., water use) correlates to performance in another area (e.g. revenue or total production)" (McElroy and van Engelen, 2012, p. 63). Compared to a relative metric, an absolute metric might be not more favourable since they are limited in providing meaningful measurements that help a company to make changes in an enhanced scientific manner. It is important to note that absolute metrics are often "result-oriented measures, and ratio indicators are more suitable for internal decision-making" (Delai and Takahashi, 2013; p.438). Therefore, relative metrics comprising comparative data can be much easier for SMEs to read and understand than absolute metrics using absolute data (Garengo, Biazzo and Bititci, 2005).

Research in this area also generally focuses on unique characteristics; for example, the limited resources and capacities of SMEs to develop sustainability metrics. The research has placed great emphasis on the issues of needing to be less expensive, needing to be more efficient in terms of sustainability performance measurement, the importance of quick implementation and its simplicity and ease of use (Arena and Azzone, 2012; Borga *et al.,* 2009; Feil, de Quevedo and Schreiber, 2015; Mengistu and Panizzolo, 2021; Neri *et al.,* 2021). It needs be a set of metrics that

SMEs can manage in order to capture their essential needs, rather than addressing a wide range of issues (Arena and Azzone, 2012; Van Passel *et al.,* 2007).

A large and rich set of metrics can cover several aspects of sustainability (Melnyk, Stewart and Swink, 2004), but it likely raises the operating costs of the SME and threatens their economic viability (McIntyre, 2001), which consequently limit their applicability (Martins *et al.,* 2007). Another example of a large, impractical set of metric is that it can make it nearly impossible for the SME to collect and process a large amount of data (Garengo, Biazzo and Bititci, 2005). Therefore, a balanced set of metrics needs to be developed for SMEs that is both systematic and straightforward (Sousa and Aspinwall, 2010) and will also ensure that the correct issues are measured that the proper outcomes may be obtained. (Lenzen *et al.,* 2004; Morioka and de Carvalho, 2016; Searcy, 2016). It can be further argued that the measures should be grouped in a fashion that makes them more comfortable to use, interpret and understand (Singh, Olugu and Fallahpour, 2014). In doing this, confidence within the SMEs can be increased, as they are often described as lacking sustainability knowledge and skills needed to fully understand and effectively measure their sustainability performance.

Some scholars, rather than proposing a sustainability management tool for SMEs, prefer to provide valuable criteria for developing such a tool. For example, Johnson and Schaltegger (2016) have reviewed various publications on sustainability management tools over the past two decades. They have analysed both the internal shortcomings and external deficiencies of SMEs to understand why such tools seemingly have less value and are therefore not implemented within SMEs (Johnson and Schaltegger, 2016). Johnson and Schaltegger (2016) have provided six criteria that any sustainability management tool should fulfil in order to increase their widespread acceptance and

application within SMEs. These six criteria, proposed by Johnson and Schaltegger (2016) can be useful in guiding the identification of appropriate sustainability metrics for SMEs and they are as follows:

1. Simplicity/User-friendliness: The SMEs organisational structure, process and routine is quite simple and informal. This could motivate top managers to accept metrics into their organisation and employees can be encouraged to use it with less resistance.
2. Practicality/Cost-effectiveness: this makes it more affordable for SMEs, who have finite financial resources, to adopt metrics and also helps the SME to avoid the threat to their economic viability.
3. Adaptability/Flexibility: this enables SMEs to utilise their flexibility to be both select and well prepared to change to a new indicator whenever necessary.
4. Company-tailored: this is crucial because it likely increases the applicability among SMEs and makes it less likely that their operating costs will rise.
5. Locally focused: this is vital, because SMEs often operate locally (Schlierer *et al.,* 2012) and become embedded in the very fabric of their local community (Choi, Kim and Yang, 2018). This can help them instil better communications and effective interaction with local communities. Knowledge and information accumulated throughout can support SMEs in order that they will make more accurate decisions, thus increasing their legitimacy, and helping them to gain and maintain approval from local stakeholders (Perrini and Tencati, 2006). This, in turn, will aid the SME to develop their stakeholder management capability.
6. Group and network-oriented: this can benefit the SME that they may develop absorptive capability, organisational learning capabilities and networking capability.

The above discussion has led to the following information, supported by Joung *et al*. (2013), whose work has helped with regard to avoiding a certain degree of overlap that characterises most of the reviewed literature. The general desirable requirements of sustainability metrics that can facilitate SPMS adoption within the SME setting are proposed below:

1. Measurable: a metric can be measured in quantitative or qualitative means; whichever mean is proposed, it needs to be, firstly, simple so as to measure within a given timeframe and, secondly, convenient for data collection and evaluation purposes.

2. Relevant: a metric needs to be meaningful, purposeful and directly relevant to the sustainability goal objectives of the SME, from which they have an opportunity to formalise their strategy, as well as mitigate potential challenges of organisational alignment.

3. Understandable: It is crucial that a metric can be easily understood and consistently interpreted by relevant stakeholders. Within the organisation, this can contribute to the SMEs employee engagement enhancement, the effective information/knowledge sharing process and organisation learning capability development, all of which subsequently facilitate the SPMS adoption.

4. Reliable/usable: It is vital that a metric must contain reliable, trusted and accurate information for the purposes of management, who must communicate these requirements, expectations or needs of relevant stakeholders. This can lead to company image and reputation enhancement, which consequently creates and develops marketing capabilities.

5. Data accessible: an indicator must be based on data and information that can be easily accessed and acquired within the organisational process, which aims at avoiding placing more pressure upon the SMEs limited resources in terms of human resources and time.
6. Timely manner: data and information collection, calculation and evaluation for an indicator must be conducted promptly for informed decision-making. This is an important tool with which to encourage the top managers within SMEs to adopt SPMS within their organisation.
7. Long term-oriented: It is beneficial that an indicator must ensure its future use, development, and adoption, which enable SMEs to link with a formulation of a more formal long-term sustainability perspective.

Furthermore, in order to ensure that a sustainability metric/indicator to be a rigorously applied in the SME setting and to promote better understanding of the adoption of SPMS. This necessitate a need that it is closely linked with the following attributes.

1. Identification (ID): the unique alphanumeric identifier of an indicator.
2. Name: the word(s) for an indicator's distinctive designation.
3. Definition: a statement expressing the essential characteristics and function of an indicator
4. Measurement type: the type of indicator (quantitative or qualitative), how an indicator is calculated, whether to use the total amount or per unit of product other factors to normalise the performance
5. Unit of measure: the metric used to illustrate an indicator (kilograms, kilowatts, tons, monetary units, times, ratio, days, etc.).

6. References: citable documents of existing indicator set(s) or specific indicator(s) based on whether an indicator is adopted from existing set(s) or is newly developed.
7. Application level: the hierarchical level of the organisation at which the indicator is applied. Based on this information, decision-makers can set up their sustainability metrics that are closely linked to business strategies.
8. Period of measurement: the suitable use of duration and metrics (fiscal year, six months, quarter, month, etc.) for tracking and calculating.

Holistically, the above discussion highlights the importance of a comprehensive understanding about the main characteristics of a sustainability metric/indicator that significantly contributes to defining appropriate metrics for SMEs in order that they may measure and better manage their sustainability performance. To this end, it can be argued that if the above established desirable requirements of sustainably metrics/indicators are met it can help SMEs mitigate their weaknesses regarding unplanned, informal processes, policy, rule, routine, procedure and structure, all of which have been previously discussed. Hence, it is expected that these can contribute to motivating SMEs towards SPMS adoption.

The following section discusses approaches and methodologies used for identifying and defining metrics.

4.3 Approaches and the Methodologies Used for Identifying and Defining Metrics

Drawing upon an early book written by Noss and Cooperrider (1994) on protecting and restoring biodiversity, Virginia and Suzanne (2001, p. 5) cites that *"if wrong indicators were chosen… [this] results in the wrong variables being measured, in the wrong place, at the wrong time, or with poor*

precision or reliability." This section therefore discusses approaches and methodologies used in identifying and defining sustainability metrics in the context of SMEs.

Existing literature reveals that due to disparate research purposes, many researchers have had a different focus when developing sustainability metrics/indicators for SMEs. For example, some have concentrated on all three pillars of the TBL (Borga *et al.,* 2009; Neri *et al.,* 2021), while others (e.g. Arena and Azzone, 2012) have looked at specific aspects of the development, such as social and environmental.

In terms of business sectors, Tan *et al*. (2015) address Singaporean manufacturing SMEs, while Feil, de Quevedo and Schreiber (2015) address Brazilian SMEs in furniture segments. Having focused their research at an industry-level, some scholars (e.g. Arena and Azzone, 2012; Mengistu and Panizzolo, 2021) have agreed that the development of sustainability indicators needs to link to the currently available knowledge regarding sustainability performance measurement of that specific industry; this enables SMEs to take advantage of a significant body of validated knowledge without spending precious time and resources.

In terms of geographic areas, existing literature has highlighted that research has been conducted in both developed countries such as Italy (e.g. Arena and Azzone, 2012), Singapore (e.g. Tan *et al.,* 2015) and developing countries such as India (e.g. Singh, Olugu and Fallahpour, 2014). Despite this, there is a call for more research that will identify appropriate sustainability metrics in order to support SMEs in the context of developing nations, as mentioned in section 1.2.

It is clear from previous research undertaken that different sources of referencing and methods have been employed to develop sustainability metrics/indicators for SMEs. Many (e.g.

Kocmanova and Docekalova, 2011; Li *et al.,* 2012) have derived sustainability indicators from internationally recognised indexes such as the Global Reporting Initiative (GRI). Others (e.g. Feil, de Quevedo and Schreiber, 2015; Hsu, Chang and Luo, 2017) have relied mainly on existing scientific articles, while some (e.g. Singh, Olugu and Fallahpour, 2014) have used both internationally recognised indexes and previous scientific articles. At the time of writing this (May 2021), a work had just been published in which Mengistu and Panizzolo (2021) initially carried out a content analysis and obtained a list of the 1013 indicators that are the most consistent and frequently used within the literature. Mengistu and Panizzolo (2021) applied the fuzzy Delphi method to analyse these indicators and eventually obtained a set of 24 sustainability indicators that could be utilised for Italian footwear SMEs. This reflects why there have been no universally accepted specific standards/guidelines, or objective weighting methods for assigning sustainability metrics or indicators (Brandi, Daroda and Olinto, 2014; Laskar and Maji, 2016; Shuaib *et al.,* 2014).

The literature on sustainability measurement offers two broad methodological paradigms that can be used to identify and define sustainability indicators; the top-down and bottom-up approaches (Bell and Morse, 2001). The top-down approach is also called 'expert-led'. With this approach, experts or researchers have strong control with regard to developing frameworks and selecting a set of sustainability metrics based on literature reviews (Miller, 2001; Chee Tahir and Darton, 2010). Experts mainly rely on their knowledge and experience to define sustainability metrics. This approach, however, might trigger a selection bias since end-users do not define sustainability metrics (Lundin, 2002). It is generally agreed that a good understanding of the local context regarding sustainability priorities is essential in order that sustainability metrics to fit a local situation may be applied. (Warhurst, 2002; Reed *et al.,* 2006; Lundin, 2002; Turcu, 2013; Lähtinen

et al., 2014). Prior studies employing this approach to identify sustainability metrics/indicators for SMEs can be found in the existing literature (e.g. Feil, de Quevedo and Schreiber, 2015; Hsu, Chang and Luo, 2017).

In contrast to the top-down approach is the bottom-up approach, or community-based approach. By using this approach, sustainability metrics are identified by local stakeholders who understand, and have the ability to communicate common interests or conflicts about a specific issue related to sustainability, within the local context (Chee Tahir and Darton, 2010). This method has been described as having less consistent structure and deems that it gives researchers less control over defining sustainability metrics. As such it often requires a vital facilitation skill to capture multiple views (Kurka and Blackwood, 2013; Turcu, 2013) to achieve a reliable, comprehensive picture of a phenomenon (Reed *et al.,* 2006; Mitchell, 1996; Lundin, 2002; Schmidt *et al.,* 2006; Roberts, 2011). It has also been criticised for being time consuming and costly (Lundin, 2002) and despite the fact that multiple local views on sustainability can be obtained, the bottom-up approach may not ensure that critical global issues are captured (Reed *et al.,* 2006).

Theoretically, each top-down and bottom-up as mentioned above, has both different vulnerabilities and different strengths. Therefore, a combination has been considered a major advantage in order to obtain a complementary (Khadka and Vacik, 2012; Turcu, 2013). For this purpose, the use of top-down and bottom-up approaches in a mixed manner to define sustainability metrics/indicators have been suggested by a number of scholars (Feil, de Quevedo and Schreiber, 2015; Neri *et al.,* 2021).

Considering the above discussion, a mixed approach is best suited for use within the current study in order to obtain the research objectives that are set out in section 1.5. This means that the process

is guided by a top-down approach that identify sustainability metrics from the literature, followed by a bottom-up approach to verify those metrics obtained from the literature by practitioners within SMEs.

The following section discusses the proposing a preliminary set of sustainability metrics for SMEs.

4.4 The Proposing a Preliminary Set of Sustainability Metrics for SMEs

In relation to the discussion in the previous section, as initially guided by the top-down approach, the current study begins with identifying and defining sustainability metrics from the literature. It is vital to acknowledge that each set of sustainability indicators contains hidden subjective assumptions and simplifications (Van Passel *et al.,* 2007), reflecting different theoretical understandings (Schneider and Meins, 2012) and demonstrating the varying concerns regarding sustainability issues (Wilson *et al.,* 2007). As such, there is no one-size-fits-all set of sustainability metrics (Virginia and Suzanne, 2001; Montiel *et al.,* 2014) since none can *"tackle all sustainability issues, and in fact, there is no consensus around what should be measured and how"* (Delai and Takahashi, 2013, p. 467).

The existing literature reveals that sustainability metrics and indicators are vastly numerous (Martins *et al.,* 2007; Mengistu and Panizzolo, 2021), making it difficult and challenging to define and select an appropriate set of metrics. A practical approach for the current study is to base on prior studies and the work of international organisations, in which sustainability metrics/indicators that can be applicable for SMEs have been filtered. In this way, the current study can obtain a preliminary set of metrics for SMEs; they need not `reinvent the wheel' when such solutions are made available (Tan *et al.,* 2015).

Drawing on the all the discussions so far, this leads to the selection and identification of SMEs for the current study. Regarding scientific articles, the current study is based on ten works, which have focused on developing sustainability metrics for SMEs. In terms of number, it is relatively higher than some previous studies; for example, the work of Singh *et al*. (2015), who based their studies upon six scientific articles regarding the development of sustainability metrics for Indian manufacturing SMEs. The ten scientific articles employed by the current study are the works of Kocmanova and Docekalova (2011); Li *et al.* (2012); Singh, Olugu and Fallahpour (2014); Feil, de Quevedo and Schreiber (2015); Tan *et al.* (2015); Arena and Azzone (2012); Borga *et al.* (2009); Hsu, Chang and Luo (2017); Neri *et al.* (2021); and Mengistu and Panizzolo (2021). These articles are summarised in Table 4.2 below.

Table 4.2 Summary of 10 scientific articles on the identification of sustainability indicators/metrics for SMEs

No	Country context	Literature reference	Source of sustainability metrics/indicators	Verified by
1	Czech Republic	Kocmanova and Docekalova (2011)	Global Reporting Initiative (GRI)	A representative from a sample of 280 SMEs
2	China	Li *et al*. (2012)	Global Reporting Initiative (GRI)	Industrial companies and researchers in the sustainability field
3	India	Singh, Olugu and Fallahpour (2014)	OECD and six scientific articles	Three decision-makers (managers) of a SME
4	Brazil	(Feil, de Quevedo and Schreiber, 2015)	Twenty-three scientific articles were selected to explore the indicators	Interdisciplinary researchers (doctors only)
5	Singapore	Tan *et al*. (2015)	From four internationally recognised indicator frameworks	Industrial companies and researchers in the sustainability field
6	Italy	Arena and Azzone (2012)	Global Reporting Initiative (GRI)	Industrial companies and researchers in the sustainability field
7	Italy	Borga *et al*. (2009)	From nine internationally recognised sustainability guidelines	Key stakeholders from a sample of seven SMEs
8	Taiwan	Hsu, Chang and Luo (2017)	Fifteen scientific articles were selected to explore the indicators	Experts in the industries
9	Italy	Neri *et al*. (2021)	From a wide range of empirical studies	Seven SME representatives and their supply chain partners
10	Italy	Mengistu and Panizzolo (2021)	Fifty-nine scientific articles were selected to explore the indicators	Industrial experts, scholars, and researchers

It is worth mentioning that among the popular sustainability indexes, the Global Reporting Initiative (GRI) is employed in the current study; this can serve as a benchmark within the selected scientific articles that define sustainability indicators for SMEs. It is employed because the GRI framework has been widely used globally (Manning, Braam and Reimsbach, 2019) in both developed and developing countries (Laskar and Maji, 2016; Nguyen *et al.,* 2020). It is sponsored by the United Nations (Gates and Germain, 2010) for the purpose of developing a most comprehensive framework with reference to sustainability reporting. The GRI provides a list of over 90 measures of company sustainability indicators which cover all three pillars of the TBL, including economic, social, and environmental aspects (Ahi and Searcy, 2015; Fatimah and Aman, 2018; Global Reporting Initiative, 2015).

Despite the GRI guidelines often being viewed as more suitable for large corporations (Azapagic, 2004; Steinhofel *et al.,* 2019), they can be applied to corporations of different sizes and locations (Sridhar and Jones, 2013). They have proved to be an useful framework that SMEs can utilise both as a starting point that they may produce a preliminary set of key sustainability indicators (Arena and Azzone, 2012) and also as a tool to enable them to effectively align their objectives concerning sustainability issues (Massa, Farneti and Scappini, 2015). Previous studies have shown that in developing countries such as Sri Lanka, the GRI framework can promote clarity, accuracy, usefulness and comparability with respect to sustainability reporting within the country's SMEs (e.g. Dissanayake, Tilt and Xydias-Lobo, 2016). This is also closely linked to the research context of the current study, Vietnam, where, in 2017, the Vietnam Chamber of Commerce and Industry (VCCI) and the GRI organisation launched the Vietnamese version of the GRI guidelines in order to encourage Vietnamese firms to use this reporting framework to both strengthen their credibility and contribute to promoting the green capital market (vietnamnews.vn; 2017). Taken together, the

main sources of identification of sustainability metrics for SMEs include ten scientific articles and the GRI framework, which are presented in Table4.3.

Table 4.3 Main indicators obtained from a review of 10 scientific articles and 1 internationally recognised sustainability index

Economic metrics	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Return on investment					●			●	●	●	●
Operating profit				●			●		●		●
Net profit		●		●	●		●	●	●		●
Tax payments				●			●				●
Operational costs			●	●	●		●		●	●	●
R&D expenditure		●			●		●		●	●	●
Social Metrics	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Employee satisfaction	●	●		●				●	●	●	●
Employee training	●		●	●	●	●	●	●	●	●	●
Health and Safety	●	●		●	●	●	●	●	●	●	●
Employee turnover ratio		●	●	●	●	●	●	●	●	●	●
Customer satisfaction	●	●	●	●	●		●	●	●	●	●
Customer complaints					●			●		●	●
Community and charitable contributions	●	●	●	●		●	●		●		●

Environmental Metrics	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Material consumption		●			●		●		●	●	●
Material re-usage (efficiency)	●	●	●	●	●	●	●		●	●	●
Recyclable material	●	●		●	●		●	●	●	●	●
Energy consumption	●	●	●	●	●	●	●		●	●	●
Energy cost					●				●	●	●
Renewable energy consumption	●	●	●	●					●	●	●
Wastewater discharge		●	●		●	●		●	●	●	●
Water consumption	●	●	●	●		●	●	●	●	●	●
Waste disposal	●		●	●	●		●		●	●	●
Recycling of waste				●			●		●	●	●
Hazardous waste		●		●		●			●		●
Total waste	●	●	●				●		●		●

Source: (1) Kocmanova and Docekalova, 2011; (2) Li *et al.* (2012); (3) Singh, Olugu and Fallahpour (2014); (4) Feil, de Quevedo and Schreiber (2015); (5) Tan *et al.* (2015); (6) Arena and Azzone, 2012; (7) Borga *et al.* (2009); (8) Hsu, Chang and Luo (2017); (9) Neri *et al.* (2021); (10) Mengistu and Panizzolo (2021); (11) Global Reporting Initiative (2015)

As mentioned during previous sections, there has been neither a universally accepted specific standard/guideline, nor has there been an objective for selecting sustainability metrics, while the scope of the measuring of sustainability performance has been widened, as discussed in section 2.3. Such a challenge can give rise to potential subjectivity and bias during the process of defining sustainability metrics and this consequently leads to results that are both unreliable and misleading. To address this problem, a practical approach is to narrow down the scope of each pillar of the TBL, while simultaneously ensuring that essential components of each, which have been discussed in section 2.3, are covered. Following this approach, the sources of sustainability metrics are narrowed down as illustrated in Table 4.3. Accordingly, the current study identifies a set of 26 potential sustainability metrics/indicators (6 for economic, 12 for environmental, and 8 for social dimensions), which can be applicable to the SME. These cover key aspects of economy; (profitability, investment); social (employee, customer, and community well-being); and environmental domains (material, energy, water, waste), as presented in Table 4.4.

The current study identifies from the literature a set of 26 potential sustainability metrics/indicators (6 for economic, 12 for environmental, and 8 for social dimensions) that can be applicable to the SME. Such a number is closely linked to the recommendation of Garengo, Biazzo and Bititci (2005), who suggest that a set of metrics for SMEs should not be any larger than 25 in total, in order that they are suitable for managers to apply; managers often lack time and managerial skills in this regard. Other studies (e.g. Trianni *et al.,* 2019; Neri *et al.,* 2021) propose a relatively flexible, wider range of 20 to 40 sustainability metrics/indicators. As discussed throughout the current study, this can be associated both with a need for SMEs to be flexible, which is one of their strengths, and also with the preparation needed in order that they might change their metrics

whenever necessary; this enables the SPMS adoption to happen efficiently and effectively (Queiroz *et al.,* 2020). 317

Table 4.4 The preliminary list of sustainability metrics identified from the literature focusing on SMEs

Economic	**Indicators**
Profitability	Return on investment
	Operating profit
	Net profit
	Tax payments
	Operational costs
Investment	R&D expenditure
Social	**Indicators**
Employee wellbeing	Employee turnover rate
	Employee job satisfaction rate
	Employee training
	Health and safety in the workplace
Customer wellbeing	Customer satisfaction
	Customer complaints
Community wellbeing	Charities and donations
	Community involvement
Environment	**Indicators**
Material	Material consumption
	Raw material efficiency
	Recyclable raw materials

Energy	Energy consumption
	Energy cost
	Renewable energy
Water	Wastewater disposal
	Water consumption
Waste	Waste disposal
	Recycling of waste
	Hazardous waste
	Total waste

(Source: author's derivation from the literature)

The following section discusses the development of theoretical framework for the current study.

4.5 Theoretical Framework Development for the Current Study

Before developing the theoretical framework for the present study, it is important to note that some studies have focused on environmental performance (e.g. Rao *et al.,* 2009; Sundin *et al.,* 2015) while others have concentrated on social performance (e.g. Hasan, 2016). As mentioned in chapter 1, what is missing from the existing literature is an examination of sustainability performance measurement covering all three dimensions of sustainability, particularly from the perspective of SMEs. This gap has been recently confirmed in the recent studies of Trianni *et al*. (2019), Eikelenboom *et al*. (2019) and Dissanayake *et al*. (2020), all of whom have been calling for further empirical research in this critical but under-explored domain.

The current study has filled the above gap by systematically examining sustainability performance in an integrated manner, including its economic, social, and environmental dimensions. This

approach was imperative for obtaining a finer understanding of how the three sustainability performances can be integrated and balanced in business practice. Therefore, in the current study, the level of SPMS adoption was measured by the perceived sustainability metrics (PSE). Identified from the literature and presented in Tables 4.3 and 4.4, these metrics were valued and scored by the Vietnamese SMEs.

The current study focuses on inhibitors (INH), comprising 'low managerial perception' and 'internal shortcomings', as main barriers, and this has been widely cited in the existing literature, and hinders the SMEs implementation of sustainability initiatives. While external barriers (EXB) are focused, particularly in the context of developing countries, because these can demotivate SMEs to adopt SPMS.

Motivation (MOT) is focused, as it is one of the best predictors of driving the SPMS adoption, and, with the support of top management (TOP) it is recognised as vital for the successful adoption of SPMS. Moreover, the current study focuses on absorptive capacity (ACA) and organisation learning capacity (OLC), among others, because prior studies have considered these as two key capabilities within a company. More importantly, these two capacities enable SMEs to improve their sustainability-related knowledge at a low cost (Eikelenboom and de Jong, 2019; Johnson, 2017) and this is crucial for SMEs to mitigate their inherited resource constraints in order to effectively adopt SPMS.

Based on the discussion thus far, the current study developed a theoretical framework that examined the relationships between factors that influence SPMS adoption in Vietnamese SMEs. In the theoretical framework that was quantitatively tested, six factors were employed as independent variables: Motivation (MOT), Inhibitors (INH), Top Management Support (TOP),

Absorptive Capacity (ACA), Organisation Learning Capacity (OLC), and External Barriers (EXB), while Perceived Sustainability Metrics (PSE) was the dependent variable.

Individual and firm characteristics as moderators

Most of the literature places a strong emphasis on the influence of both individual and firm characteristics in the engagement of sustainability initiatives (Ayuso and Navarrete-Báez, 2018; Tur-Porcar, Roig-Tierno and Mestre, 2018; Yu and Ramanathan, 2016; Yu *et al.,* 2018). For example, prior studies (e.g., Nguyen and Tran, 2020; Tran and Pham, 2020) have investigated demographic factors such as gender, age, experience, and managerial position to ascertain whether these have a considerable impact on the sustainability performance of Vietnamese SMEs. Other researchers (e.g., Johnson, 2017; Panwar *et al.,* 2016) have studied the effects of firm characteristics, such as firm size, firm age, business sector type, and firm sustainability experience on sustainability engagement in SMEs. The literature reveals that in quantitative studies, individual and firm characteristics can be added as either control variables (CVs) or moderating variables (MVs) in theoretical models. This enhances the ability of researchers to explain and draw conclusions about the relationships between independent variables (IVs) and dependent variables (DVs) (Jablin and Putnam, 2001).

However, the functions of CVs and DVs have often been confused (Baron and Kenny, 1986); thus, an understanding of their significant differences is crucial for attaining research objectives and ensuring the reliability of findings. A distinguishing feature of CVs is that they are considered extraneous variables: they are not part of the hypotheses and theories being tested (Mullen, Budeva and Doney, 2009; Spector and Brannick, 2011) but still have theoretical importance (Kucharska and Kowalczyk, 2019; Nielsen and Raswant, 2018). The role of CVs, as such, is assumed: “to be

confounding, that is, producing distortions in observed relationships. When using CVs means that "researchers clearly delineate some variables as being merely controls or variables of no particular theoretical interest that need to be somehow removed in their effects on the study" (Spector and Brannick, 2011, p. 288). Accordingly, the effect of CVs will not be present when a researcher is analysing the relationship between IVs and DVs. Conversely, MVs are those variables that act as a catalyst in a regression relationship, where they interact with the IVs either to diminish or enhance the relationship between the IVs and DVs (Baron and Kenny, 1986). In other words, the presence of a moderator may change the original relationship between DVs and IVs (Sekaran and Bougie, 2016).

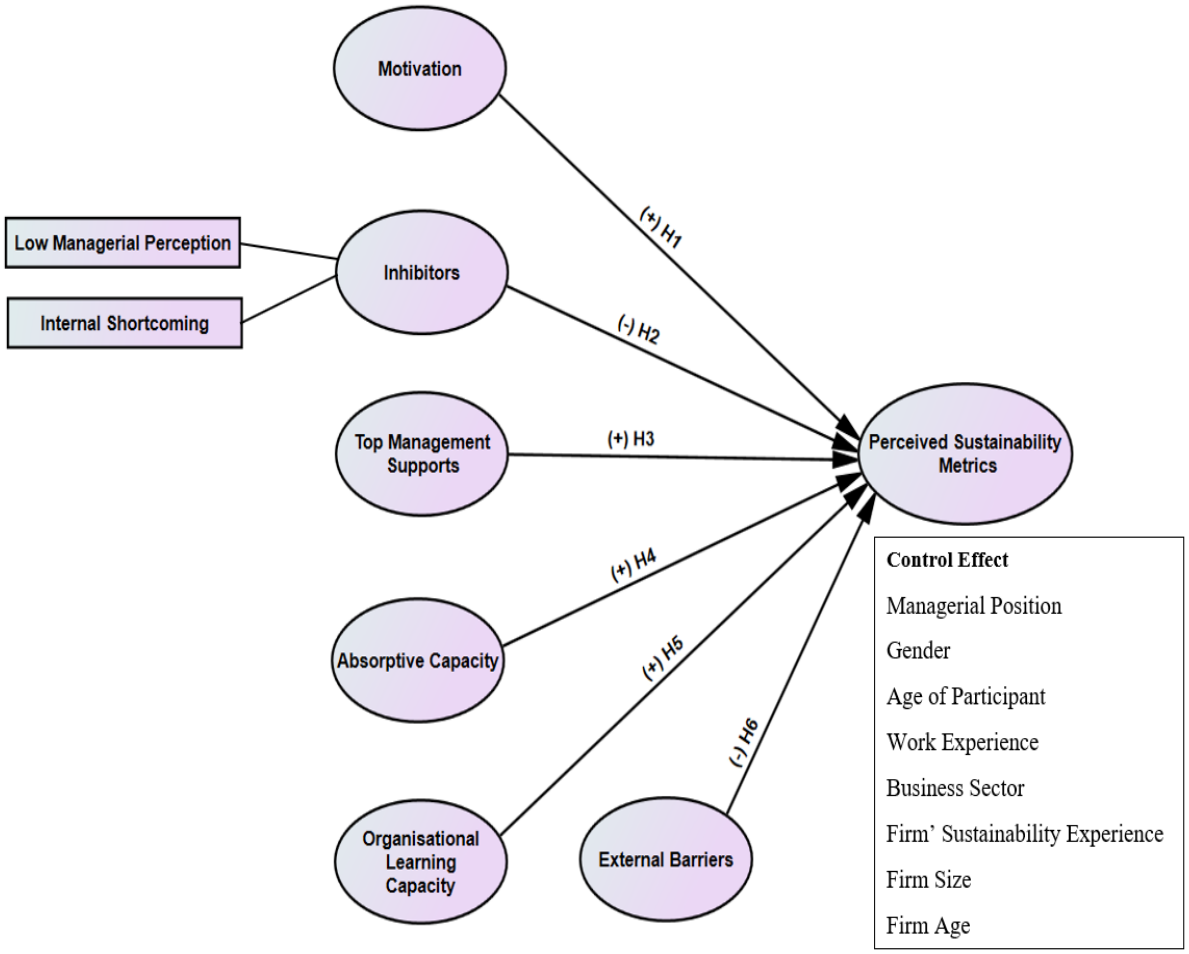
Previous studies have employed certain individuals and firm characteristics as CVs to control their effects on the hypotheses being tested. For example, when studying the factors influencing SMEs' social and environmental performance, Arend (2014) controlled common firm characteristics such as age, size, resources, and industry effects. In their study of sustainability in SMEs, Jahanshahi, Brem and Bhattacharjee (2017) controlled 12 variables at an individual level (e.g., respondent's age, gender, education, previous management, marketing and technology experience) and firm level (e.g., firm size, firm age). Although it has been argued that adding CVs can ensure the robustness of the results, the studies reviewed here provide little discussion as to why the CVs were included and how this would lead to more accurate conclusions.

From a different perspective, other researchers have added individual and firm characteristics as MVs in theoretical models to examine their potential moderating effects on the hypotheses being tested. For example, Tran and Pham (2020) analysed a sample of 810 Vietnamese SMEs, and found that between male and female CEOs (chief executive officers), only female CEOs have a

positive moderating effect on corporate environmental performance. Regarding firm size, its potential moderating effect was confirmed when Russo and Tencati (2009) reported that small and medium-sized firms have different approaches towards adopting sustainability practices. These authors further explain that small firms have limited financial resources and less time, and also tend to be less systematic, structured, and formalised: they subsequently seek simple practices that are inexpensive and easily applicable. In a recent study by Aboelmaged and Hashem (2019), the authors did not control for the moderating effects on the relationship between absorptive capacity and green innovation adoption in SMEs due to sample size constraints and the harmonised nature of SMEs. Thus, they emphasised that forthcoming studies need to examine the impact of potential moderating effects (e.g., firm size) to enrich their findings.

In line with the above discussion, it was important in the current study to match formulated hypotheses precisely to both the choice of variables (CVs or MVs) and the choice of analyses. Given the research objectives, the current study aimed to enrich the findings by examining the potential moderating effects of both individual characteristics (respondent's age, gender, work experience, managerial position) and firm characteristics (firm size, firm age, business sector type, firm sustainability experience). The theoretical framework, including all posited hypotheses and potential moderators, developed to guide the current study is presented in Figure 4.1.

Figure 4.1. Theoretical Framework of the Current Study



(Source: the author)

4.6 Concluding Remarks

This chapter has discussed the identification of sustainability metrics within the SME setting and the following conclusions can be drawn.

Indeed, the development of appropriate sustainability metrics for SMEs to measure sustainability performance is a complicated and challenging task, since there is no universally standard accepted method regarding the importance of the weights of sustainability metrics/indicators.

The review of the main characteristics of metrics has enhanced the understanding of how to establish a desirable requirement of sustainability metrics that can increase the adaptability of SPMS in the SME setting. The review has also added to the understanding of the approaches and methodologies used to identify and define sustainability metrics. Accordingly, a mix of top-down and bottom-up approaches have been established, with the initial stage being guided by the top-down approach, based on a review of the literature, has proposed a preliminary set of metrics. This has set down a foundation by which the bottom-up approach can be used to verify this proposed set of metrics from the perspectives of practitioners in SMEs. This will be presented in following chapters.

The review so far has contributed to the understanding of issues that influence the adoption of SPMS, which has led to the theoretical framework of the current study has been established.

The following chapter presents the overall research methodology of the PhD work.

CHAPTER 5 RESEARCH METHODOLOGY

5.1 Introduction

This chapter describes the research design and methods employed within this study. It begins by presenting different philosophical stances and does not aim to provide an exhaustive philosophical account, but to introduce various paradigms relevant to the research topic. The objectives of the chapter are outlined in Table 5.1, along with the sections of the chapter that address each objective.

Table 5.1: Objectives of Chapter 5

	Objectives	Section
1	- To provide a brief explanation of the role of paradigms in research.	5.2
2	- To highlight the areas and questions that a paradigm is concerned with, along with its essential components: ontological, epistemological, methodological, rhetorical and axiological assumptions.	5.2.1
3	- To outline the different frameworks of paradigms. - To discuss the relevance of the positivist paradigm. - To discuss the relevance of the phenomenological paradigm. - To and discuss the relevance of the realistic paradigm.	5.2.2 5.2.2.1 5.2.2.2 5.2.2.3
4	- To state under which framework and which paradigm the research was conducted.	5.3
5	- To outline the research design.	5.4

The following section discusses the research paradigms, the components and the choice of methodology for this study.

5.2 Research Paradigms, Components, and Choice of Methodology

When developing a research methodology, it is essential to consider the paradigm (philosophy) of research upon which this is based. A paradigm refers to the "basic belief system or world view that guides the investigation" (Guba and Lincoln, 1994, p. 105). It is used to represent "people's value judgements, norms, standards, frames of reference, perspectives, ideologies, myths, theories and approved procedures that govern their thinking and actions" (Kuhn, cited in Mangan *et al.,* 2004: 566). Krauss and Putra (2005) emphasis that the importance of a research paradigm lies in the fact that it provides the underlying basis for constructing a scientific investigation. Easterby-Smith *et al*. (2015) endorse this view and highlighted at least three significant advantages of a research paradigm; firstly, it can help to clarify research designs and secondly, it enables the researcher to recognise the right path (methodology and methods) to follow to conduct the research. Thirdly, it allows the researcher to formulate a specific research design. Creswell (1994) views a research paradigm as a mental window through which the researcher seeks to understand a phenomenon and advance his/her assumptions about the social world. Therefore, a profound understanding of the research paradigm is essential for any researcher (Crossnan, 2003).

The critical components of a paradigm will now be studied in greater depth.

5.2.1 Critical Elements of Research Paradigms

This section introduces key terms relating to research paradigms. Although paradigms share several components, they differ in their approach (Creswell and Clark, 2011) with regard to the nature of reality (ontology); how the researcher acquires knowledge of what they know (epistemology); the process of research (methodology); the role of values in a study (axiological); the language employed (rhetorical) (Lincoln and Guba, 2000; Creswell and Clark, 2011; Denzin and Lincoln, 2018).

The ontological assumption is concerned with the nature of reality and its existence (Easterby-Smith *et al.,* 2015, p. 18). Reality is constructed by those involved in the research, which differs from one person to another. Thus, multiple realities exist: the facts generated by the researchers, the individuals being investigated, or the reader and audience who might interpret research findings from their own point of view. Bell *et al*. (2018) stated that ontological assumptions are concerned with whether social entities should be considered objective entities external to actors, or constructions built from the perceptions and actions of social actors.

The second philosophical assumption, epistemology, is concerned with "the nature of knowledge" (Crotty, 1998, p. 8). It addresses the following questions: "What is the relationship between the researcher and the researched? How do we know what we know? What counts as knowledge?" (Krauss and Putra, 2005, p. 759).

In essence, epistemological assumptions are concerned with how knowledge can be created, acquired and communicated (Scotland, 2012). Collis and Hussey (2014) further emphasis that epistemology pertains to what is regarded as acceptable knowledge. Thus, the approach to studying the social world can be viewed by some as similar to the approach adopted to explore the natural world.

In terms of methodology, Wahyuni (2012, p. 70) describes this as "a model for undertaking a research process in the context of particular paradigm". It combines ontological and epistemological assumptions into the practicalities of conducting the research. Methodological assumptions are concerned with the techniques and tools involved in the process of research, which can be either inductive or deductive (Gale *et al.,* 2013).

It is important to note that the terms “methodology” and “method” are sometimes used interchangeably in the literature; nevertheless, a clear distinction has been made. According to Jonker and Pennink (2009), a methodology can be viewed as a domain or a map, whereas a method is considered a set of steps to be taken between two places on a map. Bryman (2008) concurs and clarified that a methodology ecompasses the entire research process that incorporates various methods, whereas methods refer to the tools and techniques used to conduct the research, such as questionnaires, interviews, observation or statistical techniques. The chosen methodology is expected to reflect the assumptions underpinning the research paradigm and should outline the specific role of each method in achieving the objectives of the study. For this purpose, it must clearly explain how the results and data will be analysed and also how any potential sources of error may be reduced. Ergo, an in-depth understanding of methodology and methods ensures greater clarity and produces a more holistic and comprehensive understanding of various aspects of the study (Collis and Hussey, 2014).

The rhetorical assumption pertains to the question, “What is the language employed in the research?” (Collis and Hussey, 2014). Jonsen, Fendt and Point (2018, p. 42) view rhetoric as “the expertise of discourse, the capability to inform, persuade, and engage one’s audience”. Rhetoric thus relates to how the researcher persuades the reader that the researcher’s findings are valid.

Regarding the axiological assumption, researchers acknowledge that research is value-laden and contains biases and they ask questions such as, “What is the role of value?” (Collis and Hussey, 2014; Denzin and Lincoln, 2018). In essence, values are considered the guiding force of all human action (Heron and Reason, 1997). Heron and Reason (1997, p. 277) emphasis that “the axiological question asks what is intrinsically valuable in human life, in particular, what sort of knowledge, if any, is intrinsically valuable.” They further argued that researchers

demonstrate axiological skill by being able to articulate their values as a basis for making judgements about the research they are conducting. In this respect, Saunders, Lewis and Thornhill (2019) concur with Heron and Reason (1997) that the researcher should demonstrate their values at all stages in the research process.

For a research project to be robust, the relationships between ontology, epistemology, methodology, language and personal values must be consistent. They need to both relate to, and reflect the views and beliefs of the particular paradigms chosen. Any discrepancy could lead to a weakness in the research, invalidate the results and thus leave the study open to criticism.

Within social science, there are two main paradigms, or key "schools of thought"; positivism and phenomenology (Proctor, 1998; Denzin and Lincoln, 2018). Each offers a specific research perspective on how to conduct a study (Krauss and Putra, 2005; Bryman and Bell, 2011) and they differ in terms of their ontology, epistemology, methodology, methods, values and language. According to Collis and Hussey (2014), there is no "right" or "wrong" paradigm. Instead, it is up to researchers to justify and adopt a particular approach based upon their own assumptions about the nature of the research problem. Similarly, Kock (2013) stated that the choice of a paradigm reflects the researcher's views of the social world.

The following section explains the positivist/phenomenological frameworks in detail and discusses their appropriateness for this study.

5.2.2 The Positivist/Phenomenological Paradigmatic Framework

It is generally agreed that before adopting any philosophical approach, the researcher should explore the relevant literature to understand how it fits with their own perceptions and the proposed project. Scholars have developed and highlighted several different paradigms

employed in business and management research, such as post-positivism, positivism, phenomenological, realism, participatory and pragmatism (Creswell and Clark, 2011; Collis and Hussey, 2014; Saunders, Lewis and Thornhill, 2019). Of these, positivism, phenomenological and realism are regarded as the main research paradigms (Wass and Wells, 1994; Collis and Hussey, 2014) and are discussed in relation to the current study.

It is important to note that there are two contrasting views on the nature of paradigms, often referred to as polarised views (Proctor, 1998; Crossnan, 2003). One is positivism, also described as quantitative, scientific, objective, foundationalism and traditionalist. The other is phenomenological, described as qualitative, subjectivist, hermeneutics, naturalist, interpretivism and symbolic interactionism (Hudson and Ozanne, 1988). This signifies that each view holds different, basic underlying assumptions that ultimately guide the research methodology and choices of method. The two paradigms thus seem antithetical (Hoepfl, 1997).

Researchers, however, have questioned whether the two paradigms can be seen as mutually exclusive and have argued that they do, in fact, complement one another (Deshpande, 1983). This implies that positivism and phenomenological research paradigms can be combined to form a realistic research paradigm, occupying "the middle ground" of the two extremes (Proctor, 1998, p. 76).

Such a combination also means that critical aspects of the two extremes, including ontological, epistemological, and methodological assumptions, can be merged. However, not all aspects of the paradigms can be easily combined, with some researchers highlighting the incompatibility and incommensurability between different assumptions of the positivist and phenomenological paradigms (Denzin, 2012; Tashakkori *et al.,* 2015).

In the following sub-sections, positivist and phenomenological paradigms are discussed in detail. This is then followed by an in-depth consideration of the realist paradigm.

5.2.2.1 The Positivist Paradigm

Positivism refers to a particular set of assumptions about the world and the ways in which it can be studied (Crotty, 1998; Scotland, 2012). Positivism is the dominant paradigm for generating knowledge from the 1950s to the mid-1970s (Denscombe, 2008). Kock (2013) explains that the positivist paradigm is derived from the natural sciences and can be used to study social reality. This suggestion gives rise to the idea that social scientists and natural scientists share the same research goals and that they employ similar methods of investigation (Mangan, Lalwani and Gardner, 2004; Saunders, Lewis and Thornhill, 2009). It is, however, essential to note that positivism is not synonymous with science, or being scientific. At this point, natural scientists and social scientists differ sharply in the way in which they define scientific practice (Bell *et al.,* 2018; Mertens and Hesse-Biber, 2012).

Ontologically, positivist researchers share the standard view that social reality is singular, external and objective (Hudson and Ozanne, 1988; Collis and Hussey, 2014). This indicates that the research "object" (social reality) is independent (external) to the researchers and that researchers are capable of studying the objects without influencing them or being influenced by them; they strive to be emotionally neutral and to clearly distinguish between reason and feeling, and between science and personal experience. Guba and Lincoln (1994, p. 110) describe this approach as one where "inquiry takes place as through a one-way mirror."

From an epistemological viewpoint, the belief that the world would exist independently, without our knowledge, has enabled positivist researchers to be both dualists and objectivists, which is regarded as a fundamental aspect of any competent inquiry (Creswell, 2009). Positivists only view observable and measurable phenomena as legitimate areas for scientific

research. The merit of this scientific approach, as noted by Kerlinger (in Hudson and Ozanne, 1988, p. 513), “is the controlled experiment". Hence, the positivist advocates using a scientific approach to generate numerical measures and produce adequate knowledge (Wahyuni, 2012).

The ontological and epistemological assumptions of the chosen paradigm are reflected in its methodology. Here, the process of research needs to be scrutinised. For positivists, the researchers view social phenomena as measurable. Therefore, the methodological assumptions of the positivist paradigm have been most commonly linked with quantitative data collection and analysis (Saunders *et al.,* 2009; Kock, 2013; Collis and Hussey, 2014). The logic of this methodology follows the theory-based approach by which insight is gained into the nature of the social world (Denzin and Lincoln, 2018). Typically, this approach operationalises concepts; it first concerns itself with the theory that the researcher wishes to study and then applies that theory to a specific case, thus enabling the facts to be measured quantitatively (Easterby-Smith *et al.,* 2015; Collis and Hussey, 2014). This forms part of the research process, with positivist research following a deductive process (Saunders *et al.,* 2009). Fundamentally, it aims to test an existing theory; with this approach, the researcher knows what issues need to be investigated throughout the research, as well as the questions and hypotheses that need to be addressed. Data are collected, analysed and compared in order to test the original hypothesis and verify or reject the theory (Easterby-Smith *et al.,* 2015).

Positivists rely on facts and hold that research should be value-free. In such a paradigm, the results are considered reliable if another researcher can replicate the results following the same research process. Reliability assumes that causal relationships can be established and that the results can be generalised to a community outside of the original sample (Collis and Hussey, 2014). Threats to validity are controlled through preventive procedures.

Because this paradigm views the research as independent from the researched, the methodology should reflect all stages of a positivist research process. Under this criterion, positivist researchers remain detached from the researched by maintaining a distance that will minimise their influence. It is also vital in such research to seek objectivity and to consistently employ rational and logical approaches (Hudson and Ozanne, 1988). This reflects why the positivist emphasises the importance of distinguishing between fact and value judgement.

Statistical and mathematical techniques play a crucial role in positivist research because they adhere to precisely structured rules that are commensurate with a single and objective reality, leaving little room for the subjective views of the researcher. Data analysis is also undertaken objectively. It is essential that the language used in positivist research is impersonal and objective (Collis and Hussey, 2014). The values of the researcher can be described as objective, and it is this objectivity that characterises all aspects of the positivist paradigm. This also explains why the terms ‘objective paradigm’ and ‘positivist paradigm’ are sometimes used interchangeably.

It is important to note that the vast majority of corporate sustainability-related research follows this dominant paradigm. The existing literature reveals a heavy bias towards positivistic studies using quantitative methods. In their recent study, Filser *et al*. (2019) report that among the newest research contributions, there were a high number of quantitative studies; for instance, 7 out of 10 studies published in 2018 were quantitative. Mahmood *et al*. (2019) support this viewpoint by urging future researchers to consider using qualitative research methods within the sustainability field. The studies reviewed here reflect a shortage in the use of qualitative approach to explore sustainability practices in SMEs, which is viewed as a best suited method to capture respondents' perceptions of various sustainability-related issues in order to generate rich explanations of these phenomena (Filser *et al.,* 2019; Mahmood *et al.,* 2019). Such an

approach forms part of the phenomenological approach, which is discussed in the following section.

5.2.2.2 The Phenomenological Paradigm

As discussed previously, the positivist paradigm is based on the belief that the social world can be studied much like the natural world. The phenomenological paradigm, by contrast, implies that reality is a mental representation of what is perceived; people create devices such as theories and categories to help them make sense of their worlds (Burrell and Morgan, 1979).

In a phenomenological paradigm, the ontological assumptions are that reality is subjective and multiple because it is derived from the differing perspectives of individuals and groups. Reality is therefore socially constructed in that "all human knowledge is developed, transmitted, and maintained in social situations" (Berger and Luckman 1967, p.3). Given that social actors construct realities, phenomenology can only be understood by examining the views of said human actors (Collis and Hussey, 2014). Phenomenologists believe that the social world is complex, but these complexities cannot be reduced to simple, measurable variables that apply throughout the social world, or a subset of that world. Therefore, phenomenologists reject objectivism and the single truth proposed by positivism (Wahyuni, 2012).

In terms of epistemological assumptions, phenomenologists adhere to a subjectivist view by which subjective meanings and interpretations have great importance. Crotty (1998, p. 79) opines that the object “cannot be adequately described apart from the subject, nor can the subject be adequately described apart from the object”. In a phenomenological paradigm, the epistemological assumptions hold that a researcher interacts with what is researched. The distance between the researcher and the researched should not cause detachment; interaction is always required. Instead of predicting causal relationships and making generalisations based on these, phenomenological researchers aim to understand and interpret the meanings of

interactions in the social world (Hudson and Ozanne, 1988; Denzin and Lincoln, 2018). This means that human perspectives and experiences are viewed as essentially subjective, and that social reality may change (Wahyuni, 2012). As such, meanings and interpretations become challenging to measure in a precise and scientific manner, and the phenomenologist prefers to use qualitative methods and personal involvement to acquire rich descriptions of social constructs (Wahyuni, 2012).

As noted previously, a methodology refers to a framework for conducting a study under a particular paradigm. It encompasses a prime set of beliefs that drives a researcher to select one set of research methods over another. Given that methodologies are more common in research practice than philosophical concepts, researchers often state that they are conducting "qualitative" rather than "phenomenological" research (Wahyuni, 2012).

The phenomenological approach is frequently associated with an inductive research process (Saunders, Lewis and Thornhill, 2019). In contrast to a deductive process that often identifies essential variables before the research begins, an inductive research process allows for a more flexible structure that permits changes in research emphasis as the investigation progresses (Saunders, Lewis and Thornhill, 2019). Induction seeks to explain a specific phenomenon instead of testing how useful a particular theory is (Proctor, 1998). Sekaran and Bougie (2016) note that an inductive approach is commonly used for theory building and Thomas (2003) further highlights that the primary purpose of the inductive approach is to allow research findings to emerge from the frequent, dominant, or significant themes inherent in raw data without the restraints imposed by structured methodologies.

While positivists rely on statistical and mathematical techniques to understand the social world from a distance, phenomenologists favour interaction and dialogue with their participants. The

methods commonly employed in phenomenological research are interviews and questionnaires (face-to-face interviews with open-ended questions, telephone and electronic mail interviews and focus group discussions), observations (participant and non-participant) and the analysis of documents (Creswell, 2008). The choice of language in phenomenological research is also more flexible than in positivist research.

Thus far, this framework has produced two opposite paradigms. The next section will delve deeper to unearth another paradigm within this framework.

5.2.2.3 The Realistic Paradigm

The previous discussion provided a brief account of two dichotomous paradigms at the extreme ends of a continuum, namely the positivist and phenomenological paradigms. Although combining these paradigms appears to be difficult, some scholars view them as complementary (Molina-Azorín and Cameron, 2010). To give example, Wass and Well (1994, p. 3) note the value of "combining methodologies which, it is argued, can generate complementary data about the phenomenon under investigation". More specifically, Burrell and Morgan (2017) and Crotty (1998) believe there could be another paradigm, the constructionist or realistic paradigm that occupies the middle ground between the two dichotomies.

According to Saunders, Lewis and Thornhill (2019, p.24), "the essence of realism is that what the senses show us as reality is the truth: that objects have an existence independent of the human mind". Realists believe that the nature of reality is such that it is influenced by external structures and internal subjective beliefs (Proctor, 1998). In taking this position, realists accept positivistic beliefs about objective measurements while simultaneously respecting the phenomenological view that subjective opinions play a key role in the social world. To this end, it is argued that realism "provides a balance between subjectivity and objectivity, between

cause and effect, and between value-free and value-laden theory" (Proctor, 1998, p. 79). Therefore, both views should be acknowledged and accommodated (Maxwell and Mittapalli, 2010).

In epistemological terms, the researcher working from within a realistic paradigm believes that concepts, variables and hypotheses may be chosen before the study commences, as is the case with positivist assumptions. However, they also submit that these may change and emerge throughout the course of the research, as is the case with phenomenological assumptions.

In terms of methodological assumptions, realism has important implications for both qualitative and quantitative researchers as it is considered a productive stance for mixed methods research. Maxwell and Mittapalli (2010, p. 147) assert that realism provides "a philosophical stance that is compatible with the essential methodological characteristics of both quantitative and qualitative research, and it can facilitate communication between the two". According to Saunders, Lewis and Thornhill (2019), realistic research is frequently associated with an abductive research process that involves a mixture of previously outlined theories and the collection of data in order to identify patterns supporting the future development of current or new theories.

The language employed in realistic research is both formal and informal. The paradigms discussed in each of the three subsections are summarised in Table 5.2.

Table 5.2: Assumptions Underpinning the Paradigms

Assumption	Question	Positivistic Paradigm	Realistic Paradigm	Phenomenological Paradigm
Ontology	What is the nature of reality?"	Reality is objective and singular, separate from the researcher.	Real-world exists independently from subjective beliefs but is experienced through internal subjective beliefs.	Reality is subjective and multiple, as perceived by actors in a study.
Epistemology	What is the relationship between the researcher and the researched?	The researcher is independent from the researched.	Not consciously clear and attempts to take a middle path.	The researcher interacts with the researched.
Methodology	What is the process of research?	-Deductive approach; context-free; the researcher studies cause and effect, and employs a static design where categories are identified in advance; generalisations lead to prediction, explanation, and understanding; results are statistically accurate, reliable, and valid	- Abductive approach; interactive cycle between observation and theory; pluralistic approach, triangulation of methods, methods determined by the subject of research.	Inductive approach; context-bound. The researcher studies the topic within its context and employs an emerging design where categories are identified during the process; patterns and/or theories are developed; findings are judged accurate and reliable through verification.

Axiology	What is the role of values?	Value-free and unbiased.	An acceptance that values and biases exist.	Value-laden and biased.
Rhetoric	What is the language of the research?	Formal, impersonal; uses accepted quantitative words and set definitions.	Attempts to incorporate qualitative and quantitative words. Formal and informal.	Informal, personal voice; evolving decisions; uses accepted qualitative terms and limited a priori definitions.

(Source: adopted from Collis and Hussey, 2014; Denzin and Lincoln, 2018)

5.3 Choice of Paradigm for the Current Study

The selection of an appropriate paradigm depends on how researchers conduct and report their inquiries, and this will be influenced by their different views on the components of the paradigm (Collis and Hussey, 2014). This implies that the choice of a paradigm needs to be consistent with the nature of the research problem itself (Denscombe, 2008). Having discussed the three main research paradigms, this section explains how an appropriate paradigm for the current study is selected.

This current study focuses on identifying the most appropriate metrics for SMEs in Vietnam and the key enablers and inhibitors to better help these SMEs measure their sustainability performance. There has been sufficient literature available on sustainability performance measurement and sustainability metrics, which may necessitate the positivist paradigm or quantitative research approach. The issues to be raised in this initial part of the study attempt to test some "known variables". Hence the data collection is to be gathered through a questionnaire survey. However, the research pertaining to the understanding of sustainability performance measurement adoption from the perspective of SMEs, particularly in Vietnam, is not sufficient. As discussed in previous chapters, the SPMS adoption is highly contextual dependent, where the perception of motivations, inhibitors, enablers might vary from one company to another, and the defining an appropriate sustainability metric might differ from one situation to another. These practices can be associated with a need to employ the phenomenological/interpretivist paradigm, or qualitative research approach. Taken together, it entails a combination of positivist and phenomenological paradigms; a realistic perspective.

In short, the current study adopts a positivist perspective in the initial phase and a phenomenological position in the latter stage. Table 5.3 illustrates the critical elements of the realistic paradigm adopted in this study.

Table 5.3: Realist Paradigm and Assumptions for the Current Study

Realist Paradigm and Assumptions	
Ontological assumption	The sustainability performance measurement exists independently of subjective consciousness, but the experience of reality is gained through subjective consciousness.
Epistemological assumption	Valid knowledge relating to sustainability performance measurement issues are tangible and can be measurable; human action is open to various interpretations; the relationship between researcher and the researched differs, with the method chosen according to best practice for that particular method.
Axiological assumption	Acceptance that values and biases relating to sustainability performance adoption exist. Bias during interviews and analysis is acknowledged although an attempt will be made to reduce bias at all stages of research.
Rhetorical assumption	Attempts to combine quantitative and qualitative language (formal and flexible).
Methodological assumption	- Abductive approach, triangulation of methods, methods determined by the subject of the research. - Methods: quantitative survey on sustainability performance measurement adoption, followed by interviews on issues of sustainability metrics, motivations, inhibitors and enablers with owners/managers of SMEs in the southern part of Vietnam, and their relevant stakeholders (employees, shareholders, business customers). - Type of data: quantitative data and qualitative.

(Source: author's drawing)

Having selected a relevant research paradigm and identified its crucial elements, the following section discusses the research design employed for this study.

5.4 Research Design

The previous discussion highlighted the transparent debate between different paradigms at a philosophical level. However, concerning the choice of specific research methods, the distinction breaks down (Burrell and Morgan, 2017; Molina-Azorin *et al.,* 2017). A strong research design is crucial in providing a sensible framework for collecting and analysing data (Bell *et al.,* 2018). Each methodological paradigm is associated with a particular research method.

The significant distinction between quantitative and qualitative research is as follows; in the former, researchers are more detached from respondents in order to maintain validity. This method is based on reasonable, empirical and rational logic. The researcher adopts "top-down" logic to deductively test particular hypotheses or theories through the application of statistical measurements (Johnson and Onwuegbuzie, 2004). Data collection using quantitative methods is relatively quick, compared with qualitative methods (Johnson and Onwuegbuzie, 2004). Additionally, the quantitative method enables a large amount of numerical data can be collected from various people, mainly through surveys and databases, across a wide geographical area (Sekaran and Bougie, 2016; Saunders, Lewis and Thornhill, 2019). This serves the purpose of hypothesis testing (Creswell and Clark, 2011) and the subsequent objective generalising findings about a phenomenon (Bryman, 2009; Collis and Hussey, 2014). In many cases, the quantitative approach often has a low tolerance of the uncertainty and ambiguity that can be expressed in some qualitative methods. Notwithstanding, the knowledge produced by the quantitative approach may be too abstract and general for direct application to specific local situations, contexts, and individuals (Johnson and Onwuegbuzie, 2004). At this point,

quantitative methods do not explicitly investigate social experiences (Sekaran and Bougie, 2016; Saunders, Lewis and Thornhill, 2019).

By contrast, qualitative research employs logical inductions to understand multiple realities (Brannen, 2005; Sale, Lohfeld and Brazil, 2002) that usually involve a small number of cases (Jonker and Pennink, 2009). Unlike quantitative researchers, qualitative researchers become insiders who immerse themselves in the lives of respondents who are striving to make sense of their worlds. In a qualitative study, the researchers employ theory for inductive purposes or develop a theory based on a specific observed phenomenon (Meissner *et al.,* 2011; Sekaran and Bougie, 2016). The value of qualitative research lies in its capacity to investigate a phenomenon that is not well known in the context in which it occurs (Manuj and Mentzer, 2008; Paterson *et al.,* 2013). However, qualitative research is sometimes viewed as inferior and merely supplementary to quantitative methods (Easterby-Smith *et al.,* 2015). Nevertheless, qualitative researchers aim to gather extremely rich information and they will often employ data collection techniques such as semi-structured interviews, in-depth interviews, focus groups, participant observations and documentation such as texts and images through the traditional use of a case study (Yin, 2018; Bell *et al.,* 2018). The nature of such data collection means it is difficult to predict its progress. It also requires more time, resources and the interpretation of qualitative data is highly dependent on the skills and experience of the researcher.

The research outcomes can be subjective as they primarily rely on the unsystematic opinions of researchers as to what is deemed significant (Bell *et al.,* 2018). Researchers conducting qualitative studies often draw on a relatively small sample of data in a particular locality (Collis and Hussey, 2014; Yin, 2018) and this makes it difficult to generalise findings to other settings. This might result in a low credibility rating among those policymakers or sponsors who favour

a positivistic management agenda (Johnson and Onwuegbuzie, 2004; Easterby-Smith *et al.,* 2015).

In line with the above discussion, it is clear that the use of either a qualitative or quantitative approach in a single study has strengths and weaknesses (Creswell and Creswell, 2018). Although the former (qualitative) is believed to provide more meaning and in-depth understanding, it cannot present data in numerical form or ensure generalisability, unlike the latter approach (quantitative) (Saunders, Lewis and Thornhill, 2019). It is generally agreed that qualitative data tends to be subjective and less accurate, which contrasts with quantitative data that appears to be objective and precise and are based on standardised collection methods that can be replicated and analysed using statistical procedures (Creswell and Creswell, 2018; Bell *et al.,* 2018).

In the contemporary research world, complex and dynamic issues have triggered a demand for workable solutions to address complicated research problems. As a result, researchers often utilise a combination of quantitative and qualitative methods in a single study (Creswell, 2013; Denzin, 2010; Molina-Azorin, 2016). This combination is known as mixed-method research (MMR), the third research movement following quantitative and qualitative research approaches (Johnson and Onwuegbuzie, 2004; Greene, 2005; Cresswell and Tashakkori, 2007). MMR is thus defined as "the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study" (Johnson and Onwuegbuzie, 2004; p. 17).

It is important to restate that sustainability issues are multiple and complex in nature (Simonette *et al.,* 2008). This might cause ambiguity and confusion for SMEs in characterising, defining, and identifying appropriate metrics for adoption in practice to measure sustainability

performance (Ageron, Gunasekaran and Spalanzani, 2012; Ahi and Searcy, 2013b). In addition, the involvement of multiple actors such as customers, suppliers, and employees with a diversity of perspectives and relationships is likely to be complex and challenging (Qorri, Mujkić and Kraslawski, 2018). Indeed, implementing stakeholder concerns about sustainability can be an ambiguous requirement for SME owners/managers (Eikelenboom and de Jong, 2019). Consequently, handling such sustainability issues is likely to be a difficult endeavour for SMEs (Klewitz, Zeyen and Hansen, 2012).

As discussed above, the use of a MMR approach, combining qualitative and quantitative forms of research, is often described as the most appropriate method for capturing the complexity of investigations on sustainability issues as well as minimising research bias (Imbrogiano, 2020; Karell and Kirsi, 2020; Kundurpi *et al.,* 2021; Muñoz-Pascual, Curado and Galende, 2019; Santiago-Brown *et al.,* 2015). As discussed in section 5.3, the realistic paradigm was employed as the worldview of the current study. The MMR research (Almalki, 2016; Creswell, 2013; Maxwell and Mittapalli, 2010; Proctor, 1998) enables researchers to develop and obtain deeper levels of understanding of the research issue by investigating multiple outlooks (Creswell, 2013; Halcomb and Hickman, 2015). Therefore, the MMR approach was best suited for investigating factors influencing SPMS adoption in Vietnamese SMEs.

The utilisation of the MMR approach enabled the researcher to investigate such factors using both quantitative and qualitative methods, whereby the weaknesses of one method can be compensated by the strengths of the other (Durst and Gueldenberg, 2010; Johnson and Onwuegbuzie, 2004; Proctor, 1998; Turner, Cardinal and Burton, 2017). Another key advantage of employing the MMR approach is the triangulation benefits it brings as each

method can contribute to different aspects of the research (Greene, Caracelli and Graham, 1989; Turner, Cardinal and Burton, 2017; Venkatesh, Brown and Sullivan, 2016).

The purpose of triangulation, specifically, is an imaginative way of maximising the amount of data collected from multiple sources (Jick, 1979). The aim is to check the consistency and accuracy of data and reduce the risk of missing important information, thus enhancing the richness of data obtained (Saunders, Lewis and Thornhill, 2019; Creswell, 2013). In doing this, the current study exploited three advantages of the MMR approach: convergence and corroboration of findings (Johnson and Onwuegbuzie, 2004); reducing other possible interpretations when drawing conclusions (O'Cathain, Murphy and Nicholl, 2007); and clarifying different aspects of the phenomenon under investigation (Bowen *et al.,* 2013; Turner, Cardinal and Burton, 2017). Hence, the use of MMR and triangulation approaches served to enhance the validity and reliability of the research findings (Dewasiri, Weerakoon and Azeez, 2018; Proctor, 1998; Wahyuni, 2012).

To fully implement the MMR approach, the present study employed a sequential explanatory mix-methods design comprising two distinct interactive phases (Ferguson, Kerrigan and Hovey, 2020; McKim, 2017). In this design, the researcher initially gathered and analysed quantitative data, and then did the same for qualitative data to help explain or build on the initial quantitative results (Byrne and Humble, 2007; Ivankova, Creswell and Stick, 2006). The decision to employ a sequential explanatory design is consistent with the literature reviewed in the scoping review (Ferguson, Kerrigan and Hovey, 2020); and is also informed by the research questions and objectives already set out in Chapter 1. Further, this research design offered favourable conditions for the single researcher of the current study to conduct two methods in

separate phases and collect only one type of data at a time (McKim, 2017; Molina-Azorin, 2012).

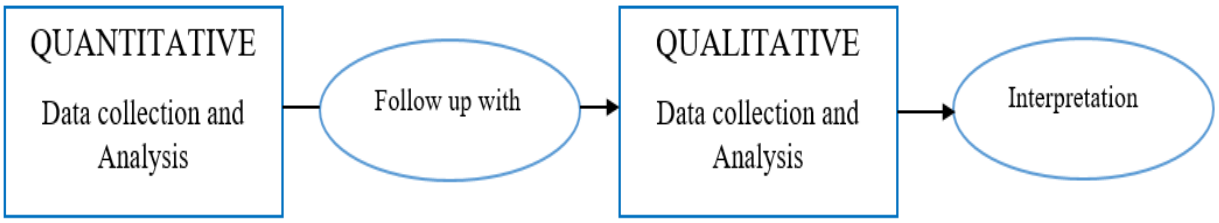
Specifically, the quantitative study was initially used to examine the relationships between six independent variables (MOT, INH, TOP, ACA, OLC, EXB) and the dependent variable (PSE). Also, the moderating effects of both individual and firm characteristics on these relationships were examined, as set out in section 4.5 Chapter 4. In this quantitative phase, a large sample size was targeted to meet the requirements for statistical analysis, as well as to generalise the research findings to the wider population of SMEs in Vietnam (Creswell, 2013; Garengo and Sharma, 2014; Kock, 2013).

In the following phase, the qualitative study was employed to gain further insights into the initial quantitative findings on factors influencing SPMS adoption. The aim here was to obtain rich data by interviewing participants about the worlds inside and outside of the organisation; and how these influence SPMS adoption in the SME setting. The rationale for this choice was also driven by the need to further explore the relevance of the quantitative findings with experienced managers. To achieve this, participants were asked about their role in the firm (e.g., owners/managers, staffs, shareholders, customers) and its relationship to business activities, which ensured appropriate data-rich information was obtained. In doing so, this qualitative study was able to further capture and explore subtler issues or unexplainable findings which might not have been revealed and explained in the initial quantitative phase (Clark, 2007; Creswell, 2013; Harrison and Reilly, 2011).

It is important to note that in this sequential explanatory design, both quantitative and qualitative parts were given equal priority, meaning the current study employed both quantitative and qualitative approaches equally to better understand the factors that influence

SPMS adoption in Vietnamese SMEs. Figure 5.1 illustrates the procedure for the sequential explanatory MMR design of the present study.

Figure 5.1: Sequential Explanatory Mixed Methods Design of the Current Study



(Source: adopted from Creswell and Clark, 2011, p. 69)

To obtain a reliable and valid measurement, an independent level of interaction occurred between quantitative and qualitative strands, whereby quantitative and qualitative research questions, data collection and data analysis are kept separate. The two strands were mixed when drawing conclusions during the overall interpretation at the end of the study. This was the only point in the research process where mixing occurred. By comparing and synthesising the results in a discussion, inferences are drawn that reflected all that is learnt from combining these results. In short, this study utilises a three-stage research design that encompassed quantitative and qualitative methods. Table 5.4 presents a visual framework for sequential explanatory mixed-methods procedures that aligns with the research objectives stated in Section 1.4, Chapter 1.

Table 5.4 Visual Framework for Sequential Explanatory Mixed Methods Procedures for the Current Study

Research Stages	**Procedure**
Stage One: Literature review and quantitative research analysis	1. The literature review starts with a discussion of the TBL concept and underpinning theories. 2. Internal and external factors influencing SMEs' adoption of sustainability performance measurement, and the motivations for this, are discussed and identified from the literature. 3. A preliminary list of sustainability metrics applicable for SMEs is proposed after reviewing literature and empirical studies. 4. Throughout the literature review, themes emerge from which hypothetical links to the proposed sustainability metrics were formulated. The survey for quantitative data collection is developed. 5. Quantitative data analysis is conducted using statistical techniques, including descriptive statistics, CFA (confirmatory factor analysis), and SEM (structural equation modelling). 6. The relationships between emerged themes and sustainability metrics are examined. Accordingly, appropriate sustainability metrics that specifically met the conditions of Vietnamese SMEs are identified. This is followed by a discussion of quantitative research.
Stage Two: Qualitative research analysis	1. The interview questions for qualitative data collection are derived from a literature review. 2. Thematic analysis is conducted to identify emergent meaningful 'themes' that explain the factors influencing SMEs' adoption of sustainability metrics.
Stage Three: Discussion and Conclusion	1. The quantitative and qualitative findings are compared, synthesised, and discussed. 2. The theoretical and managerial implications of this study are considered.

5.5 Concluding Remarks

This chapter has discussed the overall research methodology, reviewed the relevant research paradigms and methodological strategies. While conflicting views exist regarding the choice and applicability of different research paradigms, this study drew on the realistic paradigm, with a positivist perspective in the initial phase and a phenomenological perspective in the latter stage. The application of a realistic paradigm results in the utilisation of both quantitative and qualitative methods as part of a mixed-method approach that is best suited to this study. It not only explains how and why the researcher adopt these approaches to address the research questions and identify problems relating to application of the most appropriate metrics for SMEs in Vietnam, it also determines the key enablers and inhibitors that will more accurately help these SMEs measure their sustainability performance.

The following chapter discusses the quantitative research methodology employed in more detail.

CHAPTER 6 QUANTITATIVE RESEARCH METHODOLOGY

6.1 Introduction

This chapter presents the methods and procedures used to conduct quantitative research and test the hypotheses presented in the previous chapter. This chapter is divided into fourteen sections discussing quantitative data collection methods, the development of measurement models, measurement scale, questionnaire format, translation of the quantitative questionnaire, quantitative sampling, units of analysis, respondent selection, data analysis and processing techniques, estimation technique, the statistical model before modification, the confirmatory factor analysis of dynamic capabilities, the confirmatory factor analysis of competitive advantage, and fit indices. Each of these sections details the logic underlying the research decisions made in this study.

6.2 Quantitative Data Collection Method

Having employed a sequential explanatory mixed-method approach, this study used a quantitative method to test the hypotheses, followed by a qualitative method to explain the quantitative findings. This section presents in detail the quantitative method employed, which involved formulating and testing an integrated model containing relationships between the construct of factors influencing the adoption of SPMS in SMEs.

The literature on business research methods indicates different methods of collecting quantitative data, such as using surveys (questionnaires), experiments or observation (Anguera *et al.,* 2018). This study used questionnaires to gather quantitative data because this method allows researchers to easily reach a large number of respondents (Roxas and Chadee, 2012). It is widely utilised in research to develop measurement instruments (Saunder *et al.,* 2018). Self-completed questionnaires were administered to allow respondents to complete them independently at their convenience (Sekaran and Bougie, 2016), giving their preferences as

individuals without being affected by the presence of a researcher (Bell *et al.,* 2018). This was undertaken to ensure the reliability of the data. The self-completed questionnaire was deemed suitable for this study to target a large sample to test the theoretical model and generalise the research findings to a broad population.

6.3 The Development of Measurement Models

6.3.1 Measuring Items

The specific search for information for the current study was dependent on the hypothesised relationships presented in previous chapters. Accordingly, the measuring instrument was designed as per the constructs interpreted in the conceptual framework. Demographic information and control variables were also incorporated into the questionnaire to better understand respondents' profiles and obtain rich insights into the structural model. To ensure high content reliability and validity, existing measurements that have been empirically tested in previous studies were used (Fekpe and Delaporte, 2019; Lappalainen *et al.,* 2019; Yacob, Wong and Khor, 2019) to develop a questionnaire that suited the context of Vietnamese SMEs. The following sub-sections present the selected items that measured each construct.

6.3.1.1 Sustainability Metrics

Following empirical studies on corporate sustainability performance establishes instrumentality by primarily referring to sustainability metrics as dependent variables. The dependent variable in this study was the incorporating three pillars of triple bottom line sustainability: economic, social and environmental metrics. Twenty-six items (presented in Chapter 4) were selected that have been used previously in the literature. There were six items for economic performance, eight for social performance, and twelve for environmental performance. All of these are provided as below.

Economic Metrics (ECM)

ECM1	Return on Investment (ROI)
ECM2	Operating profit
ECM3	Net profit
ECM4	Tax payments
ECM5	Operational costs
ECM6	R&D expenditure

Social Metrics (SOM)

SOM1	Employee turnover
SOM 2	Employee job satisfaction
SOM 3	Employee training and development
SOM 4	Health and safety in the workplace
SOM 5	Customer satisfaction
SOM 6	Customer complaints
SOM 7	Charitable donation
SOM 8	Community involvement

Environment Metrics (ENM)

ENM1	Material consumption
ENM2	Raw material efficiency
ENM2	Recyclable raw materials
ENM4	Energy consumption
ENM5	Energy cost
ENM6	Renewable energy
ENM7	Wastewater
ENM8	Water consumption
ENM9	Waste disposal
ENM10	Recycling of waste
ENM11	Hazardous waste
ENM12	Total waste

6.3.1.2 Motivation (MOT)

As discussed in previous chapters, a wide range of potential benefits have been highlighted in the extant literature, allowing SMEs to adopt sustainability initiatives. Based on McKeiver and Gadenne's (2005) research, four statements were selected to describe SMEs' motivation to adopt SPMS: two items for motivation regarding firm benefits (MOT 1, MOT 2), one item for motivation regarding the employee (MOT 3), and one item for motivation regarding the customer (MOT4). Undoubtedly, it was difficult to avoid subjectiveness in this sample. However, based on the conceptual and theoretical issues identified, the selected items were believed to be crucial to every SME. Therefore, these statements were selected to be empirically tested and validated for Vietnamese SMEs.

The four items used to measure motivation to adopt SPMS are as follows.

MOT1	Cost reductions
MOT2	Increased resource efficiencies
MOT3	Better image among employees
MOT4	Better image among customers

6.3.1.3 Low Managerial Perception (LMP) and Internal Shortcomings (INS)

Low managerial perception refers to the understanding of SMEs' owner-managers' work situations that are influenced by numerous phenomena, causing them to be unable or unwilling to accept the challenge of adopting SPMS. In this study, three items were adopted from Hwang, Shan and Lye (2018), who focused on barriers encountered by SMEs in the context of developing countries such as Vietnam and Ghana. The statements adopted from Hwang, Shan and Lye (2018) were slightly modified to match the purpose of the study and increase their relevancy and comprehensibility for targeted respondents.

The three items used to measure low managerial perception to adopt SPMS in SMEs are as follows:

LMP1	Lack of owner interest
LMP 2	Slow recovery of investment
LMP 3	Perceived risk and uncertainties

Internal Shortcomings refer to a lack of available resources or an absence of sustainability knowledge and expertise, which is frequently attributed to the limited implementation of SPMS by SMEs. Three items were adopted from Hwang, Shan and Lye (2018). The statements were slightly modified to match the purpose of the study and increase their relevancy and comprehensibility for targeted respondents.

The three items used to measure SMEs' internal shortcomings to adopt SPMS are as follows:

INS1 Extra investment required (additional cost involved: implementing, monitoring, labour cost)

INS2 Limited sustainability knowledge and expertise for an SPMS

INS3 Lack of sustainability measurement tool/framework

6.3.1.4 Top Management Support (TOP)

Top management support refers to consistent support of top managers in terms of finance, human and time resources, their encouragement, active involvement, and supervision for the adoption of SPMS. Top management support consisted of three items and was adopted from prior studies. One item (TOP1) was adopted from Eikelenboom *et al.* (2019), another two items (TOP2, TOP3) from Nguyen and Tran (2020). The statements were slightly modified to match the purpose of the study and increase their relevancy and comprehensibility for targeted respondents.

Therefore, the three items used to measure top management support are as follows:

TOP1 Top management team communicates a clear and positive vision of SPMS

TOP2 Top management team is committed, involved and fully supports the implementation of SPMS

TOP3 Top management team can provide adequate resources to support the implementation of SPMS

6.3.1.5 Absorptive Capacity (ACA)

Absorptive capacity refers to a firm's ability to recognise the value of external knowledge, assimilate it, and use it for commercial ends. In this study, the measurement of absorptive capacity included three items adopted from prior studies. One item (ACA1) was adopted from Aboelmaged and Hashem (2019), another (ACA2) from Kim and Lee (2018) and a final item (ACA3) from Johnson (2017). The statements were slightly modified to match the purpose of

the study and increase their relevancy and comprehensibility for targeted respondents. The three items used to measure external barriers are as follows:

ACA1 Our company provides formal education and training so employees may obtain novel knowledge

ACA2 Our company establishes reward and recognition systems which encourage employees to obtain working skills and experience

ACA3 Our company has experience with ISO and/or has obtained sustainability certificates/programmes which have some advantages for knowledge acquisition and assimilation to support SPMS

6.3.1.6 Organisational Learning Capacity (OLC)

Organisational learning capacity refers to knowledge-sharing systems comprised of explicit and tacit knowledge constructed by individuals and groups involved in interacting and sharing experiences and expertise. In this study, the measurement of organisational learning capacity included three items, adopted from Lara and Salas-Vallina (2017). The items were modified slightly to increase their relevancy for the domestic context and prevent misreading and ambiguities.

The three items used to measure external barriers are as follows:

OLC1 In our company, people are encouraged to present new ideas and contribute opinions

OLC2 In our company, people feel involved in company decisions

OLC3 In our company, free and open communication is encouraged

6.3.1.7 External Barriers (EXB)

The items for external barriers were adopted from Hwang, Shan and Lye (2018) and Pham, Yong and Truong (2019) to measure the extent to which external barriers influence the

adoption of sustainability initiatives in an SME. Three items (EXB1, EXB3, EXB4) were adopted from Hwang, Shan and Lye (2018) and one item (EXB2) from Pham, Yong and Truong (2019). The items were modified slightly to increase their relevancy for the domestic context and prevent misreading and ambiguities.

The four items used to measure external barriers are as follows:

EXB1	Lack of government support in terms of information or seminars/workshops about sustainable development
EXB2	Lack of government laws and regulations
EXB3	Lack of economic incentives and rewards for firms engaging in sustainability
EXB4	Lack of local consumer demand on sustainable products/services

6.3.1.8 Moderating Variables

As stated in section 4.5, the present study investigated the potential moderating effects of both individual characteristics and firm characteristics. Both were examined because individuals' reactions to their firm's engagement with sustainability initiatives may be influenced not only by their own values but also by firm characteristics (Evans and Davis, 2011; Luu, 2017). As claimed by Galbreath (2019), the demographic characteristics of individuals might be associated with certain firm behaviours and actions.

At the individual level, four demographic variables in the research model were examined, including respondents' gender, age, work experience, and managerial position. Gender was examined because male and female respondents might vary in their attitude and behaviour towards issues associated with CSR management and practice (Yusoff, Jamal and Darus, 2016), and SPMS adoption. Respondents' age was investigated because older people tend to perceive CSR issues negatively (Choongo, 2017), which might subsequently influence factors

relating to SPMS adoption. Work experience was measured in terms of the number of years the respondent has been working in the SME sector (Hosseininia and Ramezani, 2016): its potential moderating effect on SPMS adoption was examined because the experience levels of respondents have been found to influence their sustainability orientation (Kor, 2003; Kuckertz and Wagner, 2010). Managerial position was measured by level of management (Lee, 2021), which was examined because different levels of management might have different perceptions of the influence of different factors on SPMS adoption (Parisi, 2013a).

At the organisational level, the current study examined the potential moderating effects of four moderators in the research model: firm size, firm age, business sector, and company sustainability experience. Firm size was measured by the number of employees, and firm age was evaluated by the number of years since the firm was established (Pham and Kim, 2019). Firm size and age were examined in the analyses because larger and older firms might have greater resources for adopting SPMS (Lopez-Perez, Melero and Javier Sese, 2017; Yu and Ramanathan, 2016). Business sectors were studied because SMEs operating in different business sectors, such as the manufacturing and service sectors, often encounter different types of challenges with respect to engagement with sustainability initiatives (Hatak, Floh and Zauner, 2015; Kumar, Singh and Dwivedi, 2020). The firm's sustainability experience was evaluated by certifications according to standards of social responsibility or sustainability or any other government certifications (Hasan, 2016). This is because SMEs with experience in quality certifications (such as ISO 9001, ISO14001) are likely to adopt sustainability initiatives (Caldera, Desha and Dawes, 2019a; Singh, Brueckner and Padhy, 2014).

6.4 Measurement Scale

Before drafting the questionnaire, it was crucial to determine appropriate scales to measure the variables in the theoretical framework and choose an appropriate scale to reflect the levels of precision at which a variable may be accessed (Collis and Hussey, 2014; Bell *et al.,* 2018). Therefore, most of the data used in this study are on an interval scale in which any two adjacent points are equal (Sekaran, 2003). This scale format is considered one of the best scales for most scientific work (Nardo *et al.,* 2005) and allows statements on all of the items to be presented concisely (Sekaran, 2003). Accordingly, respondents may easily compare values and select that which they agree with (Collis and Hussey, 2014). Additionally, it is beneficial in providing measures of central tendency, including the arithmetic mean, dispersion (comprised of the range), standard deviation and variance (Sekaran, 2003). Finally, the interval scale is also beneficial for transferring data coding onto a spreadsheet, which is simple and straightforward for statistical software (Sekaran, 2003).

The decision to choose either a 5-point or 7-point Likert scale is based on two crucial points. The greater the number of scale categories, the finer the discrimination among the measurement items. According to Hair *et al*. (2019), the higher the number of scale categories, the larger the size of the correlation coefficient. However, respondents can find it difficult to comprehend the complexity of a 7-point scale, compared with a 5-point. A 5-point scale is clearer since 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree. When using a 7-point scale, the respondent must determine the level of their agreement or disagreement between points 2 and 3 or 5 and 6. Therefore, the questionnaire's measurement scale chosen for this study uses a 5-point Likert scale, which has also been adopted by numerous other studies.

In addition to the 5-point scale, a nominal scale is employed to enable this study to categorise subjects (e.g., respondent gender, company sector, level of education) into specific groups. For example, respondent gender could be grouped into two groups (male or female), which could be converted into numerical scales by assigning codes 1 and 2.

6.5 The Questionnaire Format

At this stage, some issues are identified and considered critical to the questionnaire survey design and development process. Paramount among them is the nature of the research questions and objectives. The questionnaire survey needs to be well designed to ensure that these were adequately addressed. Therefore, an introduction is included in the opening section to indicate the research interests and population and to provide assurances regarding confidentiality. This helps to encourage cooperation and extract valuable responses.

The self-completed questionnaire includes nine questions and was divided into four sections (see Appendix A1).

Section A investigates the respondents' background information. Question one enquired about the respondent's gender, age, work experience (years), level of education and professional position. Question two covers issues relating to their current company, including their operations, the company's age and the number of full-time employees at the company. In this section, questions are simple, collecting general information to build respondent confidence and encourage their involvement in the study.

Section B contains questions regarding the constructs of the sustainability metrics. The closed-ended questions covered ECM (question 3), SOM (question 4), and ENM (question 5).

Section C investigates the internal factors influencing sustainability performance. The closed-ended questions were regarding aspects such as motivation (question 6), inhibitors (question 7), and enablers (question 8).

Section D includes questions investigating the external factors influencing sustainability performance. The closed-ended questions cover issues such as external barriers (question 9).

After the questionnaire had been developed and formatted, it is revived and commented by two professors on the supervisory team who are familiar with the topic of sustainable development, and SMEs. This review offers the researcher an opportunity to obtain their valuable comments and feedback on issues relevant to the questionnaire, such as its content, structure, and suitability (Saunders, Lewis and Thornhill, 2019). Some minor but necessary amendments are made to the questionnaire's structure. The review also enables this study to secure the content validity of the survey items (Sekaran, 2003).

6.6 Questionnaire Translation

The questionnaire format is initially prepared in English. However, due to the cross-cultural nature of this study, the instrument was then translated into Vietnamese (the official language of the country in which this study was conducted) before a pilot study and final run are conducted for data collection. As such, instruments are appropriately translated to ensure validity (Cha, Kim and Erlen, 2007; Sperber *et al.,* 2014) and that they carry the same meaning for all respondents.

There are some translation techniques, such as direct, back, and parallel translation, may be used in cross-cultural studies for instrument validation. Among these, back translation is the most popular and widely used method (Cha, Kim and Erlen, 2007). For this reason, back translation is employed in this current study, which means that the questionnaire in the original

language is initially blindly translated by a bilingual translator into the target language (Mcgorry, 2000). A second independent translator then takes the first translation and independently translates the questionnaire back into the original language. Following that, the two versions of the questionnaire are compared to identify any inconsistencies. And if any mistranslation is found in the back-translated version, a third independent translator retranslates the item (Cha, Kim and Erlen, 2007). This technique is beneficial in identifying most of the problems present (Saunders, Lewis and Thornhill, 2019), and checking for language consistency and ensure semantic equivalence between the original and translated versions (Cha, Kim and Erlen, 2007; Cui, Liang and Lu, 2015).

The process commences with two bilingual Vietnamese qualified translators who are asked to translate the survey instrument independently. The first independent translator translates the English version into Vietnamese. The second independent translator translated the Vietnamese translation back into English (Cha *et al.,* 2007). The comparison of the two versions reveals some inconsistencies. When translated back into English, terms such as 'metrics' 'inhibitors', 'enablers', 'sustainability performance' and 'stakeholders' had obtained additional or divergent meanings; this requires modification. Some English words, when translated into Vietnamese, required more specific and longer words. For example, 'sustainability' when translated into Vietnamese requires four words: *'phát triển bền vững'*. This indicates why some of the Vietnamese statements are too lengthy. Similarly, the term 'stakeholders' requires a more precise clarification in Vietnamese ('stakeholders (customers, employees, governments, NGO)') to avoid misunderstandings. Such a careful explanation is crucial in order to ensure that the terms could be appropriately understood by the respondents.

Towards the end of the process, the researcher consults with one Vietnamese lecturer in management at a UK university. Following a discussion of the translation issues, revisions and

modifications are completed to produce the final Vietnamese version that is less technical and more comprehensible for Vietnamese respondents (whose educational and cultural backgrounds may vary), which is ready for conducting a pilot study.

6.7 The Sample Selection for the Quantitative Study

This section presents the target population and respondent selection, sampling frame, sample size, and sampling methods for the quantitative phase of this study.

6.7.1 Target Population and Respondent Selection

The primary purpose of this research was to study the sustainability performance of SMEs in Vietnam. However, there is no single definition of SMEs that is universally accepted (Cong and Thu, 2020; Jenkins, 2006; Muenjohn *et al.,* 2020). The existing literature indicates that the proposed definitions of SMEs vary between institutions (Ali *et al.,* 2017), countries (Muenjohn *et al.,* 2020; Sommer, 2017), and industrial sectors (Nwobu, Faboyede and Onwuelingo, 2015; Simpson, Padmore and Newman, 2012). SMEs are often defined based on thresholds such as the number of employees, annual revenue, and total asset value (Hossain and Kauranen, 2016; Perera and Chand, 2015; Puppim de Oliveira and Jabbour, 2017) or a combination of these criteria (Kumar *et al.,* 2018). This poses a significant challenge to the study of SMEs (Cong and Thu, 2020) and can lead to varied interpretations of research findings, making it difficult to compare studies (Jenkins, 2006).

Thus, it has been suggested that studies on SMEs employ country-specific definitions that are broadly accepted (Muenjohn *et al.,* 2020; Perera and Chand, 2015). This study employed the official definition of SMEs provided by the Vietnamese government. Specifically, SMEs were classified into three major groups: micro, small and medium-sized firms (based on their number of employees). A micro, small and medium-sized enterprise is categorised as having between

1 and 10, 11 and 50, and 51 and 300 employees, respectively (Government Decree No. 90/2001/CP-ND on “Supporting for Development of Small and Medium Enterprises”).

It is essential to note that studies on SMEs’ sustainability initiatives that specifically focus on different sectors, for instance, production or service sectors, may yield different results (Hatak, Floh and Zauner, 2015). Therefore, prior empirical studies on identifying sustainability indicators for SMEs have tended to focus on specific business sectors (e.g. Singh, Olugu and Fallahpour, 2014; Mengistu and Panizzolo, 2021). This approach enables researchers to identify particular features of SMEs’ sustainability performance in specific industries and sectors in greater detail (Malesios *et al.,* 2018). For example, in Garengo and Sharma's 2014 study on contingent factors influencing manufacturing SMEs’ adoption of performance measurement systems, the author excluded service firms, stating that manufacturing and services sectors often have different approaches to adopting and using performance measurement systems (Garengo and Sharma, 2014). Considering the views mentioned here, focusing on a specific business sector or industry is challenging and unrealistic for the current study as most SMEs in Vietnam operate as part of the unorganised sector (Trifković, 2017). Therefore, mixed business sectors were best targeted to reflect the informality, which is a feature of SMEs in Vietnam, and provide more representative findings.

Thus, it was necessary to define both the characteristics of the population from which the research sample was drawn and the boundaries of the generalisability of the findings (Saunder *et al.,* 2018). The target population and representative sample of this study shared the three following criteria:

1. The firm was established in Vietnam and was a non-state enterprise (non-state enterprises include officially registered households, private firms, cooperatives, limited liability companies and joint-stock enterprises)
2. The firm had between 10 and 300 full-time employees (SME's definition by the Vietnamese government, by Decree 56/2009/ND-CP)
3. The company had obtained or was pursuing at least one ISO certificate/programme. This criterion resulted from reviewing the existing literature, which indicates that respondents from developing Asian countries are more likely to depend on internationally recognised certification, such as ISO 14001, to validate their sustainability credentials (Wu, Roan and Santoso, 2017). Additionally, it is important to note that the issues and challenges associated with adopting corporate sustainability development in SMEs are often reflected through their adoption of ISO 14001 (Bansal, 2002; Ferenhof *et al.,* 2014). Therefore, the ISO and/or other related sustainability certificates/programmes was a crucial criterion in the selection of Vietnamese SMEs.

The information used to verify whether SMEs satisfied the three above criteria was obtained from company annual reports, company websites, internal and external organisations, and government reports/documents.

This study used a country-based research setting, mainly focusing on SMEs operating in Southern Vietnam. As stated previously, sustainable development in developing countries is in its infancy concerning both government policies and company strategies (Azmat, 2010; Agyemang and Ansong, 2017; Jamali *et al.,* 2017). For this reason, the study was conducted in large cities with a high density of enterprises which were complying with current laws and assumed to be among the pioneers responding to the call for sustainability initiatives.

Ho Chi Minh City, located in Southern Vietnam, was chosen as the context for this study. This was for two important reasons. Firstly, Ho Chi Minh City, formerly Saigon, is known as the economic centre of the country and is the largest and the most dynamic city in Vietnam, accounting for the highest number of SMEs. However, there remains a lack of research on SMEs in this context which are contributing towards sustainable development by sustainably conducting business and thus contributing to the national sustainability goals outlined by the Vietnamese government. Secondly, Ho Chi Minh City is the hometown of the author of this study and where they were based at the time of conducting the study, which was a significant advantage concerning both convenience and the recruitment of participants within his established social networks. It was hoped that the research purpose could be shared with the researcher's Vietnamese fellows, enabling sufficient data to be collected to address the research questions.

The participants of the current study were SMEs' owner-managers, who are commonly considered as key informants (Akhtar *et al.,* 2015; Cassells and Lewis, 2011; Yacob, Wong and Khor, 2019), and decision-makers regarding firm sustainability engagement (Jenkins, 2006; Fassin, 2008; Wiesner *et al.,* 2017). However, as discussed in Chapter 4, SME owner-managers often have limited time available as they are occupied with the daily operations of the business (Revell and Blackburn, 2007). Thus, they are less likely to participate in a survey for data collection, which can be a serious challenge to obtaining the desired sample (in this case, at least 315 respondents, as outlined in Section 6.8.1).

Thus, an extant approach was required to integrate multiple informants and increase the response rate. Instead of taking a monadic view of SME owner-managers, it was better to integrate the lens of the different relevant actors involved, considering interests and perceptual and cognitive differences regarding sustainability performance measurement (Baumgartner,

2014; Kaufmann and Saw, 2014; Newman, 2006). Doing so provided a more complete picture of the complex phenomena of sustainability in SMEs (Kaufmann and Saw, 2014; Prashar and Sunder, 2020). As such, key employees willing to communicate this knowledge with the researcher were selected (Marshall, 1996).

There is a consensus among researchers that data obtained from multiple informants within a firm is useful in minimising the potential impact of common method bias (Sarkis *et al.,* 2010; Font *et al.,* 2016). As Aguinis and Glavas (2012) claim, individuals within an organisation are likely to be more similar regarding certain variables due to a common organisational culture, work norms and processes; accordingly, an organisational-level variable may covary with relevant individual-level variables. Given this, the researcher initially examined whether the responses from multiple respondents from the same organisation were similar to each other's response or conflicting. In the case of any significant conflicting responses from the same organisation, the researcher would contact that respondent for further clarification. In an extreme case or the respondent is unable to contact, the researcher would decide to remove such a conflicting response to ensure that multiple respondents from the same organisation would not yield different results. Accordingly, this process is the most appropriate way for this quantitative study to treat responses for a single company as a single response, and to minimise the potential impact of common method bias. The results did not indicate any significant conflicting responses from multiple respondents from the same organisation.

In line with the above discussion, at least one to three key respondents within firms were targeted in this study, depending on the size of the firms (Bourlakis *et al.,* 2014). However, this was not strict as many SMEs are rather small; in such cases, one key informant was considered sufficient. A key informant was selected based on the following criteria:

1. An employer or employee at an SME in Ho Chi Minh City, Vietnam.
2. A person with an awareness of sustainable development in general and of the sustainability activities within their current firm.

A pilot study was conducted with 18 participants selected from 10 SMEs in the study area. These participants were invited to participate in the survey and provide feedback on the questionnaire in terms of overall content, comprehensibility, style, structure and length (Tolstoy, 2019). The pilot study was also used to identify any misleading questions or ambiguities that required modification (Saunders, Lewis and Thornhill, 2019) and determine potential participant interest (Amrina and Yusof, 2011). All pilot tests were conducted in the same manner as the surveys administered to the target population: online via an electronic survey administered through Qualtrics. The pilot tests also confirmed that the survey was accessible via the hyperlink in the email and could be completed and submitted without error.

Feedback from pilot participants helped to enhance the questionnaire's validity by rephrasing some questions and altering the layout and sequence to appear more attractive. These amendments improved the flow and ease of completion for respondents and ensured that participants could complete the questionnaire within 20 minutes. Final revisions were completed and, when there were no further suggestions to improve the questionnaire's phrasing or structure, the instrument was considered valid for a final run. The estimation of the required sample size and acceptable response rate for the questionnaire survey are presented in the following section.

6.7.2 Estimation of the Required Sample Size and Response Rate for the Quantitative Study

This study employed factor analysis and structural equation modelling (SEM) (presented in Section 6.9) to analyse the quantitative data. However, these techniques typically require a relatively large sample size (Tabachnick and Fidell, 2014). Therefore, determining a sufficient sample size to perform factor analysis and SEM in this study was crucial. Two methods are suggested in the extant literature to identify the required sample size: using the absolute number of cases (N) or the cases-to-variables ratio (p) (Tabachnick and Fidell, 2014; Hair *et al.,* 2019).

However, there is currently no consensus among researchers regarding the sufficient sample size for conducting a factor analysis and SEM. For example, Nunnally (1978) suggested a sample size that is at least 10 times the number of variables. However, Kline (2005) proposed 100 cases or observations per group. Others have asserted that a sample size of 100-200 is adequate for performing SEM (Kline, 2005; Tabachnick and Fidell, 20013). For studies with large numbers of constructs, Hair *et al.* (2019) suggested that a minimum sample size of 500 cases is adequate to perform SEM. Such wide-ranging suggestions indicate that deciding on an appropriate sample size is a complex task.

To ensure identification of the proposed statistical model, this study followed the cases-to-items ratio from 5 to 20 suggested by Hair *et al.* (2019), where at least 5 to 20 cases are required for each item. In this study, there were 63 variables; thus, a sufficient sample (N) ranging from 315 to 1,260 was acceptable for performing factor analysis and SEM. A study by Baruch and Holtom (2008, p.1149) analysing 1,607 studies with 4,000,000 respondents from 2000 to 2005 indicated that the average response rate (r) at an organisational level is 35%, with a standard deviation of 18.2, which results in a response rate ranging from 16.8-53.2% in organisational research studies. Accordingly, the following formula was applied to identify the number of

distributed questionnaires (Q) to give an acceptable estimated response rate and thus determine the sufficient sample size required for analysis:

$$Q = \frac{100 * \mathrm{N}}{\mathrm{r}}$$

where:

Q: the number of questionnaires that must be distributed

N: the estimated sample required (in this case, N = {315; 1260})

r: the response rate (in this case, r = {16.8; 53.2})

Replacing N and r accordingly, the round-up result indicated that Q was within the range of 1,875 to 2,369.

In summary, the estimated sufficient sample size for this study (315 to 1,260) was adequate for performing factor analysis and SEM. This estimation was useful in providing first-hand information to prepare for the data collection process. The actual number of distributed questionnaires and the actual response rate are given in subsequent sections.

6.7.3 The Sample Design and Data Collection

Two main sampling methods are used in business management research: probability and non-probability sampling (Collis and Hussey, 2014; Saunders, Lewis and Thornhill, 2019; Bell *et al.,* 2018). Probability sampling often involves random, stratified, cluster and systematic sampling. Non-probability sampling often relies on subjective judgments (Saunders, Lewis and Thornhill, 2019), employing techniques such as quota, convenience, and purposive sampling (Sekaran and Bougie, 2016).

In quantitative inquiry, the dominant sampling strategy is probability sampling, which depends on selecting a random and representative sample (Hoepfl, 1997) – an unbiased sub-set from a larger population where each member has an equal chance of being selected (Collis and Hussey, 2014). The merit of using this approach is its usefulness in generalising research findings to broad populations (Collis and Hussey, 2014; Saunders, Lewis and Thornhill, 2019; Bell *et al.,* 2018). Thus, a stratified sampling technique was employed in this study. It is important to acknowledge that there is no reliable sampling frame available for probability sampling methods (Singh and Srivastava, 2018). Additionally, difficulties have been reported regarding the sampling of SMEs in Vietnam (Tran and Jeppesen, 2016b; Trifković, 2017). Snowball sampling was also used as this technique has often been employed in previous sustainability studies conducted in Vietnam (Luu, 2016; Nguyen *et al.,* 2020). Therefore, a combination of stratified and snowball sampling was utilised to collect data during the quantitative phase in this study. Data collection was conducted in two stages.

The first stage utilised stratified sampling using both probability sampling and purposeful sampling techniques (Teddlie and Yu, 2007). The targeted population initially generated two strata, including the service and manufacturing sectors. Drawing on these two strata, samples for the administration of the questionnaire were randomly self-identified by the researcher from the Yellow Pages database. This business directory has been suggested as one of the most valuable sources providing general information on firms, such as company size (number of employees), business sector, names of owner-mangers, addresses and contact details. This process resulted in a set of 2,621 email addresses for SMEs in Ho Chi Minh City, Vietnam, in which the service sector accounted for 1,367 firms; 1,254 firms represented the manufacturing sector. The obtained set of 2,621 email addresses was then validated for accuracy using Qualtrics software.

In early July 2019, the questionnaire was administered via an email containing a link to the Qualtrics survey. The email included an invitation, explained the purpose of the study, and instructed participants on how to complete the survey themselves and how to refer it to an appropriate person for the same purpose. The researcher also acknowledged their involvement and hope to advance their knowledge of sustainable development within Vietnamese SMEs and ultimately identify appropriate metrics to help firms better manage their sustainability performance, considering their micro and macro conditions. The survey's launch was completed in a staggered manner on the mornings of Tuesday and Wednesday as these weekdays have been suggested as optimal for professional audiences (Sue and Ritter, 2012). The respondents were given 30 days to complete and return the survey. A reminder was sent to the same mailing list 10 days after the initial email survey link had been sent in an attempt to improve response rates. Slightly over 300 email recipients were unreachable for various reasons (e.g., bounced emails).

It was crucial to obtain a high response rate to reduce the risk of non-response bias and ensure that the study sample was representative (Saunders, Lewis and Thornhill, 2019). During the stratified sampling stage, the response rate was low. It was decided to initiate the second stage in combination with the first stratified sampling stage. Snowball sampling was conducted by the researcher who obtained professional contacts (SMEs in Ho Chi Minh City) and recommended his colleagues, friends, and relatives whom they also knew personally. The researcher requested additional contacts from the initial contacts. A printed questionnaire was used unless participants requested an online version for their convenience, in which case they were sent the same version through Qualtrics software. This ensured that the questionnaire was delivered to the correct respondents so that the researcher could control the number of questionnaires distributed and calculate the response rate.

Of approximately 2,300 valid invitations (emails) sent, only 186 responses were received, representing a response rate of 8% for the online survey. Of the 700 printed versions that were distributed, 415 responses were received, representing a response rate of 59.3%. Collectively, 601 responses from approximately 3,000 questionnaires equalled a response rate of approximately 20%. However, the final usable response rate was not determined until the completion of data screening. The results for the usable response rate are presented in section 6.10.

6.8 Unit of Analysis

The unit of analysis of the subject refers to 'the who' or 'the what' of the study (Bell *et al.,* 2018). The unit of analysis for this study was SMEs registered in Ho Chi Minh City, Vietnam. The target informants for the survey included SME owner-managers and key employees. These informants were selected as they have first-hand knowledge and information regarding internal and external factors that influence the adoption of sustainability metrics within their organisations.

6.9 Data Analysis Techniques

To achieve the research aims and objectives, this quantitative study employed Structural Equation Modelling (SEM) methodology using AMOS Graphics (Arbuckle, 2016; Eikelenboom *et al.,* 2019) to evaluate the relationships between the theoretical constructs depicted in the research model presented in Figure 4.1 (Chapter 4). Data analysis was conducted using IBM SPSS AMOS version 26 (IBM Statistical Package for Social Science) since it is considered one of the most powerful data analysis software programmes for quantitative data analysis in business research (Sekaran and Bougie, 2016).

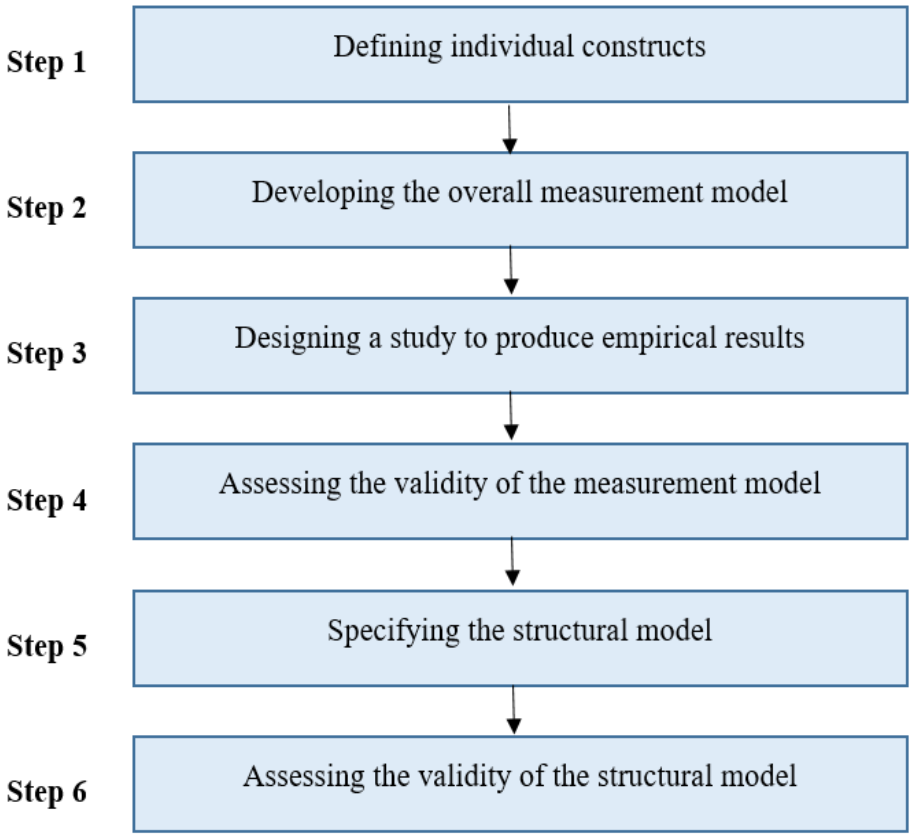
The main purpose for using SEM is that it has advantages over older methods of multivariate analysis. First, SEM is an approach to statistical modelling that has the capacity to handle a vast set of exogenous and endogenous variables, enabling it to describe all the relationships presented in the research model (Hair *et al.,* 2019; Singh, Chauhan and Tejyan, 2017). In addition, SEM enabled the current study to deal with both observed and unobserved (i.e., latent) variables, whereas other multivariate techniques support an analysis of data based solely on observed measures (Byrne, 2016). Second, the relationships among variables examined by SEM are free of errors as these can be estimated and eradicated, meaning that only common variance remains. Removing measurement errors, particularly if they are large, can substantially increase the accuracy of research (Byrne, 2016). It was therefore possible for this quantitative study to explicitly address reliability within the analysis (Byrne, 2016; Tabachnick and Fidell, 2014; Hair *et al.,* 2019).

As presented in section 6.7.2, and in Figure 7.3, SEM was the most suitable multivariate method for assessing the multidimensional and complex relationships within this quantitative study, as it consists of multiple regression analysis, factor analysis, and path model analysis (Singh and Sharma, 2016; Hair *et al.,* 2019), thereby facilitating an all-encompassing and concurrent test of every relationship (Tabachnick and Fidell, 2014; Rao *et al.,* 2006; Punzo *et al.,* 2019). The fitted SEM models for the purposes of the current study were tested using AMOS Version 26 software (Dey *et al.,* 2020; Malesios, 2018). Therefore, SEM was deemed appropriate for this quantitative study to evaluate the fitness of the research model and test the hypotheses (H1, H2a, H2b, H3, H4, H5 and H6).

Furthermore, this quantitative current study employed a multi-group analysis AMOS Plug-in (Gaskin and Lim, 2018) to assess the potential effects of moderators on the hypotheses of the research model presented in section 4.5, Chapter 4. The use of multi-group analysis, a helpful tool in SEM, allowed the researcher to compare two or more groups that were randomly divided from the study sample (Byrne, 2016). Multi-group analyses were conducted for eight tests: managerial levels (high-level, low-level), gender (male, female), age of the participant (young adult, middle-aged), work experience (≤ 5 years, > 5 years), firm size (small, medium), firm age (≤ 10 years, > 10 years), the business sector (service, manufacturing) and firm's sustainability experience (inexperienced, experienced). The primary purpose of conducting these multi-group analyses was to determine potential differences between the sub-groups in SMEs' adoption of SPMS.

To conduct SEM, the researcher followed the six steps (see Figure 6.1) suggested by Hair *et al.* (2019): (1) defining individual constructs, (2) developing the overall measurement model, (3) designing a study to produce empirical results, (4) assessing the validity of the measurement model, (5) specifying the structural model and (6) assessing the validity of the structural model.

Figure 6.1: Six-Stage Process for SEM



(Source: adapted from Hair *et al.,* 2019; p.626)

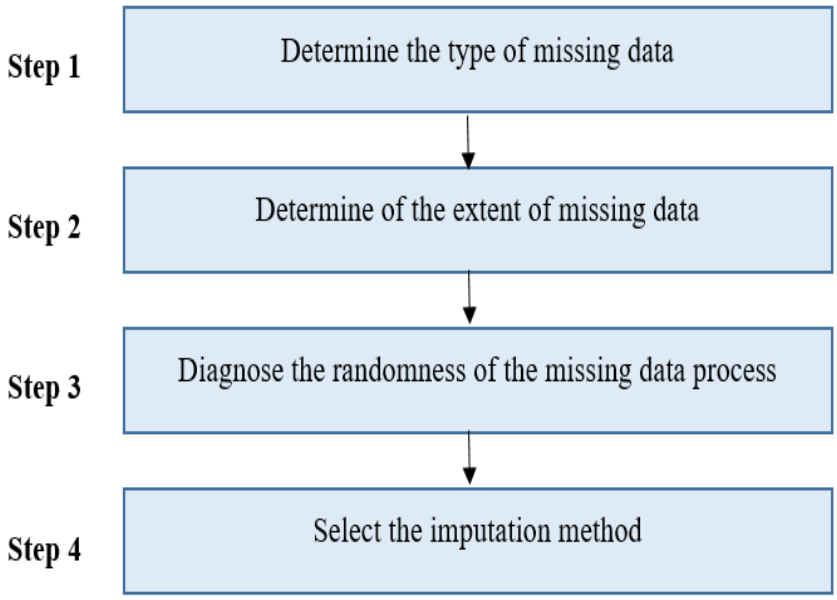
The first and second stages were discussed in previous sections. Stage three is addressed in Section 6.10. In designing the research, the following issues were addressed: missing data (types of missing data, missing data remedies and selecting an approach to address missing data), sample size and estimation technique.

6.10 Data Processing

This section addresses the accuracy of data entry, missing data and outliers in the dataset.

The researcher followed the four-step process (see Figure 6.2) proposed by Hair *et al.* (2019) to identify and apply remedies. The detailed patterns of the missing data and diagnosis of the missing data's randomness in the usable dataset are presented in Appendices B.1, B.2 and B.3.

Figure 6.2. The Four-Step Process for Identifying and Applying Remedies



(Source: adapted from Hair *et al.,* 2019; p.626)

It should be noted that the survey was delivered online using the Qualtrics tool, of which one function was that a survey could be submitted only once it had been completed. Therefore, the issue of missing data was not a concern for the mean of the electronic survey in this study (186 responses). However, as reported in Section 6.7.3, the snowball sampling process generated 415 (out of 700) printed questionnaires returned. Therefore, the total responses were 601, after removing eight unengaged responses and 14 cases with a missing data rate of over 20% (Hair *et al.,* 2019; p.62). This resulted in 579 usable responses (a response rate of 19.3%). Based on these results, it was concluded that the sample size of 579 satisfied the minimum sample size required for this study (ranging between 315 and 1,260, estimated in Section 6.8.2). Moreover, the response rate of 19.3% was acceptable since it was within the acceptable range (16.8-53.2%) for academic research on organisations proposed by Baruch and Holtom (2008).

6.10.1 Missing Data Treatment and Imputation Method

The survey was delivered online using the Qualtrics tool whereby a survey could be submitted only once completed. Therefore, the issue of missing data was not a concern for the mean of the electronic survey in this study (186 responses). However, as reported in Section 6.7.3, snowball sampling was used to distribute 700 printed questionnaires (427 were returned). These 427 returned versions were manually checked for possible errors or omissions. Twenty-two cases with a missing data rate of over 20% were removed (Hair *et al.,* 2019; p.62), resulting in 405 usable responses and a response rate of 57.9%. The Qualtrics tool was used to input all of the usable responses to avoid human error.

After checking for missing data, the 579 responses from the questionnaire survey were downloaded from the Qualtrics platform by exporting them into an SPSS file. Data coding was then conducted which involved defining and labelling each of the variables and assigning numbers to each case (response). Specifically, data were transferred relating each variable to groups, which were considered categories of the variable in question. Numbers were then assigned to each category to allow the information to be processed by the computer software (SPSS). Finally, another check was conducted to ensure that there were no typographical errors, after which the data file was considered ready for statistical analysis.

6.10.2 Outliers and Multivariate Normality

The presence of outliers can affect interpretations of research findings. There are two types of outliers: univariate or multivariate. According to Tabachnick and Fidell (2014), a univariate outlier is an extreme value regarding a single variable while multivariate outliers are data points with extreme values on two or more variables. As stated in Section 6.4, this study used a Likert scale, which resulted in no univariate outliers of concern as the items are measured based on a

predefined scale. Although there can be extreme points of scale, any unexpected errors from data entry, it can be easily traced back and corrected.

The researcher conducted the Mahalanobis D^2 statistical test using AMOS software to detect multivariate outliers across the set of variables. Kline (2011) suggests that a threshold value with a level of significance of p <0.001 can be considered as a potential outlier. Given that the remove of outliers is necessary to improve multivariate analysis, Hair *et al.* (2019) argue that caution should be taken to avoid harming generalisability. Moreover, Tabachnick and Fidell (2014, p.110) articulates a concern that "some multivariate outliers hide behind other multivariate outliers…when the first few cases identified as outliers are deleted, the data set becomes more consistent and then other cases become extreme." Thus, the researcher opts not to remove outliers as has been suggested as the presence of a few outliers in a large sample is not a significant concern (Kline, 2011).

After screening the data for missing values, normality tests are performed, which is essential before conducting SEM (Singh and Srivastava, 2018). Screening and scanning the raw data for any possible errors, omissions or inconsistencies within the data set and checking for any potential violations of the statistical assumptions are conducted through proper testing to confirm that basic data assumptions are satisfied for statistical conclusion validity (Narkhede, 2017). The consideration and resolution of these issues allow the researcher to obtain an honest analysis of data before running the main analysis (Tabachnick and Fidell, 2014; Hair *et al.,* 2019).

6.11 Estimation Technique

The maximum likelihood estimation (MLE) incorporated into AMOS 26 is applied in this research. Complete data without any missing values need to be entered to generate results with

modification indices. An imputed dataset was therefore produced by running the expectation-maximisation (EM) imputation on SPSS 26 (IBM, n.d.). This MLE technique is effective as the missing data are not extensive and are largely random (Hair *et al.,* 2019). EM is a two-stage iterative technique in which the E stage generates the best estimates with respect to missing data. Assuming the missing data are replaced, the parameters (means, standard deviations, or correlations) are estimated in the M stage. This procedure continues until the estimated values no longer change, which indicates that the missing data has indeed been replaced. Ordinarily, less than 5% missing data is required to apply EM but, as the next section demonstrates, this may not be possible for highly skewed data. The official dataset analysed in this current study is the imputed dataset generated from EM in SPSS.

6.12 Fit Indices

"After the model has been specified and then estimated, the major question is, 'Is it a good model?' One component of a 'good' model is the fit between the sample covariance matrix and the estimated population covariance matrix" (Tabachnick and Fidell, 2014, p.770). As stated by Hair *et al.* (2019), the validity of a measurement model depends on two conditions: acceptable goodness-of-fit levels and proof of construct validity. Considering that many fit indices are available in the extant literature, there have been inconsistent viewpoints regarding which indices are the most appropriate to use and the cut-off values for a given fit index. This study adopted the key indices and cut-off values (see Table 6.2) recommended by Tabachnick and Fidell (2014) and Hair *et al.* (2019) to ensure measurement model validity

Table 6.1: Summary of the Chosen Fit Indices and Their Cut-off Values

Type of fit	Fit index	Description	Acceptable Fit
Absolute fit	Chi-Squared ($\chi 2$)	Testing of a null hypothesis where the observed sample and SEM estimated covariance are equal, indicating that the model fits perfectly.	Non-significant with a p-value of at least 0.05 (p-value > 0.05), indicating no statistical significance between the two matrices, supporting the idea that the proposed study fits reality.
	Normed Fit Chi-Squared ($\chi 2$ /df)	Measuring the ratio of $\chi 2$ to the degrees of freedom for a model.	2:1 (Tabachnick and Fidell, 2014, p.770) indicates a good-fitting model. 3:1 (Hair *et al.,* 2019, p.638) or less indicates a better-fitting model.
	Root Mean Square Error of Approximation (RMSEA)	Representing how well a model fits a population. One advantage is that a confidence interval can be constructed; the range of RMSEA gives a level of confidence. RMSEA is highly recommended for a competing model with a larger sample (> 500 respondents).	Values between 0.03 and 0.08 indicate an adequate fit (Hair *et al.,* 2019, p.637). Values of 0.06 or less indicate a good-fitting model (Tabachnick and Fidell, 2014, p.772).
Incremental fit	CFI (Comparative Fit Index)	Comparative index between proposed null models adjusted for degrees of freedom. Normed, 0-1 range. Highly recommended as the index choice.	Values from 0.92 depending on the number of observed variables and sample size (Hair *et al.,* 2019, p. 642). Values greater than 0.95 indicate a good-fitting model.

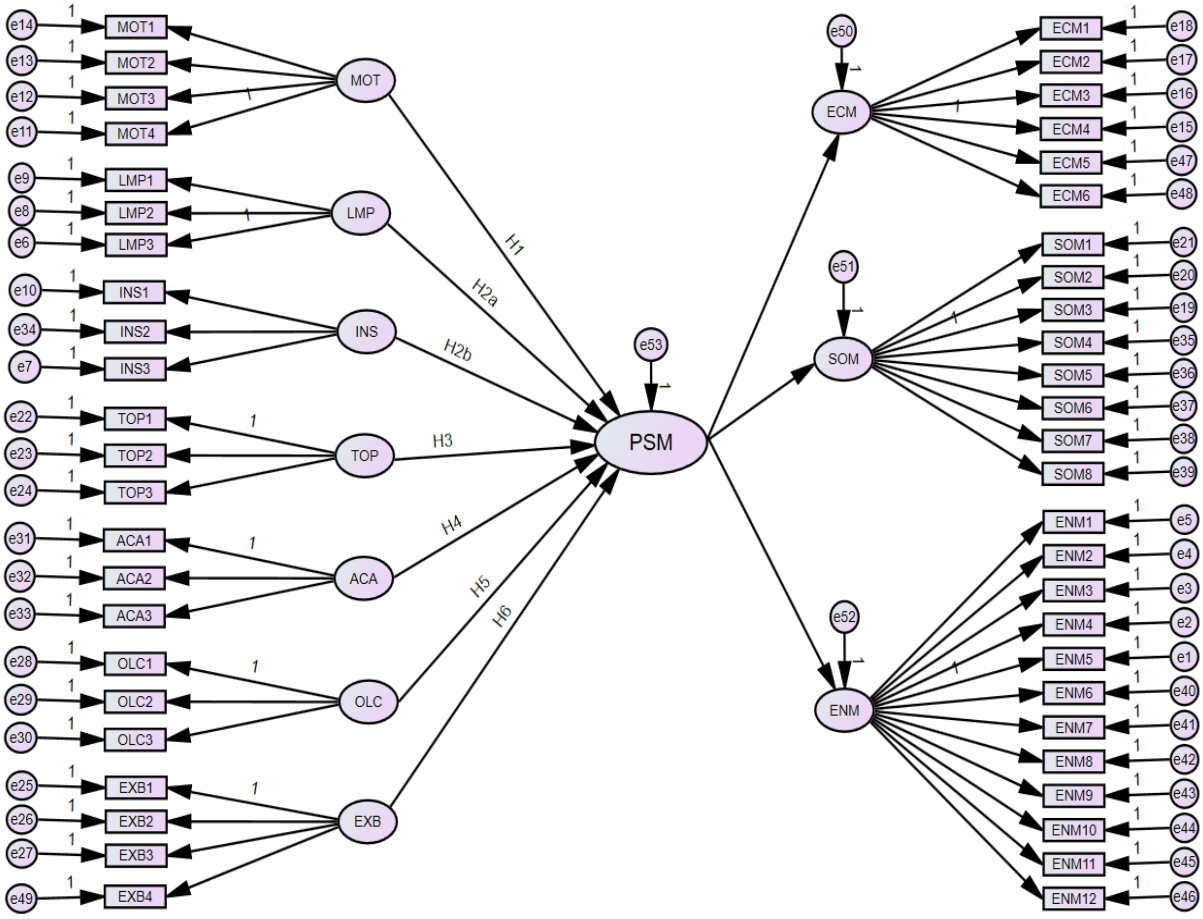
Source: Tabachnick and Fidell (2014); Hair et al. (2019)

It is important to note that a consistent guideline enables researchers to select an index that provides "the best fit evidence in one specific analysis and a different index in another analysis (Hair *et al.,* 2019, pp.639-640). Hair *et al.* (2019) suggested that researchers employ at least one incremental index, one absolute index, one $\chi 2$ value and one associated degree of freedom, as the combination of these four indices often provides sufficient information to prove a model's fit. Furthermore, although there is a lack of single cut-off values for goodness-of-fit indices, one way to determine an appropriate cut-off value for a specific index is based on model characteristics, such as sample size or model complexity (Tabachnick and Fidell, 2014; Hair *et al.,* 2019). It is important to note that more complicated models and larger samples often require more relaxed criteria for evaluation with multiple fit indices. Less complex models and smaller samples usually demand stricter evaluations (Hair *et al.,* 2019). Therefore, reporting the $\chi 2$ value and degrees of freedom, the CFI, and RMSEA were sufficient to evaluate the goodness-of-fit.

6.13 Full Statistical Research Model before Modification

Figure 6.3 illustrates the full statistical research model before any modification. As shown, the suggested model constitutes eight latent constructs in which relationships among the constructs are proposed. For example, one endogenous variable is perceived sustainability metrics (PSM). The remaining are exogenous variables: motivation (MOT), low managerial perception (LMP), internal shortcoming (INS), top management supports (TOP), absorptive capacity (ACA), organisation learning capacity (OLC) and external barriers (EXB).

Figure 6.3: Full Statistical Research Model

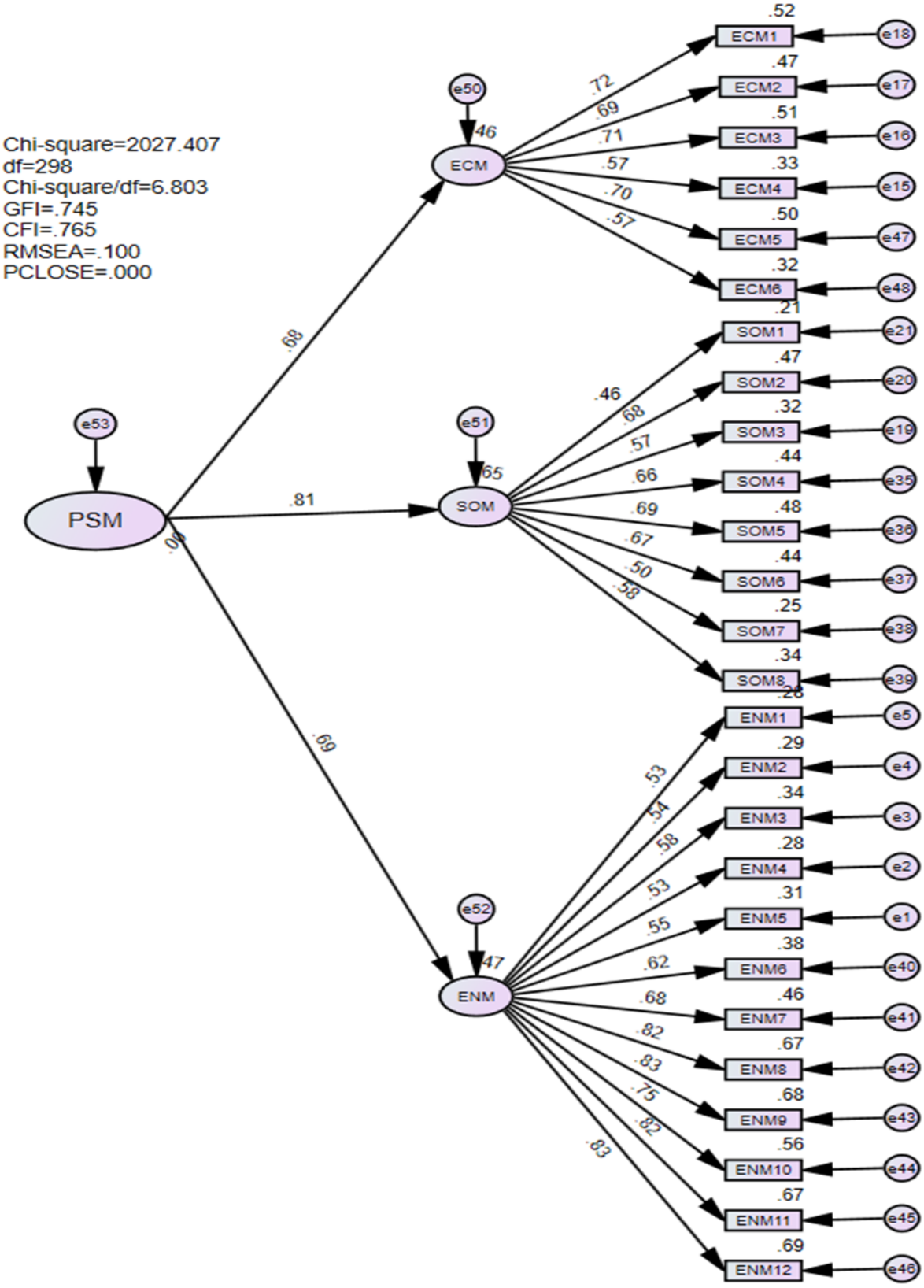


6.14 The Higher-Order (Second Order) Confirmatory Factor Analysis of Sustainability Metrics

The higher-order CFA is a theory-driven procedure that can be used to test a second-order factor structure that contains two layers of latent constructs (Hair *et al.,* 2019). The TBL concept, discussed in Section 2.3, includes three aspects: economic, social and environment performances. It should restate that the primary purpose of this study was to identify appropriate sustainability metrics for SMEs in Vietnam, systematically examining all three sustainability performances (economic, social and environment) in an integrated manner. Therefore, using a higher-order (second-order) factor model was more appropriate than a first-order model. The higher-order model of PSM provided insights into how the three first-order

factors, ENM, SOM and ENM, contributed to the overall PSM. The initial CFA of the PSM construct is presented in Figure 6.4.

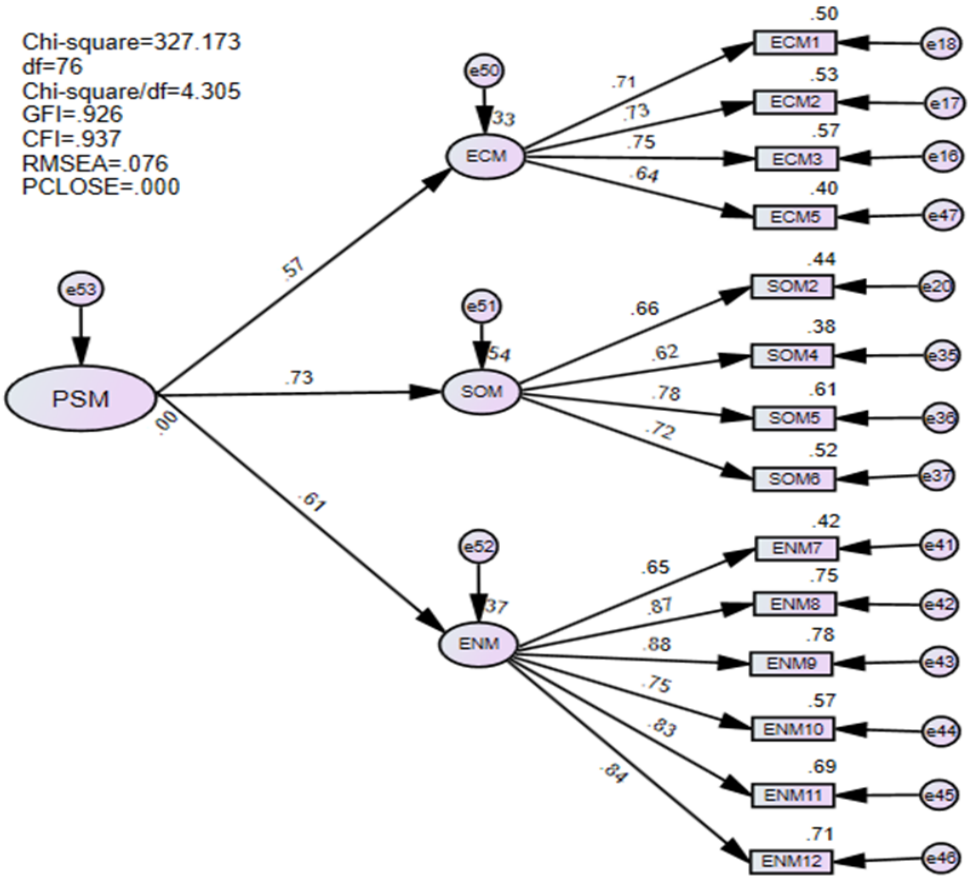
Figure 6.4: Estimating the Factor Loading for all of the Sustainability Metrics Constructs



($\chi 2$ = 2027.407; degree of freedom = 298; p = .000; $\chi 2$/degree of freedom = 6.803; CFI = .765; TLI = .743; RMSEA = .100)

The measurement model for SM was refined by removing any item with factor loadings lower than .6 (Hair *et al.,* 2019). The items were removed one by one, starting with the lowest loading value items. Therefore, both ECM4 (.57) and ECM6 (.57) were removed from the ECM construct. Regarding the SOM construct, four items were frequently removed, including SOM1 (.46), SOM7 (.50), SOM3 (0.58) and SOM8 (0.58). Regarding the ENM construct, five items were frequently removed, including ENM1 (.53), ENM4 (.53), ENM2 (.54), ENM5 (.55) and ENM3 (.58). After frequently removing these five items, the loading value of ENM6 was reduced to .59 and was subsequently removed. The items lower than .6 were removed (Hair *et al.,* 2019) to give the modified CFA of the PSM construct, presented in Figure 6.5.

Figure 6.5: Estimating the Factor Loading for the Remaining Sustainability Metrics Constructs (to be continuously modified)

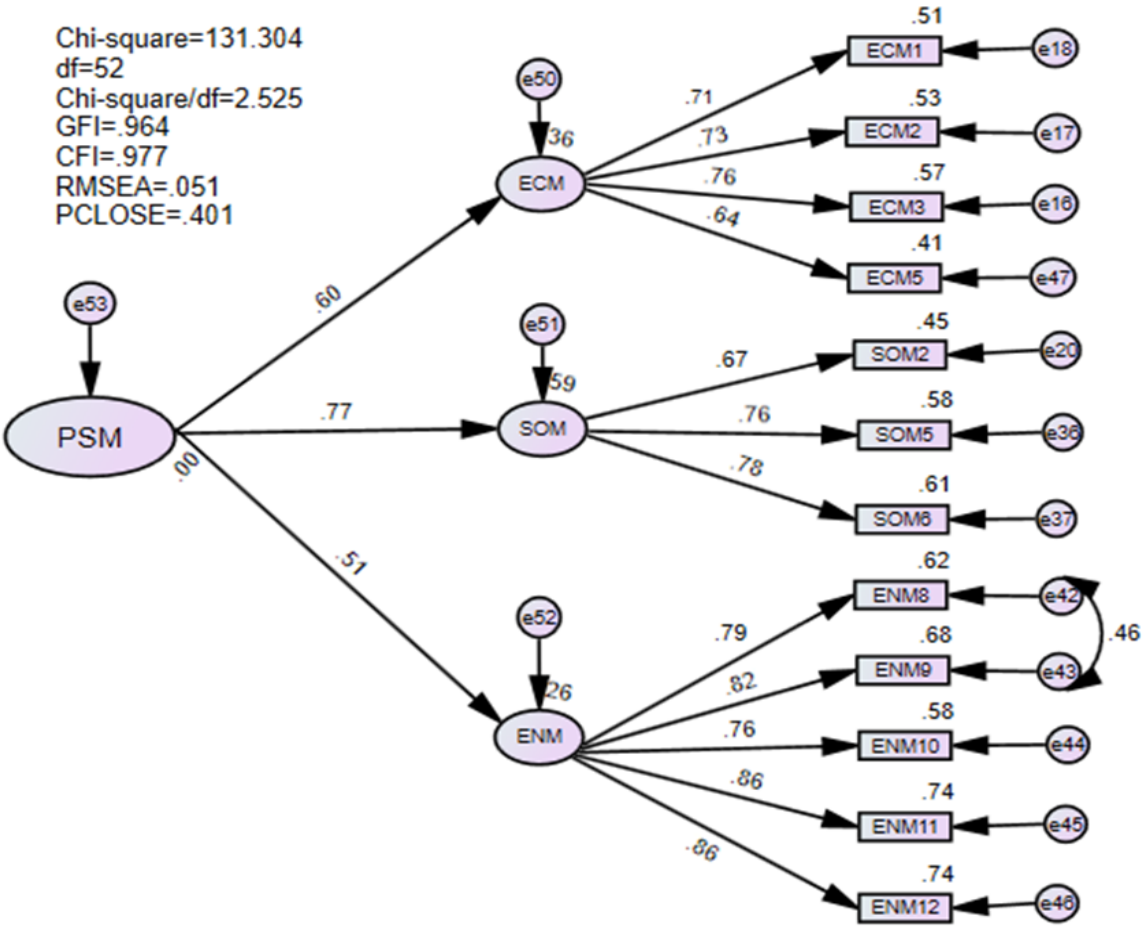


($\chi 2$ =327.173; degree of freedom = 76; p = .000; $\chi 2$/degree of freedom = 4.305; CFI = .937; TLI = .925; RMSEA = .076)

The fit indexes achieved a slightly lower level than that required. All variables had good factor loadings above .6 for the two constructs of SOM and ENM. However, the variable of SOM4 obtained the lowest loading value (0.62) compared with other factors in the construct of SOM. Therefore, to ensure the discriminant validity of the construct, SOM4 was removed.

In the construct of ENM, the variable of ENM7 obtained a loading value of 0.65, which was far lower than other factors in the construct. A possible explanation for this is that this variable was related to the ratio of wastewater, which may not be relevant to respondents who believed that their firms did not generate an excess of wastewater during operations. To ensure the discriminant validity of the construct, therefore, ENM7 (0.65) was removed. Furthermore, EN8 (water consumption) and EN9 (waste disposal) residuals also co-varied highly with each other (M.I. = 49.109). It was surprising that respondents did not notice the differences between the two. Therefore, an additional path between EN8 and EN9 error terms was added to the measurement model as the items were within the same construct and next to each other in the survey (Byrne, 2013). The final PSM construct with the factor loadings and CFA indices are presented in Figure 6.6.

Figure 6.6: Estimating the Factor Loading for the Sustainability Metrics Constructs (final selection)



($\chi 2$ =131.304; degree of freedom = 52; p = .000; $\chi 2$/degree of freedom = 2.525; CFI = .977; TLI = .971; RMSEA = .051)

The fit indexes now achieved the required level. Therefore, no further items were removed, and no further modifications were required. The results indicate that PSM loaded well onto its three sub-constructs. The factor loading of PSM on ENM, SOM and ENM were .60, .77 and .51, respectively. Moreover, the R2 of the three sub-constructs were .36, .59 and .26, respectively. The significance of the higher-order construct on its three first-order constructs is shown in Table 6.2.

Table 6.2: The Regression Path Coefficient and its Significance

	Estimate	S. E	C. R.	P	Result
ECM <--- SM	1.000	Reference point			
SOM <--- SM	.950	.147	6.466	.000	**Significant**
ENM <--- SM	.716	.118	6.041	.000	**Significant**

The three sub-constructs with final items were then re-run with CFA on first-order to check their convergent and discriminant validity. The results for these three sub-constructs are shown in Table 6.3.

Table 6.3: CFA Results for ECM, SOM and ENM

Construct	Items	Factor Loading	Average Variance Extracted (AVE)	Composite Reliability	Maximum Shared Variance
ECM	ECM1	.733	.514	.808	.222
	ECM2	.729			
	ECM3	.753			
	ECM5	.647			
SOM	SOM2	.652	.539	.777	.222
	SOM5	.764			
	SOM6	.781			
ENM	ENM8	.855	.690	.917	.123
	ENM9	.882			
	ENM10	.750			
	ENM11	.826			
	ENM12	.835			

As presented in Table 6.3, each item significantly loaded onto its corresponding construct ($p < 0.001$) and ranged between .647 and .882. The composite reliability of each construct ranged between .777 and .917 and was higher than the benchmark of .70 suggested by Hair *et al.* (2019), resulting in no validity concern. The convergent validity was acceptable as the AVE for each dimension was more significant than the 0.5 thresholds (Hair *et al.,* 2019). Furthermore, the square root of AVE was greater than the inter-construct correlations (Fornell and Larcker, 1981) and the maximum-shared variance (MSV) was less than the AVE, confirming that the discriminant validity was satisfied.

Thus, the final construct of PSM with four ECM variables, three SOM variables and five ENM variables was used in the pooled CFA and SEM higher-order to analyse the internal and external factors and outcomes of the sustainability metrics. Therefore, further modification of the construct would be based on the actual fitness of the pooled CFA models.

6.15 Conclusion

This chapter has presented the methods and procedures used to conduct quantitative research and test the hypotheses presented in the previous chapter. This chapter has discussed fourteen sections, covering quantitative data collection methods, the development of measurement models, measurement scale, questionnaire format, translation of the quantitative questionnaire, quantitative sampling, units of analysis, respondent selection, data analysis and processing techniques, estimation technique, the statistical model before modification, the confirmatory factor analysis of dynamic capabilities, the confirmatory factor analysis of competitive advantage, and fit indices. Each section of this chapter has provided details the logic underlying the research decisions made. The final construct of PSM with four ECM variables, three SOM variables and five ENM variables have been used in the pooled CFA and SEM higher-order to analyse the internal and external factors and outcomes of the sustainability metrics.

The following chapter presents the quantitative research results and discussion.

CHAPTER 7 QUANTITATIVE RESEARCH RESULTS AND DISCUSSION

7.1 Introduction

This chapter presents the results of the quantitative study and the discussion generated from them. The chapter's objectives and the sections of it that address each objective are outlined in Table 7.1.

Table 7.1 Objectives of Chapter 7

	Objectives	Section
1	To present sample characteristics and respondent information	7.2
2	To present descriptive statistics of sustainability metrics	7.3
3	To present common method bias and factor analysis	7.4
4	To present the confirmatory factor analysis test	7.4.2
5	To present hypothesis testing results	7.5
6	To present the effect of control variables testing results	7.5.2
7	To discuss the quantitative results	7.6

This section provides descriptive statistics results regarding sample characteristics and questionnaire outcomes. The final sample size of this current study was 579 respondents from 327 Vietnamese SMEs.

7.2 Sample Characteristics

The sample that is classified according to SMEs' sectors is depicted in Table 7.4. It is evident that studied firms in service sector and manufacturing sector accounted for 30.3% and 28.4%, respectively; which comprised two sectors that obtained the highest proportion among the sample. The others share the remaining with the lowest (3.7%), is recorded for the sector of Agriculture, Forestry and Fishing.

Table 7.2 Firms Classified according to their Business Sectors

Sector	Frequency	Percentage (%)
Service	99	30.3
Manufacturing	93	28.4
Wholesale and Retail Trading	51	15.6
Construction	39	11.9
Accommodation and Food Services	17	5.2
Rental, Hiring and Real Estate	16	4.8
Agriculture, Forestry and Fishing	12	3.7
Total	327	100.0

Table 7.3 illustrates the information of companies studied regarding their size and age.

Table 7.3 Firms classified according to Firm Size and Firm Age

	Category	Frequency	Percentage (%)
Company size	< 10	18	5.5
(No. of personnel employed)	10 to 49	85	25.9
	50 to 250	182	55.8
	251 to 300	42	12.8
	Total	327	100.0
Company age (years)	< 5	41	12.4
	5-9	71	21.7
	10-15	101	31.0
	> 15	114	34.9
	Total	327	100.0

The sample that is classified according to SMEs' sectors is depicted in Table 7.4. It is evident that respondents in each manufacturing and service sector accounted for slightly over 30%, which comprised two groups that obtained the highest proportion among the sample. The others, who share the remaining with the lowest (2.4%), are recorded for the sector of Agriculture, Forestry and Fishing.

Table 7.4 Respondents Classified according to their Business Sectors

Sector	Frequency	Percentage (%)
Service	191	33.0
Manufacturing	183	31.6
Wholesale and Retail Trading	82	14.2
Construction	52	9.0
Accommodation and Food Services	29	5.0
Rental, Hiring and Real Estate	28	4.8
Agriculture, Forestry and Fishing	14	2.4
Total	579	100.0

Table 7.5 presents respondents' characteristics regarding gender, age, managerial positions, level of education and experience. As illustrated, respondents with incomplete high school (0.2%) and just high school qualifications (6.6%), accounted for 6.8% of the sample. This result agrees well with the recent findings of Tran and Pham (2020) who found that education level of the CEO of the SMEs in Vietnam is relatively low; and confirmed there is a positive association between CEO education and the possibility of corporate environment performance. The result from this quantitative study corroborates with the finding of Giang *et al.* (2018) highlighting these has been a low educational level of employees in Vietnamese firms. Accordingly, the educational level of owners/managers and employees may indicate the SMEs' capacity to learn and adopt new sustainability initiatives like SPMS (Liu and Anbumozhi, 2009).

Table 7.5: Profile Summary of Respondents

	Category	Frequency	Percentage (%)
Gender	Male	306	52.8
	Female	273	47.2
		579	100.0
Age	18-25	62	10.7
	26-34	259	44.7
	35-40	145	25.0
	41-45	52	9.0
	46-50	33	5.7
	<50	28	4.8
		579	100.0
Position	Owner	30	5.2
	Owner-Manager	38	6.6
	Director	49	8.5
	Sr. Manager	104	18.0
	Jr. Manager	180	31.1
	Staff	178	30.7
		579	100.0
Level of education	Incomplete high school	1	0.2
	Complete high school	38	6.6
	Undergraduate degree	409	70.6
	Master's degree and above	131	22.6
		579	100.0
Working experience (years)	1-5	176	30.4
	6-10	226	39.0
	11-15	97	16.8
	<15	80	13.8
	Total	579	100.0

7.3 Descriptive Statistics of Sustainability Metrics

This section provides descriptive statistics of the preliminary sustainability metrics, including those that were removed for the Higher-Order (Second Order) already included in Section 6.14.

7.3.1 Descriptive Statistics of Economic Metrics

As indicated in Table 7.6, all the economic metrics have mean scores greater than 4, ranging from 4.074 to 4.421 and standard deviation in the range of 0.667 to 0.739. The overall mean scores indicate that all economic metrics received a highly positive reaction from participants. The table also illustrates that net profit (ECM3) obtained the highest mean score (M= 4.421), with the lowest standard deviation (SD= 0.667), and R&D expenditure (ECM6) received the lowest mean score (M= 4.074), whereas the second-highest standard deviation was (SD= 0.734). This finding indicates that SMEs, owing to resource constraints, considered net profit as the most important metric while expenditure on R&D was view as less important metrics. While the metric of tax payment (M= 4.150) obtained the second-lowest mean score which can be explained by the fact that every firm is required by the regulations to comply with this.

Table 7.6 Descriptive Statistics of Economic Metrics

No	Items	Description	Mean	SD
1	ECM1	Return on investment	4.240	0.730
2	ECM2	Operating profit	4.370	0.690
3	ECM3	Net profit	4.421	0.667
4	ECM4	Tax payments	4.150	0.739
5	ECM5	Operational costs	4.299	0.703
6	ECM6	R&D expenditure	4.074	0.734

7.3.2 Descriptive Statistics of Social Metrics (SOM)

As depicted in Table 7.7, all of the social metrics have mean scores greater than 4, ranging from 3.936 to 4.484; and standard deviation (SD) in the range of 0.571 to 0.897. The overall mean scores generally imply that all social metrics receive a relatively high positive reaction from participants. The result from these findings appears to indicate that participants from SMEs place their highest priorities on three metrics for customer satisfaction (M= 4.484), customer complaints (M= 4.416), and employee job satisfaction (M=4.375). This result can be explained by the discussion in the literature that SMEs often rely on key customers to conduct business and to survive, and that employees are an important asset to a company. Among the social metrics, employee turnover (SOM1) achieved the lowest mean score (M= 3.936) with the highest standard deviation (SD= 0.897). This might be because 'employee turnover' is a negative metric, possibly relatively sensitive to participants from all managerial positions in SMEs.

Table 7.7 Descriptive Statistics of Social Metrics

No	Items	Description	Mean	SD
1	SOM1	Employee turnover	3.936	0.897
2	SOM2	Employee job satisfaction	4.375	0.597
3	SOM3	Employee training and development	4.285	0.620
4	SOM4	Health and safety in the workplace	4.434	0.658
5	SOM5	Customer satisfaction	4.484	0.571
5	SOM6	Customer complaints	4.416	0.601
7	SOM7	Charitable donation	4.047	0.691
8	SOM8	Community involvement	4.103	0.672

7.3.3 Descriptive Statistics of Environment Metrics

As presented in Table 7.8, all the mean scores of environment metrics ranged from 3.936 to 4.256, and standard deviation (SD) were in the range of 0.704 to 0.945. The data indicates that all environment metrics received a comparatively high positive reaction from participants.

Table 7.8 Descriptive Statistics of Environment Metrics

No	Items	Description	Mean	SD
1	ENM1	Material consumption	4.204	0.713
2	ENM2	Raw material efficiency	4.256	0.704
3	ENM3	Recyclable raw materials	3.959	0.820
4	ENM4	Energy consumption	4.226	0.712
5	ENM5	Energy cost	4.123	0.718
5	ENM6	Renewable energy	3.857	0.845
7	ENM7	Wastewater	4.154	0.710
8	ENM8	Water consumption	4.178	0.774
9	ENM9	Waste disposal	4.180	0.775
10	ENM10	Recycling of waste	3.945	0.945
11	ENM11	Hazardous waste	4.178	0.786
12	ENM12	Total waste	4.225	0.781

7.4 Common Methods Bias and Factor Analysis

7.4.1 Assessing Collinearity, Multi-collinearity, Validity and Reliability

Tolerance and VIF check

Before the structural model is assessed, the potential problems of collinearity between the constructs of the model should be examined (Tabachnick and Fidell, 2014; Hair *et al.,* 2019). There are two methods of identifying multi-collinearity: evaluating the values of tolerance, and variance inflation factors (VIF) (Hair *et al.,* 2019).

Drawing on the cut-off threshold, Hair *et al.* (2019, p.316) suggested that the tolerance value is 0.1, which corresponds to a value of 10 and is acceptable for any structural model. The result revealed that the tolerance values ranged from 0.76 to 0.88, and were larger than the threshold of 0.1; this indicates that multi-collinearity is not a problem, whereas VIF values were in the range of 1.14 to 1.30 and were all well below the rule-of-thumb cut-off of 10. The findings enabled the researcher to ensure a small degree of correlation among the independent variables, subsequently confirming that multi-collinearity was not a problem in this study (Hair *et al.,* 2019).

In order to assess the validity and reliability of the measurement model, a confirmatory factor analysis (CFA) was used in which each item was restricted to load only onto its specified factor, and all items were allowed to correlate with one another. Promax rotation was chosen because the dataset is reasonably large (n = 579), and it can account for the correlated factors (Singh, Chauhan and Tejyan, 2017). The model was defined by removing indicators with factor loadings below 0.6. Full details of factor loadings and of which items were eliminated and which were retained are presented in Table 7.9.

Table 7.9: Factor Loading Results

Constructs	Items	Code	Factor loadings
Economic Metrics	Return on investment (ROI)	**ECM1**	.733
	Operating profit	**ECM2**	.730
	Net profit	**ECM3**	.752
	Operational costs	**ECM5**	.648
Social Metrics	Employee job satisfaction	**SOM 2**	.655
	Customer satisfaction	**SOM5**	.760
	Customer complaints	**SOM6**	.782
Environment Metrics	Water consumption	**ENM8**	.856
	Waste disposal	**ENM9**	.882
	Recycling of waste	**ENM10**	.749
	Hazardous waste	**ENM11**	.824
	Total waste	**ENM12**	.836
Motivation	Cost reductions	**MOT1**	.710
	Increased efficiencies	**MOT2**	.734
	Better image among employees	**MOT3**	.710
	Better image among customers	**MOT4**	.753
Low Managerial Perception	Lack of owner interest	LMP1	.597
	Slow recovery of investment	**LMP2**	.720
	Perceived risk and uncertainties	**LMP3**	.766
Internal Shortcomings	Extra investment required (additional cost involved: implementing, monitoring, labour cost)	**INS1**	.743
	Limited sustainability knowledge and expertise for an SPMS	**INS2**	.808
	Lack of sustainability measurement tool/framework	**INS3**	.810
Top Management Support	Top management team communicates a clear and positive vision of SPMS.	**TOP1**	0.729
	Top management team is committed, involved and fully supports the implementation of SPMS.	**TOP2**	0.787

	Top management team can provide adequate resources to support the implementation of SPMS.	**TOP3**	.650
Absorptive Capacity	Our company provides formal education and training so that employees may obtain novel knowledge.	**ACA1**	.701
	Our company establishes reward and recognition systems which encourage employees to obtain working skills and experience.	**ACA2**	.760
	Our company has experience with ISO and/or has obtained sustainability certificates/programmes which have some advantages for knowledge acquisition and assimilation to support SPMS.	**ACA3**	.722
Organisational Learning Capacity	In our company, people are encouraged to present new ideas and contribute their opinions.	**OLC1**	.650
	In our company, people feel involved in company decisions.	**OLC2**	.732
	In our company, free and open communication is encouraged.	**OLC3**	.767
External Barriers	Lack of government support in terms of information or seminars/workshops about sustainable development.	**EXB1**	.810
	Lack of government laws and regulations.	**EXB2**	.618
	Lack of economic incentives and rewards for firms engaging in sustainability.	**EXB3**	.723
	Lack of local consumer demand on sustainable products/services.	EXB4	.603

As presented in Table 7.9, the items in **bold code** are the final measurement items for the statistical model. For the construct of external barriers, all items are loaded on one factor, except for one (EB4), which needed to be removed in order to obtain a good internal consistency of alpha > 0.70 (Moons and De Pelsmacker, 2015).

Therefore, the chosen items for the statistical model are depicted in Table 7.10 below.

Table 7.10 Chosen Items for Statistical Model

Constructs	Items	Code	Factor loadings
Economic Metrics	Return on investment (ROI)	ECM1	.733
	Operating profit	ECM2	.730
	Net profit	ECM3	.752
	Operational costs	ECM5	.648
Social Metrics	Employee job satisfaction	SOM 2	.655
	Customer satisfaction	SOM5	.760
	Customer complaints	SOM6	.782
Environment Metrics	Water consumption	ENM8	.856
	Waste disposal	ENM9	.882
	Recycling of waste	ENM10	.749
	Hazardous waste	ENM11	.824
	Total waste	ENM12	.836
Motivation	Cost reductions	MOT1	.710
	Increased efficiencies	MOT2	.734
	Better image among employees	MOT3	.710
	Better image among customers	MOT4	.753
Inhibitors	Slow recovery of investment	LMP2	.720
	Perceived risk and uncertainties	LMP3	.766
	Extra investment required (additional cost involved: implementing, monitoring, labour cost)	INS1	.743
	Limited sustainability knowledge and expertise for an SPMS	INS2	.808
	Lack of sustainability measurement tool/framework	INS3	.810
Top Management Support	Top management team communicates a clear and positive vision of SPMS.	TOP1	.729
	Top management team is committed, involved and fully supports the implementation of SPMS.	TOP2	0.787

	Top management team can provide adequate resources to support the implementation of SPMS.	TOP3	.650
Absorptive Capacity	Our company provides formal education and training so that employees may obtain novel knowledge.	ACA1	.701
	Our company establishes reward and recognition systems which encourage employees to acquire working skills and experience.	ACA2	.760
	Our company has experience with ISO and/or has obtained sustainability certificates/programmes which have certain advantages for knowledge acquisition and assimilation to support SPMS.	ACA3	.722
Organisational Learning Capacity	In our company, people are encouraged to present new ideas and to contribute their opinions.	OLC1	.650
	In our company, people feel involved in company decisions.	OLC2	.732
	In our company, free and open communication is encouraged.	OLC3	.767
External Barriers	Lack of government support regarding information or seminars/workshops on sustainable development.	EXB1	.810
	Lack of government laws and regulations.	EXB2	.618
	Lack of economic incentives and rewards for firms engaging in sustainability.	EXB3	.723

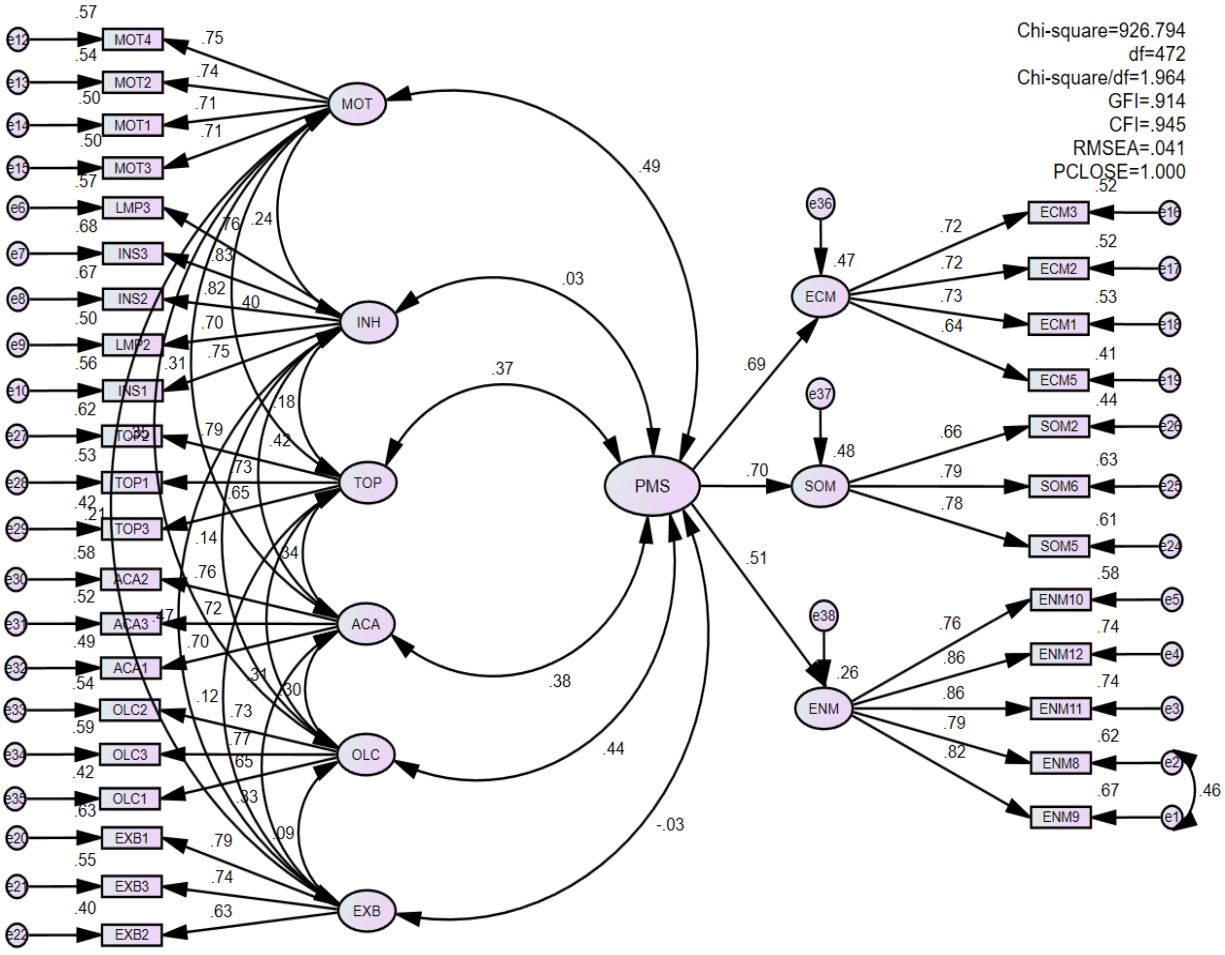
As indicated in Table 7.10, the statistical model for this research comprised 33 items. One new construct (Inhibitors) was generated from the combination of two items, LMP2, LMP3 (Low Managerial Perception), and also three items, INS1, INS2 and INS3 (Internal Shortcomings).

7.4.2 Confirmatory Factor Analysis Test

7.4.2.1 Final Measurement Model

The overall fit indices suggest a good fit for the measurement model.

Figure 7.1 Final Measurement Model



($\chi 2$ = 926.794; df = 472; p = .000; $\chi 2$/df = 2.130; CFI = .945; TLI = .928; RMSEA = .041).

The Chi-squared statistics ($\chi 2$/df = 1.964 < 3), RMSEA (< 0.07), the CFI = .945; the TLI = .939 indicate a good fit for the model with the number of observed variables (m) higher than 30 (m = 33), and the number of observations (N) in excess of 500 (N = 579) (Hair *et al.,* 2019, p.642).

7.4.2.2 Validity and Reliability Check

Table 7.11: Validity Check

	CR	AVE	MSV	MaxR(H)	INH	MOT	EXB	TOP	ACA	OLC	PMS
INH	0.880	0.595	0.221	0.885	**0.771**						
MOT	0.818	0.528	0.237	0.819	0.242	**0.727**					
EXB	0.767	0.525	0.221	0.781	0.470	0.215	**0.725**				
TOP	0.767	0.524	0.164	0.777	0.182	0.405	0.117	**0.724**			
ACA	0.772	0.530	0.173	0.774	0.416	0.306	0.327	0.337	**0.728**		
OLC	0.761	0.516	0.197	0.769	0.137	0.345	0.091	0.308	0.296	**0.718**	
PMS	0.667	0.405	0.237	0.686	0.029	0.487	-0.035	0.367	0.383	0.444	**0.636**

Inhibitors (INH); Motivation (MOT); External Barriers (EXB); Top Management Support (Top); Absorptive Capacity (ACA); Organisational Learning Capacity (OLC); Perceived Sustainability Metrics (PSM)

AVE: Average Variance Extract

CR: Composite Reliability

MSV: Maximum Shared Variance

It is evident from Table 7.11 that the results indicate that the composite reliability (CR) of the majority of the variables, except the PSM measure (Perceived Sustainability Metrics), are above 0.7 threshold (Hair *et al.* (2019), resulting in no validity concern. Convergent validity is acceptable as the average variance extract (AVE) for each dimension which exceeded the 0.5 threshold (Hair *et al.,* 2019). Furthermore, the square root of AVE is greater than the inter-construct correlations (Fornell and Larcker, 1981), and the maximum-shared variance (MSV) is less than AVE, thereby confirming that discriminant validity is satisfied.

With regard to the measure of PSM (Perceived Sustainability Metrics), Table 7.10 indicates that the composite reliability (CR) was 0.667 which falls slightly below the 0.70 level, and the average variance extracted (AVE) is 0.405, which is below the recommended level of 0.5. In consideration of this, Fornell and Larcker (1981) stated that if AVE is below 0.5, but the composite reliability is greater than 0.6, the convergent validity of the construct remains adequate. However, according to Fornell and Larcker (1981, p.46), the average variance extracted may be a more conservative estimate of the validity of the measurement model, and "on the basis of Pn (composite reliability) alone, the researcher may conclude that the convergent validity of the construct is adequate, even though more than 50% of the variance is due to error." As the composite reliability of the three constructs (ECM, SOM, ENM) are well above the recommended level (already presented in Section 6.15), the internal reliability of the measurement items is acceptable.

Table 7.12 indicates CFA results for all constructs.

Table 7.12: CFA Results for All Constructs

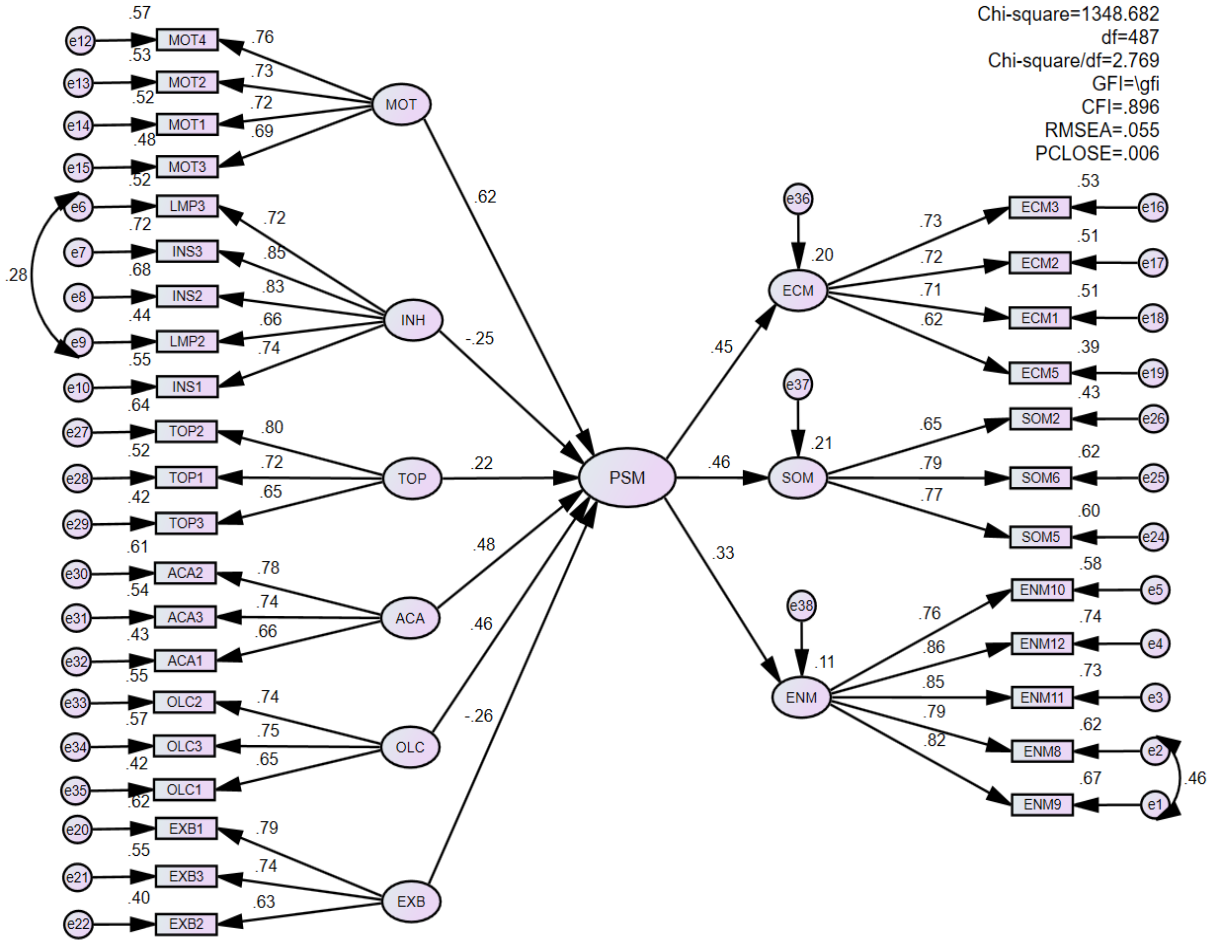
Constructs	Items	Factor loading	AVE	CR	MSV
Perceived Sustainability	ECM1	.731	0.405	0.667	0.237
Metrics (PSM)	ECM2	.721			
	ECM3	.724			
	ECM5	.641			
	SOM2	.663			
	SOM5	.779			
	SOM6	.791			
	ENM8	.789			
	ENM9	.821			
	ENM10	.758			
	ENM11	.860			
	ENM12	.862			
Motivation (MOT)	MOT1	.710	.528	.818	.237
	MOT2	.735			
	MOT3	.709			
	MOT4	.753			
Inhibitors (INH)	INS1	.748	.595	.880	.221
	INS2	.816			
	INS3	.825			
	LMP2	.705			
	LMP3	.757			
Top Management Support	TOP1	.730	.524	.767	.164
(TOP)	TOP2	.787			

	TOP3	.649			
Absorptive Capacity (ACA)	ACA1	.698	.530	.772	.173
	ACA2	.764			
	ACA3	.721			
Organisational Learning	OLC1	.646	.516	.761	.197
Capacity (OLC)	OLC2	.733			
	OLC3	.770			
External Barriers (EXB)	EXB1	.791	.525	.767	.221
	EXB2	.630			
	EXB3	.744			

7.5 Hypothesis Testing Results

7.5.1 Results for the Baseline Model

Figure 7.2: Structural Equation Modelling without Multi-group Analysis



Fit indices

($\chi2$ = 1348.682; df = 487; p = .000; $\chi2$/df = 2.769; CFI = .896; TLI = .887; RMSEA = .055)

The Chi-square statistics ($\chi2$/df = 2.769 < 3) and RMSEA (< 0.07) indicate a good fit. In view of this, an investigation of the modification indexes exhibited significant covariances between error terms for two items LMP2 and LMP3 (M.I. = 29.113). In view of the fact that the items are within the same construct and that they are next to each other in the survey, Byrne (2013) suggests allowing these error terms to co-vary in the measurement model.

The CFI and TLI are slightly below the guideline for assessing fit indices, as suggested by Hair *et al.* (2019, p.642) who stated that a CFI should be at least 0.92 for research with N > 250 and numbers of observed variables (m) > = 30. Therefore, Hair *et al.* (2019) advised that all model specifications ought to be designed to the best approximation of the theory to be tested, rather than increasing the model fit. Furthermore, Byrne (2010b, p.88) emphasised that fit indexes do not reflect the plausibility of a model and that judgements depend on the researchers.

Hypotheses Testing

Figure 7.2 and Table 7.13 indicate that within the model, the positive impact of motivation (β = .618; p = .002 < 0.05), top management support (β = .216; p = .000), absorptive capacity (β = .480; p = .000), and organisational learning capacity (β = .465; p = .000) were statistically supported. Therefore, H1, H3, H4 and H5 are confirmed. Regarding the antecedents that influence perceived sustainability metrics, motivation has the most substantial influence (β = 0.618), followed by absorptive capacity (β = .0480) and organisational learning capacity (β = 0.465), then top management support (β = 0.216).

The empirical results also provide statistical support for the negative impact of inhibitors (β = - .0245; p = .000), external barriers (β = - 0.255; p = 0.000) on perceived sustainability Metrics. Therefore, H2 and H6 are confirmed. Concerning the antecedents that negatively influence perceived sustainability metrics, inhibitors have the most substantial influence (β = - 0.245), followed by external barriers (β = - 0.255).

Table 7.13: The Regression Path Coefficient and its Significance

Hypothesis				**Standardised coefficients**	***p***	**Conclusion**
H1 (+)	Motivation	→	Perceived Sustainability Metrics	.618	0.000	**Supported at .001**
H2 (-)	Inhibitors	→	Perceived Sustainability Metrics	-.245	0.000	**Supported at .001**
H3 (+)	Top Management Support	→	Perceived Sustainability Metrics	.216	0.020	**Supported at .05**
H4 (+)	Absorptive Capacity	→	Perceived Sustainability Metrics	.480	0.000	**Supported at .001**
H5 (+)	Organisational Learning Capacity	→	Perceived Sustainability Metrics	.465	0.000	**Supported at .001**
H6 (-)	External Barriers	→	Perceived Sustainability Metrics	-.255	0.000	**Supported at .001**

7.5.2 The Effect of Control Variables

Structural equation modelling (SEM) with a multi-group analysis is useful for testing any number or type of differences in the research model estimated for different groups because it enables the estimation of a series of separate but interdependent multiple regression equations run simultaneously (Byrne 2016; Haddad, Karkoulian and Nehme, 2019).

Prior to comparing the key structural relationships among the constructs in the proposed research model, a general framework was established to compare the measurement model, and subsequently the structural one across groups (Gaskin and Lim, 2018; Hair *et al.,* 2019). The primary task of testing measurement weights is to ensure that factor loadings are equivalent representations across groups (Byrne, 2016; Han, 2017). The process of conducting the structural weights was to confirm that factor loadings, intercepts in the equations and the regression weights for predicting variables were constant across groups (Blunch, 2008).

In multi-group invariance testing, the initial step was to predefine a relative unconstrained model in which each parameter was run freely, without constraint (Hair *et al.,* 2019). Therefore, the unconstrained model served as a baseline for comparison with a series of nested ones. This placed more stringent constraints on the model in a hierarchical fashion by specifying the parameters of interest to be constrained across the groups in order to examine invariance in the specific paths across them (Han, 2017).

This means that, in the multi-group analysis, all the paths in a model are fixed, except the one to be tested as being different between the groups (Byrne, 2016; Price *et al.,* 2019). The unconstrained model has no parameter constraints, whereas the structural invariance is the structural weights model with all parameters constrained. The Chi-square difference test was conducted in order to examine whether the models were invariance across the groups according

to value orientation (the moderator) (Keerthika and Alagarsamy, 2018; Xu *et al.,* 2021). The moderation is significant when the difference in Chi-square value between the constrained and unconstrained is below 0.05 (Byrne, 2016; Han, 2017). The moderation effect is calculated according to the difference in β values of the regression paths (Gaskin and Lim, 2018; Alniacik, Moumen and Alniacik, 2020).

To test the statistical significance of the differences in the path coefficients between the groups, this current study compares the differences in Chi-square of each path. Specifically, the plug-in of multigroup analysis of AMOS is applied (Gaskin and Lim, 2018). The reason plug-in of multigroup analysis of AMOS has certainly been used in some recent studies (Xu *et al.,* 2021; Upadhye *et al.,* 2021; Zarrinabadi, Rezazadeh and Chehrazi, 2021; Riaz and Sherani, 2021). This has proven to save a considerable amount of time and to avoid the possibility of a user error (Gaskin and Lim, 2018).

In the following sub-sections, eight multigroup analyses are presented. These tests were run in order to examine potential differences across groups, including level of management, age of participant, gender, working experience, business sectors, firm's sustainability experience, firm size, firm age. These tests were crucial because they provided additional insights regarding the moderating effects on the links between Motivation, Inhibitors, Top Management Supports, Absorptive Capacity, Organizational Learning Capacity, and External Barriers to the Perceived Sustainability metrics in Vietnamese SMEs.

7.5.2.1 Multi-group Moderation of Managerial Levels

Multi-group analyses were conducted to examine the effect of managerial levels on the causal relationships in the structural models. The sample was divided into two groups for the level of management hierarchy. Group 1 (high level) includes owner-managers, senior managers (n = 221); Group 2 (low level) comprises junior managers and key employees (n =358). The Scaled Chi-square difference test is presented in Table 7.14.

Table 7.14 Scale Chi-square difference test (Global Test) for Levels of Managerial Hierarchy

	χ^2	DF
Unconstrained	2487.760	974
Constrained	2487.760	974
Difference	0.000	
P-value	1.000	

The Scaled Chi-square difference test between the constrained and unconstrained constructs in the two model reveal no significant (P > .05) differences (see Table 7.14); hence, the P-value of the Chi-square difference test is insignificant, but local tests should be interpreted with caution (Table 15).

Table 7.15 Multigroup Analysis of Levels of Managerial Hierarchy

Path name	High-level Beta	Low-level Beta	Difference in betas	P value for difference	Interpretation
MOT ⟶ PSM	0.618***	0.451***	0.167	1.000	ns
INH ⟶ PSM	-0.245***	-0.366***	0.121	1.000	ns
TOP ⟶ PSM	0.216**	0.408***	-0.192	1.000	ns
ACA ⟶ PSM	0.480***	0.444***	0.036	1.000	ns
OLC ⟶ PSM	0.465***	0.547***	-0.082	1.000	ns
EXB ⟶ PSM	-0.255***	0.015	-0.270	1.000	The negative relationship between PSM and EXB is only significant for High-level of managerial hierarchy

Significance Indicators: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$

Motivation (MOT); Inhibitors (INH); Top Management Support (TOP); Absorptive Capacity (ACA); Organisational Learning Capacity (OLC); External Barriers (EXB); Perceived Sustainability Metrics (PSM), ns: not significant.

As depicted in Table 15, the effect of 'levels of managerial hierarchy' on all six paths of the causal relationships in the structural models reveals no differences for the various groups. This indicates that 'levels of managerial hierarchy' has no controlling effect on the relationships between MOT ⟶ PSM, INH ⟶PSM, TOP ⟶PSM, ACA ⟶ PSM, OLC ⟶ PSM.

The effect of 'levels of managerial hierarchy' on path EXB ⟶ PSM indicates that this is significant only for Group 1 (high level: owner-managers and senior managers) ($\beta = -0.255$, $p < .001$), but not for Group 2 (low level: junior managers and key) ($\beta = 0.015$, $p > .05$). This implies that Group 1 (high level: owner-managers and senior managers) significantly moderates the negative impact of EXB on PSM.

7.5.2.2 Multi-group Moderation of Age of Participant

Multi-group analyses were conducted in order to examine the effect of participant age on the causal relationships in the structural models. The sample was separated into two groups: Group 1: young adulthood (18 to ≥ 35-year-old, n= 321), and Group 2: middle aged (36 ≤ year-old, n = 258). The Scaled Chi-square difference test is presented in Table 7.16.

Table 7.16 Scale Chi-square difference test (Global Test) for Participant Age

	$\chi 2$	DF
Unconstrained	1934.715	974
Constrained	1934.715	974
Difference	0.000	0
P value	1.000	

The Scaled Chi-square difference test between the constrained and unconstrained constructs in the two models reveal no significant (P > .05) differences (Table 16). Therefore, the P-value of the Chi-square difference test is insignificant; however, local tests ought to be interpreted cautiously (Table 17).

Table 7.17 Multigroup Analysis of Age of Participant

Path name	Young adulthood Beta	Middle age Beta	Difference in betas	P value for difference	Interpretation
MOT ⟶ PSM	0.593***	0.660***	-0.067	1.000	ns
INH ⟶ PSM	-0.256**	-0.200†	-0.055	1.000	ns
TOP ⟶ PSM	0.069	0.381**	-0.312	1.000	The positive relationship between PSM and TOP is only significant for Middle Age
ACA ⟶ PSM	0.626***	0.217†	0.409	1.000	ns
OLC ⟶ PSM	0.358***	0.523***	-0.165	1.000	ns
EXB ⟶ PSM	-0.242**	-0.244*	0.002	1.000	ns

Significance Indicators: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$

Motivation (MOT); Inhibitors (INH); Top Management Support (TOP); Absorptive Capacity (ACA); Organisational Learning Capacity (OLC); External Barriers (EXB); Perceived Sustainability Metrics (PSM), ns: not significant.

As presented in Table 7.17, the effect of 'age of participants' on all six paths of the causal relationships in the structural models reveals no differences between the groups. Therefore, this indicates that the 'age of participants' had no controlling influence on the relationships between MOT ⟶ PSM, INH ⟶ PSM, ACA ⟶ PSM, OLC ⟶ PSM, EXB ⟶ PSM.

The impact of 'age of participant' on path TOP ⟶ PSM indicates that this is significant only for Group 2 (middle aged, 36 ≤ year old) ($\beta = 0.381$, $p < .01$), but not for Group 1 (young adulthood, 18 to ≥ 35-year-old) ($\beta = 0.069$, $p > .05$). This result implies that Group 2 (middle aged, 36 ≤ year old) significantly moderates the positive effect of TOP on PSM.

7.5.2.3 Multi-group Moderation of Gender

Multi-group analyses were conducted in order to examine the effect of gender on the causal relationships in the structural models. The sample was separated into two groups: Group 1 (Male, n= 306) and Group 2 (Female, n =273). The Scaled Chi-square difference test is presented in Table 7.18.

Table 7.18 Scale Chi-square difference test (Global Test) for Gender

	$\chi 2$	DF
Unconstrained	1962.366	974
Constrained	1962.366	974
Difference	0.000	0
P value	1.000	

The Scaled Chi-square difference test between the constrained and unconstrained constructs in the two models reveals no significant (P > .05) differences (Table 7.18). Therefore, the P-value of the Chi-square difference test is insignificant, but local tests should be interpreted with caution (Table 19).

Table 7.19 Multigroup Analysis of Gender (Male and Female)

Path name	Male Beta	Female Beta	Difference in betas	P value for difference	Interpretation
MOT ⟶ PSM	0.635***	0.573***	0.062	1.000	ns
INH ⟶ PSM	-0.363***	-0.107	-0.255	1.000	The negative relationship between PMS and INH is only significant for Male
TOP ⟶ PSM	0.401***	0.030	0.371	1.000	The positive relationship between PMS and TOP is only significant for Male.
ACA ⟶ PSM	0.446***	0.465***	-0.018	1.000	ns
OLC ⟶ PSM	0.294**	0.574***	-0.280	1.000	ns
EXB ⟶ PSM	-0.139	-0.338***	0.198	1.000	The negative relationship between PMS and EXB is only significant for Female

Significance Indicators: † p < 0.100, * p < 0.050, ** p < 0.010, *** p < 0.001

Motivation (MOT); Inhibitors (INH); Top Management Support (TOP); Absorptive Capacity (ACA); Organisational Learning Capacity (OLC); External Barriers (EXB); Perceived Sustainability Metrics (PSM), ns: not significant.

As indicated in Table 7.19, the effect of 'gender' on all six paths of the causal relationships in the structural models reveals no difference for the various groups. This suggests that 'gender' has no controlling influence on the relationships between MOT ⟶ PSM, ACA ⟶ PSM, OLC ⟶ PSM.

The effect of gender on path INH ⟶ PSM indicates that this is significant only for Group 1 (Male) (β = - 0.363, p < .001), but not for Group 2 (Female) (β = - 0.107, p > .05). This result implies that Group 1 (Male) notably moderated the negative impact of INH on PSM.

The effect of gender on path TOP ⟶ PSM indicates that this is significant only for Group 1 (Male) (β = 0.401, p < .001), but not for Group 2 (Female) (β = 0.030, p > .05). This result suggests that Group 1 (Male) significantly moderates the positive effect of TOP on PSM.

The effect of gender on path EXB ⟶ PSM indicates. that this is significant only for Group 2 (Female) (β = - 0.338, p < .001), and not for Group 1 (Male) (β = - 0.139, p > .05). This result implies that Group 2 (Female) considerably moderated the negative influence of EXB on PSM.

7.5.2.4 Multi-group Moderation of Working Experience

Multi-group analyses were undertaken in order to examine the effect of participants' working experience on the causal relationships in the structural models. The sample was divided into two groups: Group 1 (≤ 5 years, n = 176); Group 2 (> 5 years, n = 403). The Scaled Chi-square difference test is indicated in Table 7.20.

Table 7.20 Scale Chi-square difference test (Global Test) for Working Experience

	$\chi 2$	DF
Unconstrained	1952.916	974
Constrained	1952.916	974
Difference	0.000	0
P value	1.000	

The Scaled Chi-square difference test between the constrained and unconstrained constructs in two models reveals no significant (P > .05) differences (Table 7.20). Hence, the P-value of the Chi-square difference test is insignificant, but local tests ought to be interpreted cautiously

(Table 7.21).

Table 7.21 Multigroup analysis of Working Experience

Path name	≤ 5 years Beta	> 5 years Beta	Difference in betas	P value for difference	Interpretation
MOT ⟶ PSM	0.570***	0.656***	-0.086	1.000	ns
INH ⟶ PSM	-0.279**	-0.206*	-0.074	1.000	ns
TOP ⟶ PSM	-0.025	0.324***	-0.349	1.000	The positive relationship between PSM and TOP is only significant for the group of over five-years working experience
ACA ⟶ PSM	0.677***	0.330***	0.347	1.000	ns
OLC ⟶ PSM	0.336**	0.469***	-0.133	1.000	ns
EXB ⟶ PSM	-0.157	-0.305**	0.148	1.000	The negative relationship between PSM and TOP is only significant for the group of over five-year working experience

Significance Indicators: † p < 0.100, * p < 0.050, ** p < 0.010, *** p < 0.001

Motivation (MOT); Inhibitors (INH); Top Management Support (TOP); Absorptive Capacity (ACA); Organisational Learning Capacity (OLC); External Barriers (EXB); Perceived Sustainability Metrics (PSM), ns: not significant.

As presented in Table 7.21, the influence of 'working experience' on all six paths of the causal relationships in the structural models reveals no difference for the various groups. This

indicates that 'working experience' had no controlling influence over the relationships between MOT ⟶ PSM, INH ⟶ PSM, ACA ⟶ PSM, OLC ⟶ PSM.

The effect of working experience on path TOP ⟶ PSM suggests that this is significant only for Group 2 (> 5 years) ($\beta = 0.324$, $p < .001$), but not for Group 1 (≤ 5 years) ($\beta = - 0.025$, $p > .05$). Furthermore, this result means that Group 2 (> 5 years) considerably moderated the positive effect of TOP on PSM.

The impact of working experience on path EXB ⟶ PSM indicates that this is significant only for Group 2 (> 5 years) ($\beta = - 0.305$, $p < .01$), and not for Group 1 (≤ 5 years) ($\beta = - 0.157$, $p > .05$). This result implies that Group 2 (> 5 years) significantly moderates the negative effect of EXB on PSM.

7.5.2.5 Multi-group Moderation of Business Sector

Multi-group analyses were conducted in order to examine the impact of business sectors on the causal relationships in the structural models. Accordingly, the sample was separated into two groups for business sectors. Group 1 (manufacturing, n = 249) comprises SMEs operating in manufacturing sectors and related sectors such as constructions, agriculture and fishing. Group 2 (service, n = 330) consists of SMEs operating in the service sector, and associated sectors such as trading, whole and retails; accommodation and food services; and rental, hiring and real estate. The Scaled Chi-square difference test is depicted in Table 7.22.

Table 7.22 Scale Chi-square difference test (Global Test) for Business Sectors

	$\chi 2$	DF
Unconstrained	1862.579	974
Constrained	1862.579	974
Difference	0	
P value	1.000	

The Scaled Chi-square difference test between the constrained and unconstrained constructs in two model reveals no significant (P > .001) differences (Table 22). Therefore, the P-value of the Chi-square difference test is insignificant, but the interpretation of local tests should be applied cautiously (Table 7.23).

Table 7.23 Multigroup Analysis of Business Sector

Path name	Manufacturing beta	Services beta	Difference in betas	P value for difference	Interpretation
MOT ⟶ PSM	0.598***	0.624***	-0.026	1.000	ns
INH ⟶ PSM	-0.114	-0.154	0.040	1.000	ns
TOP ⟶ PSM	0.002	0.353***	-0.351	1.000	The positive relationship between PSM and TOP is only significant for Services
ACA ⟶ PSM	0.611***	0.322**	0.289	1.000	ns
OLC ⟶ PSM	0.207†	0.571***	-0.365	1.000	ns
EXB ⟶ PSM	-0.462***	-0.178†	-0.284	1.000	ns

Significance Indicators: † p < 0.100, * p < 0.050, ** p < 0.010, *** p < 0.001

Motivation (MOT); Inhibitors (INH); Top Management Support (TOP); Absorptive Capacity (ACA); Organisational Learning Capacity (OLC); External Barriers (EXB); Perceived Sustainability Metrics (PSM), ns: not significant.

Table 23 illustrates the impact of 'business sector' on all six paths of the causal relationships in the structural models, revealing no difference between the groups. This means that the 'business sector' has no controlling influence on the relationships between MOT ⟶ PSM, INH ⟶ PSM, ACA ⟶ PSM, OLC ⟶ PSM, EXB ⟶ PSM.

The impact of business sector on path TOP ⟶ PSM indicates that this is significant only for Group 2 (service SMEs) ($\beta = 0.353$, $p < .001$), but not for Group 1 (manufacturing SMEs) ($\beta = 0.002$, $p > .05$). This result suggests that Group 2 (service SMEs) notably moderates the positive influence of TOP on PSM.

7.5.2.6 Multi-group Moderation of Sustainability Experience of Businesses

Multi-group analyses were conducted to examine the effect of a firm's sustainability experience on the causal relationships in the structural models. Accordingly, the sample was divided into two groups. Group 1 (Beginner, n =302) comprises SMEs which are aiming to obtain at least one sustainability certificate or/and sustainability programme. Group 2 (Matured, n = 277) consists of SMEs which have already obtained at least one sustainability certificate/programme. The Scaled Chi-square difference test is presented in Table 7.24.

Table 7.24 Scale Chi-square difference test (Global Test) for Firms' Sustainability Experience

	χ^2	DF
Unconstrained	2066.456	974
Constrained	2066.456	974
Difference	0.000	0
P value	1.000	

The Scaled Chi-square difference test between the constrained and unconstrained constructs in two model indicates no significant ($P > .05$) differences (Table 24). Hence, the P-value of the Chi-square difference test is insignificant, but local tests should be interpreted with caution (Table 25).

Table 7.25 Multigroup analysis of Sustainability Experience of Businesses

Path name	Beginners Beta	Matured Beta	Difference in betas	P value for difference	Interpretation
MOT ⟶ PSM	0.486***	0.616***	-0.130	1.000	ns
INH ⟶ PSM	-0.039	-0.335***	0.296	1.000	The negative relationship between PSM and INH is only significant for Matured.
TOP ⟶ PSM	0.289**	0.055	0.233	1.000	The positive relationship between PSM and TOP is only significant for Beginners.
ACA ⟶ PSM	0.353***	0.634***	-0.281	1.000	ns
OLC ⟶ PSM	0.695***	0.136	0.559	1.000	The positive relationship between PSM and OLC is only significant for Beginners.
EXB ⟶ PSM	-0.267**	-0.292**	0.025	1.000	ns

Significance Indicators: † p < 0.100, * p < 0.050, ** p < 0.010, *** p < 0.001

Motivation (MOT); Inhibitors (INH); Top Management Support (TOP); Absorptive Capacity (ACA); Organisational Learning Capacity (OLC); External Barriers (EXB); Perceived Sustainability Metrics (PSM), ns: not significant.

As depicted in Table 7.25, the impact of 'sustainability experience of businesses' on all six paths of the causal relationships in the structural models indicates no difference between the various groups. Therefore, this demonstrates that 'sustainability experience of businesses' has no controlling impact on the relationships between MOT ⟶ PSM, ACA ⟶ PSM, and EXB ⟶ PSM.

The effect of 'sustainability experience of businesses' on path INH ⟶ PSM suggests that this is significant only for Group 2 (Matured) (β = - 0.335, p < .001), but not for Group 1 (Beginners) (β = - 0.039, p > .05). This result means that Group 2 (Matured) significantly moderated the negative impact of INH on PSM.

The effect of 'sustainability experience of businesses' on path TOP ⟶ PSM reveals that this is significant only for Group 1 (Beginners) (β = 0.289, p < .01), and not for Group 2 (Matured) (β = 0.055, p > .05). This result implies that Group 1 (Beginners) notably moderated the positive influence of TOP on PSM.

The impact of 'sustainability experience of businesses' on path OLC ⟶ PSM indicates that this is significant only for Group 1 (Beginners) (β = 0.695, p < .001), but not for Group 2 (Matured) (β = 0.136, p > .05). This result means that Group 1 (Beginners) significantly moderated the positive effect of OLC on PSM.

7.5.2.7 Multi-group Moderation of Company Size

Multi-group analyses were conducted in order to examine the impact of company size on the causal relationships in the structural models. The sample was divided into two groups of firm size, including Group 1: Small Size (10 ≤ 50 employees, n = 182) and Group 2: Medium Size (< 50 ≤ 300, n = 397). The Scaled Chi-square difference test is indicated in Table 26.

Table 7.26 Scale Chi-square difference test (Global Test) for Firm Size

	$\chi 2$	DF
Unconstrained	2055.357	974
Constrained	2055.357	974
Difference	0.000	0
P value	1.000	

The Scaled Chi-square difference test between the constrained and unconstrained constructs in two models reveals no significant ($P > .05$) differences (Table 26). Therefore, the P-value of the Chi-square difference test is insignificant, but caution should be exercised when interpreting local tests (Table 27).

Table 7.27 Multigroup analysis of Firm Size

Path name	Small Size Beta	Medium Size Beta	Difference in betas	P value for difference	Interpretation
MOT ⟶ PSM	0.824***	0.495***	0.329	1.000	ns
INH ⟶ PSM	-0.171	-0.326***	0.156	1.000	The negative relationship between PSM and INH is only significant for Medium Size.
TOP ⟶ PSM	0.077	0.246**	-0.169	1.000	The positive relationship between PSM and TOP is only significant for Medium Size
ACA ⟶ PSM	0.420**	0.480***	-0.060	1.000	ns
OLC ⟶ PSM	0.033	0.558***	-0.525	1.000	The positive relationship between PSM and OLC is only significant for Medium Size.
EXB ⟶ PSM	0.330*	-0.214**	0.544	1.000	The relationship between EXB and PSM is positive for Small Size and negative for Medium Size, but there is no significant difference.

Significance Indicators: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$

Motivation (MOT); Inhibitors (INH); Top Management Support (Top); Absorptive Capacity (ACA); Organisational Learning Capacity (OLC); External Barriers (EXB); Perceived Sustainability Metrics (PSM), ns: not significant.

Table 27 depicts the impact of company size on all six paths of the causal relationships in the structural models, indicating no difference between the various groups. This reveals that company size had no controlling influence over the relationships between MOT ⟶ PSM and ACA ⟶ PSM.

The effect of company size on path INH ⟶ PSM suggests that this is significant only for Group 2 (medium-size firms) (β = - 0.326, $p < .001$), but not for Group 1 (small-sized firms) (β = - 0.171, $p > .05$). This result implies that Group 2 (medium-sized firms) significantly moderates the negative effect of INH on PSM.

The impact of firm size on path TOP ⟶ PSM indicates that this is significant only for Group 2 (medium-sized firms) (β = 0.246, $p < .01$), but not for Group 1 (small-sized firms) (β = 0.077, $p > .05$). This result implies that Group 2 (medium-sized firms) notably moderated the positive influence of TOP on PSM.

The impact of company size on path OLC ⟶ PSM reveals that this is significant only for Group 2 (medium-sized firms) (β = 0.558, $p < .001$), and not for Group 1 (small-sized company) (β = 0.033, $p > .05$). This result suggests that Group 2 (medium-sized companies) significantly moderates the positive effect of OLC on PSM.

The impact of firm size on path EXB ⟶ PSM indicates negative for Group 2 (medium-sized companies) (β = -0.214, $p < .01$), but positive for Group 1 (small-sized companies) (β = 0.330, $p < .05$). These outcomes suggest that Group 2 (medium-sized firms) significantly moderates the negative impact of EXB on PSM. Contrastingly, Group 1 (small-sized firms) significantly moderates the positive effect of EXB on PSM.

7.5.2.8 Multi-group Moderation of Firm Age

Multi-group analyses were undertaken in order to examine the impact of company age on the causal relationships within the structural models. The sample was separated into two groups of company age: Group 1: ≤ 10 years (195 respondents), and Group 2: > 10 years (384 respondents). The Scaled Chi-square difference test is depicted in Table 7.28.

Table 7.28 Scale Chi-square difference test (Global Test) for Firm Age

	$\chi 2$	DF
Unconstrained	1974.376	974
Constrained	1974.376	974
Difference	0.000	0
P value	1.000	

The Scaled Chi-square difference test between the constrained and unconstrained constructs in two models exhibited no significant (P > .05) differences (see Table 28). Consequently, the P-value of the Chi-square difference test is insignificant, but caution should be exercised when interpreting the local tests (Table 29).

Table 7.29 Multigroup analysis of Firm Age

Path name	≤ 10 years Beta	> 10 years Beta	Difference in betas	P value for difference	Interpretation
MOT ⟶ PSM	0.642***	0.601***	0.041	1.000	ns
INH ⟶ PSM	-0.033	-0.434***	0.401	1.000	The negative relationship between PSM and INH is significant only for Group 2 (> 10 years)
TOP ⟶ PSM	0.286**	0.239*	0.047	1.000	ns
ACA ⟶ PSM	0.320**	0.413***	-0.093	1.000	ns
OLC ⟶ PSM	0.458***	0.468***	-0.010	1.000	ns
EXB ⟶ PSM	-0.440***	-0.066	-0.374	1.000	The negative relationship between PSM and EXB is significant only for Group 1 (≤ 10 years)

Significance Indicators: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$

Motivation (MOT); Inhibitors (INH); Top Management Support (TOP); Absorptive Capacity (ACA); Organisational Learning Capacity (OLC); External Barriers (EXB); Perceived Sustainability Metrics (PSM), ns: not significant.

Table 7.29 depicts the impact of company age on all six paths of the causal relationships in the structural models, revealing no difference between the groups, thereby indicating that company age has no controlling influence the relationships between MOT ⟶ PSM, and TOP ⟶ PSM, ACA ⟶ PSM, OLC ⟶ PSM.

The effect of firm age on path INH ⟶ PSM reveals this to be significant only for Group 2 (> 10 years) ($\beta = - 0.434$, $p < .001$), but not for Group 1 (≤ 10 years) ($\beta = - 0.033$, $p > .05$). This result suggests that Group 2 (> 10 years) significantly moderates the negative impact of INH on PSM.

The effect of company age on path EXB ⟶ PSM indicates that this is significant only for Group 1 (≤ 10 years) ($\beta = - 0.440$, $p < .001$), and not for Group 2 (> 10 years) ($\beta = - 0.066$, $p > .05$). This result implies that Group 2 (> 10 years) significantly moderates the adverse effect of EXB on PSM.

7.5.2.9 Summary of Hypotheses Testing and Multigroup Analysis Results

Table 7.30 depicts the summary of the multigroup analysis results.

Table 7.30 Summary of Hypothesises Testing and Multigroup Analysis Results

Hypothesis	Path	Interpretation of multigroup test results
H1 (+)	MOT ⟶ PSM	• No statistically significant difference observed between the various groups.
H2 (-)	INH ⟶ PSM	• No statistically significant difference observed between the different groups. - The negative relationship between Perceived Sustainability Metrics and Inhibitors is only significant for medium-size firms; company age: over 10 years
H3 (+)	TOP ⟶ PSM	• No statistically significant difference observed between the different groups. The positive relationship between Perceived Sustainability Metrics and Top Management Support is only significant for male; middle-aged participants; over five years of work experience; service companies, beginners of sustainability engagement, medium-sized firms.
H4 (+)	ACA ⟶ PSM	• No statistically significant difference observed between the various groups.
H5 (+)	OLC ⟶ PSM	• No statistically significant difference observed between the different groups. The positive relationship between Perceived Sustainability Metrics and Organisational Learning Capacity is significant only for beginners of sustainability engagement; medium-sized companies
H6 (-)	EXB ⟶ PSM	• No statistically significant difference observed between the various groups. The negative relationship between PSM and EXB is significant only for a high level of management; female; over five years of work experience; company age: below 10 years

Motivation (MOT); Inhibitors (INH); Top Management Support (Top); Absorptive Capacity (ACA); Organisational Learning Capacity (OLC); External Barriers (EXB); Perceived Sustainability Metrics (PSM)

7.6 Key Findings and Discussion

7.6.1 Sustainability Metrics that can be Applicable for SMEs in Vietnam

The primary purpose of this quantitative study is to identify appropriate sustainability metrics for SMEs in Vietnam. Drawing on 10 scientific articles and the Global Reporting Initiative (2015), the study developed a preliminary list of 26 metrics applicable to measure sustainability performance in the SMEs setting. Twelve of these were empirically selected according to a sample of 579 respondents from Vietnamese SMEs. However, the unselected metrics were not considered to be irrelevant, but represented the empirical findings obtained when testing and validating the higher-order construct of Perceived Sustainability Metrics. The quantitative outcome of sustainability metrics for Vietnamese SMEs comprises four for economic performance, three for social performance and five for environment performance, as listed below:

1. Return on Investment (ROI)
2. Operating profit
3. Net profit
4. Operational costs
5. Employee job satisfaction
6. Customer satisfaction
7. Customer complaints
8. Water consumption
9. Waste disposal
10. Recycling of waste
11. Hazardous waste
12. Total waste

Overall, this quantitative analysis provides empirical evidence in response to the call by numerous scholars for more research to be conducted (Goyannes *et al.,* 2018; Siegel *et al.,* 2019; Dissanayake *et al.,* 2020) on the integration and balancing of all three pillars of the TBL in the context of SMEs, particularly in developing countries.

7.6.2 Factors Influenced the Adoption of SPMS

The quantitative study aimed to emphasise the connection between the factors which influence the SMEs' adoption of SPMS. The hypotheses tested in this quantitative study provided full empirical support. The results revealed that the adoption of SPMS in the SME setting is influenced mainly by Motivation, Low Managerial Perception, Internal Shortcomings, Top management Supports, Absorptive Capacity, Organisational Learning Capacity, and External Barriers.

Firstly, this chapter provides empirical evidence on the positive impact of Motivation (perceived benefits) on SMEs' adoption of SPMS (perceived sustainability metrics). A higher level of motivation in adopting sustainability engagement would lead to a more extraordinary ability to adopt SPMS. This is why SMEs, particularly in developing countries, have been described as lacking sustainability awareness (Mahmood *et al.,* 2019; Das, Rangarajan and Dutta, 2020), and absence of perceived benefits are barrier hindering the implementation of sustainability management tools (Johnson and Schaltegger, 2016). This quantitative study demonstrates that motivation is an antecedent, playing a crucial role in persuading Vietnamese SMEs to adopt SPMS. This implies that respondents are aware of the benefits that can be obtained from adopting SPMS. The result is consistent with previous studies that revealed the potential benefits of sustainability engagement, including cost reductions (Shnayder, Van Rijnsoever and Hekkert, 2015; Wiesner, Chadee and Best, 2017), increased efficiency (Pacheco *et al.,* 2018; Revell and Blackburn, 2007; Verma, Sharma and Kumar, 2017) and a

better image among employees and customers (Hsu and Cheng, 2012; Lozano, 2015; Masurel, 2007; McKeiver and Gadenne, 2005; Zhang *et al.,* 2019b).

Secondly, although benefits from the measurement of sustainability performance can be perceived, there could still be reluctance and resistance which can engender a low level of SPMS adoption. This is because SMEs typically suffer from resource constraints, as widely indicated in the existing literature. Based on these premises, this study provides empirical evidence revealing that the Low Managerial Perception and Internal Shortcomings are key inhibitors which hinder the level of SPMS adoption. Moreover, this result can be explained by the effective adoption of SPMS which is dependent on how SMEs' top management can change their conventional mindset of operating business, which is mainly profit-driven, rather than adopting a profit-sacrificing sustainability approach (Hasan, 2016; Kumar *et al.,* 2018; Lee, Herold and Yu, 2016; Pham, Yong and Truong, 2019). Furthermore, it is still a challenging question to ask how SMEs can overcome their internal shortcomings such as resource constraints, limited sustainability knowledge and expertise to engage proactively with sustainability initiatives (Eikelenboom and de Jong, 2019). It is fair to comment that such issues are not always easy to manage, particularly for SMEs in Vietnam (Tien, 2019). Subsequently, this could lead to the fact that they would be either unable or unwilling to accept the challenge to adopt SPMS (Kumar *et al.,* 2018; Malesios, 2018; Cardoni *et al.,* 2020). The result is in accordance with scholarly discussions in previous studies, highlighting several obstacles encountered by SMEs in pursuing their sustainability goals (Arena and Azzone, 2012; Caldera, Desha and Dawes, 2019b; Hwang, Shan and Lye, 2018; Mengistu and Panizzolo, 2021; Neri *et al.,* 2021; Pham, Yong and Truong, 2019; Singh, Olugu and Fallahpour, 2014). In relation to the previous discussion on the motivation (perceived benefits) towards SPMS adoption, this finding supports the existence of the so-called 'value-action' gap as proposed by Revell, Stokes and Chen (2010, p.276). This is in the sense that although positive attitudes towards the

measurement of sustainability performance exist, extensive internal barriers and shortcomings experienced by SMEs can engender obstacles which could prevent them adopting SPMS.

Thirdly, this quantitative study confirms that top management who give support are key enablers who also facilitate the adoption of SPMS. These can be among the most exciting findings of this chapter , since they agree with most literature in emphasising that, in SMEs, owner-managers hold primary responsibility to control and manage the company (Jenkins, 2009; Jenkins, 2006; Raziq and Wiesner, 2016). This common form provides them with significant control over the allocation of resources. (Hoogendoorn, Guerra and van der Zwan, 2015). This inclusion means that if SME owners prioritise sustainable issues, their firms will probably repeat the same action (Darcy *et al.,* 2014; Jenkins, 2006; Spence, Schmidpeter and Habisch, 2003). The quantitative result obtained from this study supports the idea of Searcy (2009), who has emphasised the critical role of top management supports at the beginning of the process of developing an SPMS. This is partially associated with the research conducted by Nguyen and Tran (2020) who found that top management significantly supports the implementation of the environmental performance of Vietnamese SMEs. This result is comparable with the work of Parisi (2013) who found that top management was committed to sustainability which has a direct influence over organisational alignment and the effectiveness of SPMS adoption as well as an indirect effect on firms' social and environmental performance. The finding from this chapter also raises a managerial issue that if top managers are not on board, SPMS cannot be effectively adopted as a successful implementation of sustainability initiatives which necessitates the engagement of all employees (Arevalo and Aravind, 2011; Lee, 2021). From a managerial perspective, it is reasonable to assume that top SME managers should certainly provide strong supports in order to facilitate the adoption of SPMS in their organisation.

This quantitative study confirms that absorptive capacity significantly influences SPMS adoption. This implies that Vietnamese SMEs are aware of the importance of Absorptive Capacity towards the effective adoption of SPMS in their organisations. More interestingly, as the sample of this study comprises respondents from different positions in SMEs, this indicates that, at an individual level, participants are aware of the importance of absorptive capacity. Therefore, the unleashing of pertinent knowledge throughout the firm operating process (Cardoni *et al.,* 2020), and the acquiring external knowledge (Hossain and Kauranen, 2016; Saad, Kumar and Bradford, 2017) can be promising catalysts of SPMS adoption. The quantitative finding is partially comparable to one of the first studies conducted by Cardoni *et al.* (2020), which found significant positive relationships between knowledge management, performance measurement systems and economic sustainability within the SME setting. Therefore, this chapter provides empirical evidence proving that absorptive capacity is a key enabler that motivates SMEs to adopt sustsinability performance measurement. This simultaneously integrates all three pillars of the triple bottom line, namely: economic, social and environment performances.

The literature review indicates that absorptive capacity at the individual level largely depends on individuals' knowledge structures (Cohen and Levinthal, 1990). However, it is also considered as a multi-level learning process in which its dimensions are associated with learning at the level of individuals and organisations (Dzhengiz and Niesten, 2020; Goddard *et al.,* 2016; Saad, Kumar and Bradford, 2017; Zahra and George, 2002). Based on this argument, a hypothesis is formulated, and subsequently confirmed by this study, which indicates that adoption of SPMS is influenced by Organisational Learning Capacity. This suggests that, at the organisational level, Vietnamese SMEs have recognised that organisational learning capacity can be an essential enabler which facilitates the effective adoption of SPMS. Consequently, this finding conforms to suggestions by previous studies that organisational

learning capacity can affect the success of the implementation of sustainability initiatives in SMEs (Goddard *et al.,* 2016; Johnson, 2017). Furthermore, it supports the ideas of Eikelenboom *et al.* (2019), in the sense that SMEs can promote and utilise their learning process, both at individual and organisational levels in order to improve their sustainability-related knowledge at a low cost.

Finally, following the indication in previous studies that barriers from the external environment, particularly in developing countries, often hinder the engagement of SMEs' sustainability. This quantitative study has proved that External Barriers have a significant impact on SPMS adoption. The interpretation is that a higher level of obstacles from the external environment would probably lead to a lower-level adoption of SPMS in SMEs. Therefore, this finding agrees with previous research, indicating that lack of government support regarding information, seminars, workshops, economic incentives and rewards which are key barriers hampering SMEs and which engage with sustainability initiatives (Dissanayake and Divakara, 2019; Hasan, 2016; Hwang, Shan and Lye, 2018; Malesios *et al.,* 2020b; Pham, Yong and Truong, 2019). Moreover, Nguyen and Pham (2020) report that the laws and regulations lack clarity, and that vague guidelines result in confusion and difficulty for Vietnamese firms to apply and comply. This empirical study further highlights that these are key barriers which impede the Vietnamese in adopting SPMS. Concerning the previous discussions of the motivation (perceived benefits) and inhibitors influencing the adoption of SPMS, this finding supports the existence of the so called 'value-action' gap proposed by Revell, Stokes and Chen (2010, p.276). This is in the sense that despite positive attitudes towards the measurement of sustainability performance, extensive external barriers perceived by SMEs can demotivate them to adopt SPMS.

7.6.3 The Effect of Moderating Variables

As mentioned in Section 6.3.8.1, this quantitative study used managerial levels, gender, participant age, work experience, company size, firm age, business sector and firm's sustainability experience as control variables. Moderating effects were tested by multigroup analysis, where each control variable was split into two groups based on the analysis profile of respondents and firms in Section 7.2.1. Regrettably, the result of multigroup analyses indicates no statistically significant difference in the research model estimated for different groups. In other words, it highlights that the motivation towards the adoption of SPMS in the SME setting does not differ with regard to managerial levels, gender, participant age, work experience, company size and age, business sector, and firm' sustainability experience. Nevertheless, the result of this chapter provides empirical evidence, emphasising the levels of statistical significance for group-specific path coefficient as presented in Section 7.4.2, which are discussed in more detail below.

With respect to **managerial levels** (high-level and low-level), the multi-group analysis indicated that a negative impact of EXB on SPMS adoption was significant only for the high-level group comprising owner-managers and senior managers. This implies that for this group, the higher the level of perceived external barriers, the lower the level of SPMS adoption. This finding can be explained by the fact that in SMEs, top management is primarily responsible for complying with government regulation requirements (Ndiaye *et al.,* 2018) as well as dealing with market pressures (Boso *et al.,* 2017) on corporate sustainability issues. As Bao, Wang and Sun (2019) argued, top management's perceptions of external barriers faced by SMEs probably lowers their confidence in the potential success of their proactive behaviour towards the adoption of sustainability initiatives. As such, the finding from this quantitative study provides a better and more subtle understanding of how SPMS adoption in the context of SMEs is affected by top management's perceptions of external barriers.

Regarding **gender**, males and females have been found to differ in attitude and behaviour regarding management styles (Hoque and Awang, 2019), particularly on issues associated with CSR management and practice (Yusoff, Jamal and Darus, 2016). Although the multi-group analysis identified no significant differences between male and female groups, it did indicate that a positive effect of TOP on SPMS adoption was moderated only by the male group. This implies that male respondents believed that the more appropriate the level of top management support, the higher the level of SPMS adoption. From another perspective, the multi-group analysis suggested that a negative impact of EXB on SPMS adoption was significant only for female respondents. This finding implies that for the female group, the higher the level of external barriers, the lower the level of SPMS adoption. This can be explained by the fact that females are often less willing to take risks than males (Powell and Ansic, 1997). From a managerial perspective, the findings from this quantitative study provide valuable insights for SME managers that will enable them to better understand the requirements of males for top management support, and the perceptions of females of the external barriers that influence SPMS adoption.

With regard to **the age of participants** (young adulthood, middle-aged), the multi-group analysis revealed a positive effect of TOP on SPMS adoption, but this was only significant for the middle-aged group. This means that this group believed that the higher the level of top management support, the higher the level of SPMS adoption. Conversely, a low level of top management support would result in a low level of SPMS adoption. Literature on organisational change reveals mature employees are those most resistant to change (Garcia-Sabater and Marin-Garcia, 2011; Nguyen, 2019). It has also been noted that resistance which takes place during the process of implementing performance measurement systems is often hard to observe as those resisting take care to conceal their actions (Bourne *et al.,* 2000). Moreover, mature employees are often less likely to seek sustainability information than

younger employees (Obeng, 2019), and tend to perceive CSR negatively (Choongo, 2017). From a practical perspective, the findings from this quantitative study provide useful insights for SME managers that will enable them to understand the requirements of the middle-age group for top management support as a necessity facilitating SPMS adoption.

Regarding **work experience** (≤ 5 years, > 5 years), the multi-group analysis indicated that the impacts of TOP and EXB on SPMS adoption were moderated only by participants having more than five years of working experience. These findings appear to be compatible with the expectations of this research, and are partially consistent with previous studies (e.g., Stubblefield, Loucks, Martens and Cho, 2010) which suggest that work experience has a significant impact on SMEs' sustainable performance. These findings, however, require further investigation as they are contrary to the findings of a previous study by Nguyen *et al.* (2017) highlighting that in Vietnam, working experience in the industry can be an obstacle hindering sustainability engagement. This comparison, however, needs to be treated with caution as this study was conducted at a time when sustainability development was introduced as a relatively new concept in Vietnam, and so people had not had much sustainability experience. The findings from this quantitative study provide empirical insights into how experienced people perceive top management support and external barriers influencing SPMS adoption. This can potentially support the decision-making process undertaken by managers in SME settings, where employees are willing and inclined to share work experiences and knowledge if they are motivated to do so (Eze *et al.,* 2013).

In terms of **firm size** (small-sized firms, medium-sized firms), the multi-group analysis elucidated the effects of INH, TOP, and OLC on SPMS adoption, which were moderated only by the group of medium-sized firms. As observed by Johnson (2015), larger SMEs are more likely to implement sustainability management tools than smaller counterparts. This is because

medium-sized firms often have more resources than small-sized firms to support sustainability engagement (Lopez-Perez, Melero and Javier Sese, 2017). However, one of the findings of the current quantitative study revealed that when inhibitors are perceived as a source of ineffectiveness, medium-sized firms might be less likely to adopt SPMS. This is perhaps because this firm size group often have a more complex organisational structure than smaller counterparts (Shevchenko, Lévesque and Pagell, 2016; Trianni, Cagno and Farné, 2016), creating a level of complexity that hinders them from adopting SPMS. Also found in relation to medium-sized firms, this quantitative study indicates that the higher the level of top management support and organisational learning capacity, the higher the level of SPMS adoption. Therefore, in this quantitative study, inhibitors, top management support, and organisational learning capacity were demonstrated to provide useful insights and managerial implications for medium-sized firms to effectively adopt SPMS.

With respect to **firm age** (≤ 10 years, > 10 years), the multi-group analysis indicated that the effect of INH and EXB on SPMS was significant only for younger SMEs established for less than 10 years. This finding implies that for younger SMEs, the higher the level of inhibitors and external barriers, the lower the level of SPMS adoption. These findings partly conflict with those of Roxas (2021), which suggested younger Vietnamese SMEs appear to be more dynamic than older and more established counterparts in adopting newer approaches that place environmental sustainability at the core of doing business.

These findings can be partially explained by the fact that in their initial stages, Vietnamese SMEs often find it difficult to access credit due to informational disparities (Phan *et al.,* 2015; Vu *et al.,* 2019). They tend to rely on informal loans and grants from family and friends as well as on their own resources or those of informal institutions (Phan *et al.,* 2015; Vu *et al.,* 2019). For this reason, younger SMEs might be unwilling to invest in new business projects, such as

SPMS adoption, which might not generate a quick profit or where the returns from such an investment are highly unpredictable (Canh *et al.,* 2019). Additionally, in their early years of operation, the primary goal of SMEs is to focus on factors contributing to their survival such as financing, rather than setting and achieving sustainability goals (Isaga, Masurel and Van Montfort, 2015; O'Regan, Sims and Ghobadian, 2005; Sommer, 2017).

Moreover, their perception of a high level of external barriers also means younger SMEs are less likely to adopt SPMS. This finding, however, needs to be investigated further as it is partly inconsistent with Vu *et al.*'s (2019) finding that Vietnamese younger firms tend to be dynamic and easily adapt to changes in the law and business environment. As such, this finding agrees with the argument presented by Pham, Yong and Truong (2019) in the sense that the level of engagement with the sustainability initiatives of SMEs, especially younger firms, depends heavily on how fast Vietnamese governments can improve regulations and enforcement.

Thus, the findings from this quantitative study provide valuable insights into the views of younger SMEs on inhibitors and external barriers associated with SPMS adoption. However, there is an important caveat to be taken into account when drawing conclusions from this quantitative study, primarily regarding potential biases. For instance, the researcher divided 'firm age' into two groups, which was aimed at obtaining a relatively balanced number for each specific group for the purpose of conducting a multi-group analysis.

In terms of **business sectors** (manufacturing sector, service sector), the multi-group analysis revealed that service sector SMEs was the only group which exerted a significant moderating effect on the relationship between TOP and SPMS adoption. This finding implies that in this business sector, the higher the level of top management support, the higher the level of SPMS adoption. Although there might be other contributing factors, this finding can be explained by

the fact that Vietnamese firms from the service sector often lack the capacity to effectively adopt and implement sustainability practices into their business operations compared to those from the manufacturing sector (Kane *et al.,* 2021). Hence, the findings from this quantitative study contribute to the literature on issues SMEs operating in the services sector encounter when engaging with sustainability initiatives, which remains an underexplored area (Sajan *et al.,* 2017). Also, it offers useful insight and direction for managers of SMEs in the service sector by revealing that top management support is of central importance for facilitating SPMS adoption.

Finally, with regard to the **firm's sustainability experience** (beginner and mature groups), the effect of TOP and OLC on SPMS was significant only for the beginner group. This implies that for SMEs beginning to engage with quality certifications (such as ISO 9001, ISO14001), their SPMS adoption cannot be effective if top management support and organisational learning capacity do not reach an appropriate level. This finding is reasonable as the mature group of SMEs, having accepted international standards and certifications (such as ISO 9001, ISO14001), will be more effective in fostering the adoption of sustainability initiatives than the beginner group (Ali et al., 2020; Caldera, Desha and Dawes, 2019a; Lopes et al., 2017; Singh, Brueckner and Padhy, 2014). Additionally, firms with limited sustainability experience might encounter certain difficulties in coordinating and performing the tasks necessary to effectively implement sustainability initiatives at the organisational operations level (Johnson, 2017; Lee, 2009). Therefore, the findings from this quantitative study provide valuable insights and guidelines pertaining to the views of the beginner group on top management support and organisational learning capacity as areas of focus for facilitating SPMS adoption. For example, owner/managers need to be better equipped and dedicated to transforming their management style and introduce appropriate changes conducive to commitment, engagement, and motivation to learn, and to sharing learning (Saad, Kumar and Bradford, 2017). In doing so,

the beginner needs to allocate necessary resources (Bhanot, Rao and Deshmukh, 2017) as well as review and enhance more formal organisational routines, procedures, and structures (Abdullahi *et al.,* 2019; Trianni, Cagno and Farné, 2016), which provide crucial support for SPMS adoption.

7.7 Conclusion

This quantitative study analysis confirms sustainability metrics that were identified from the literature, and which can be applied for SMEs of mixed business sectors. Empirical support was found for twelve sustainability metrics of three pillars of the triple bottom line: economic performance (four metrics), social performance (three metrics), and environmental performance (five metrics). All these sustainability metrics are unique because they are specially selected from the perspective of SMEs in the context of Vietnam.

Secondly, quantitative study analysis confirms that Motivation, Top Management Supports, Absorptive Capacity and Organizational Learning Capacity as key enablers, while Inhibitors and External Barriers were verified as obstacles. All six factors emerged as reliable predictors of the level of adoption of sustainability performance measurement systems in the Vietnamese SMEs' setting.

Thirdly, further multigroup analysis exhibits no significant differences for eight control variables concerning both the individual level (managerial level, gender, age of participant, year of working experience) and the firm level (firm age, firm size, business sectors, firm' sustainability experience). However, the results are noteworthy since this is one of the first studies that provides empirical evidence highlighting specific groups moderating specific paths in the research model. Therefore, managers and government policymakers should seek to

facilitate the level of adoption of sustainability metrics in the SME setting. The results from this chapter will be checked and complemented by the qualitative investigation.

The next chapter presents the qualitative study design and data collection methods.

CHAPTER 8 QUALITATIVE STUDY DESIGN AND DATA COLLECTION METHODS

8.1 Introduction

The preceding chapter presented the quantitative part of the study, the empirical results of which indicated a moderate fit for the model, as well as differences in the impact level between factors on the adoption of SPMS. Qualitative research is used to provide a more comprehensive explanation of how various factors could influence the adoption of SPMS in the Vietnamese SME setting. This would involve the perspective, thinking and experience of key stakeholders, comprising owner-managers, senior managers, key employees, shareholders and business customers.

Therefore, the principal objective of Chapter 8 is to describe and explain the qualitative component of the research. This will be achieved by presenting the procedure for qualitative data collection, and subsequently outlining the process for data analysis.

8.2 Procedure for Qualitative Data Collection

Literature includes various approaches and tools for qualitative data collection, allowing the researcher to gain deeper insights into a specific social science topic (Easterby-Smith *et al.,* 2015; Silverman, 2013). However, according to Bell *et al.* (2018), research interviews are the most frequently used primary methods in qualitative research. Consequently, the following section presents interviews as the primary data techniques for the qualitative phase of this study.

8.2.1 Interview Techniques

According to Saunders, Lewis and Thornhill (2019, p.338), the expression ‘research interview’ is often considered to be a general term, and its techniques are useful and practical tools ‘to

gather information from interviewees who are treated as witnesses to a reality that exists independently of them'. Furthermore, it is considered to be adequate for encouraging respondents to disclose their thoughts and feelings on a particular phenomenon, thus helping researchers to gain a deeper understanding of it. Therefore, interview techniques are most appropriate for this study in complementing and explaining the initial quantitative results obtained in Chapter 7. It is also helpful to explore participants' opinions on how motivation inhibitors, enablers and external factors influence the adoption of SPMS in the SME setting.

Generally, the researcher can use three main types of interview techniques in order to gather qualitative data: structured, semi-structured and unstructured interviews (Collis and Hussey, 2014; Saunders, Lewis and Thornhill, 2019; Bell *et al.,* 2018). Technically, these methods are classified according to their nature, structure and level of formality (Collis and Hussey, 2014), with each being frequently considered suitable for a specific research purpose (Saunders, Lewis and Thornhill, 2019). From this perspective, the choice of any interview technique must be carefully considered as to whether it is consistent with the research purposes, questions, aims and objectives which are already decided for this study (Saunders, Lewis and Thornhill, 2019; Bell *et al.,* 2018). The characteristics of the three above interview types are presented in Table 8.1.

Table 8.1 Characteristics of Interview Types

Structured interview	Semi-structured interview	Unstructured interview
Appropriate for collecting quantitative data	Mainly suitable for qualitative data collection	Mainly suitable for qualitative data collection
Captures data rapidly	Slow and time-consuming in capturing and analysing data	Slow and time-consuming in capturing and analysing data
Uses of random sampling	Uses of purposive and snowball sampling	Uses of purposive and snowball sampling
Interviewer-led	Sometimes interviewer-led Sometimes interviewee-led	Non-directive interviewing
Follows strict interview format	Interview format is flexible	Interview format is flexible
Easy to analyse	Sometimes difficult to analyse	Often difficult to analyse
Tendency to positivist view of knowledge	Mixture of positivist and non-positivist	Non-positivist view of knowledge

Source: Adapted from Gray (2014, p.387)

An identical set of questions is often prepared for a structured interview in order to gather quantifiable data (Saunders, Lewis and Thornhill, 2019) which, in essence, is a reasonably standardised technique. All interviews are conducted in the same context of questioning, with the use of closed-ended questions whose purpose is to obtain many pre-coded answers to generalise conclusions (Easterby-Smith *et al.,* 2015; Collis and Hussey, 2014). One advantage of using a structured interview, as indicated in previous empirical studies on sustainability (Govindan *et al.,* 2014), is that it can help to minimise potential bias by the interviewer. It was also believed that this technique could save time and analyse the obtained data quickly (Gray, 2014). Considering its merits, it is claimed that the structured interview technique tends towards a positivist view of knowledge (Gray, 2014). It is probably inappropriate for this study to capture a comprehensive account of participant perceptions and experiences because it aims

to generate profound and rich information that deepens the understanding of factors that influence the SPMS adoption in the SME setting.

On the other hand, it is suggested that an unstructured interview is conducted in an informal, relaxed manner. Interviewees are encouraged to talk freely with occasional interruption or intervention from the interviewer (Easterby-Smith *et al.,* 2015; Saunders, Lewis and Thornhill, 2019). This enables the researcher to gain an in-depth understanding of the interviewee's perspective (Saunders, Lewis and Thornhill, 2019; Bell *et al.,* 2018). However, in a non-directive interview it can be difficult to capture the precise issues that respondents express because they would be more likely to follow their own direction. Consequently, their answers could be highly inconsistent and obtained data can be poor and also difficult to interpret (Easterby-Smith *et al.,* 2015) which subsequently limits the possibility of cross-case comparability (Bell *et al.,* 2018). Therefore, this interview technique is possibly not suitable for this study in addressing the research questions and achieving the research purpose.

Considering the two aforementioned interview techniques, this study selected face-to-face semi-structured interviews in order to collect data. This interview technique is reasonable flexible, in which participants have scope to discuss their subjective feelings and experiences while the researcher actively manages and controls the interview process (Saunders, Lewis and Thornhill, 2019). Prior to the interviews, the researcher will have prepared a list of open-ended questions relating to the research topic to be covered (Bell *et al.,* 2018) (Appendix B.1 and B.2), the objective of which was to retain the flow of the conversation in following exciting lines of inquiry and also facilitating an unbroken discussion (Easterby-Smith *et al.,* 2015). Having used this approach, the researcher did not need to follow the order of the questions exactly, but depending on the flow of the conversation (Saunders, Lewis and Thornhill, 2019; Bell *et al.,* 2018), he would choose whether a line of questioning needs to be explored further

or discarded (Easterby-Smith *et al.,* 2015). Therefore, it was possible to obtain appropriate data, as well as rich and comprehensive information in terms of SPMS adoption in the SME setting.

8.2.2 Qualitative Sampling Technique

As previously discussed in Section 6.8, probability sampling is often linked to the quantitative approach, whereas non-probability sampling is associated with the qualitative approach (Saunders, Lewis and Thornhill, 2019), as discussed in Section 6.8. There are five general types of non-probability sampling: (i) quota, (ii) purposive, (iii) snowball, (iv) self-selection and (v) and convenience (Saunders, Lewis and Thornhill, 2019; Bell *et al.,* 2018). As stated by Saunders *et al.* (2019), the researcher is required to decide which type of non-probability sampling is most appropriate, from which the sample is drawn to address and answer the research question. In considering these, purposive sampling and snowball sampling techniques were jointly and primarily used in this study, and are presented in the following sections.

8.2.3 Qualitative Study Participants

8.2.3.1 Targeted Participant

As stated previously, the qualitative phase is conducted for the purpose of explaining in greater detail the initial quantitative results and to explore more motivation, enablers and inhibitors influencing SPMS adoption in the SME setting. Thus, the selection of SMEs for this qualitative phase follows the standards established in the initial quantitative phase which are already presented in Section 6.7.1.

It was essential to recognise the selection of appropriate participants who contribute significantly to the reliable outcomes of any research (Saunders, Lewis and Thornhill, 2019). Therefore, the sample choice ought to be informative participants who will probably provide

the insightful information necessary to address the research question and achieve the research purposes (Saunders, Lewis and Thornhill, 2019). One common criterion of selecting suitable participants is their status and function within an organisation. Previous studies have emphasised that owner-managers are the critical strategic decision-makers in adopting sustainability initiatives in SMEs (Moore and Manring, 2009; Yacob *et al.,* 2019). Based on these, this study targeted owner-managers and key employees as crucial participants, potentially providing a rich understanding of the subject under investigation. Therefore, at least one or two participants from each studied firm can be recruited.

Moreover, as argued in the literature review, shareholders and key customers can influence the adoption of SPMs in the SME setting. Accordingly, their perspectives of the research issues are crucial; therefore, they were targeted as potential interviewees by this current study.

It was anticipated that gaining permission to access SMEs is a challenging task in qualitative research (Spence and Schimdpeter, 2003). It primarily depends on participants' willingness and interest in participating in the study. Hence, this study did not begin with a target sample size; instead, purposeful sampling and snowball sampling continued until theoretical saturation was reached (Dhanesh, 2015; Sroufe, 2017).

The following section describes the process of identifying the participants for this qualitative phase.

8.2.3.2 Process of Identifying Targeted Participants

As the representative sample of the initial quantitative phase, the investigations of this study were conducted in Ho Chi Minh City, Vietnam (presented in Chapter 6). Therefore, the same research context was selected which followed the qualitative phase in order to collect sufficient data to address the research questions and achieve the research objectives.

Initially, the researcher attempted to use the Vietnam Chamber of Commerce and Industry's (VCCI) SMEs' database. This is often considered to be the most reliable in Vietnam; however, lists on SMEs appeared to be outdated. It was found that numerous companies in the database either no longer exist or have changed their address; furthermore, rare information regarding SMEs' sustainability activities has been provided in such a database. Similar to other developing countries, SMEs' owners/managers in Vietnam can be sceptical about the relevance of academic research (Nguyen and Bryant, 2004). It was anticipated that most of them would probably participate in a study only if they knew the researcher or were aware of the benefits they would obtain from the study and how the information that they shared would be used.

Moreover, it is important to note that, in Vietnam, proper connections to local government officials, local business communities, and business networks with SMEs have been considered as the primary method of approaching SMEs and gaining access to their views on research issues (Tran and Jeppesen, 2016). In this situation, it was recognised that relying on the purposive sampling process, by using personal relationships and contacts, is the most feasible method. This can help the researcher to gain access to SMEs and to gather rich comprehensive data on how entrepreneurs of SMEs perceive and interpret the experiences of their entrepreneurial activities concerning the adoption of SPMS in their organisation.

Following this strategy, the researcher contacted two close friends, who are owner-managers of SMEs and active members of BNI networks (Business Network International) in Ho Chi Minh City. BNI is the world's leading business referral organisation with more than 280,000 members in over 10,000 BNI Chapters worldwide (bni.com/about, 2019). Each 'chapter' of the BNI refers to a small group of business owners. The friends are helpful in connecting the researcher with the chapter monitors of BNI networks in order to obtain their formal approval to visit their chapters. The BIN chapter presidents issued four invitations, all of which were

accepted by the researcher to be a guest at their weekly chapter meetings held in Ho Chi Minh City centre. These meetings occurred from 6 to 14 July 2018. In each panel, the researcher was offered five minutes to introduce the topic and purpose to about 30 entrepreneurs who were present at the event. In his speech, the researcher invited the entrepreneurs of SMEs to participate in the research project. This would enable them to share their insightful information and experiences in identifying and developing appropriate metrics that will help SMEs in Vietnam to measure sustainability performance more efficiently. Subsequently, during each tea break, the researcher took the opportunity of greeting people and exchanging name cards. Many responded excitedly to the research project as sustainability is currently a key topic of discussion in Vietnam. However, these entrepreneurs also expressed concerns about how the research topic can benefit their firms and SME business communities. The researcher took the opportunity of explaining and sharing the practical applications that the research could bring to SMEs. Moreover, the researcher was able to ask them if he could contact them. Some of them kindly welcomed a later telephone contact to schedule a day for an interview at their company office. The events offered the researcher good opportunities to create a network of potential entrepreneurs whom he could recruit as participants in his study.

Based on the researcher's contact at these events, it took him a few days to identify potential SMEs which have been engaged in sustainability activities. It proved to be challenging to identify the types and level of sustainability activities in which they are engaged. After careful consideration, 34 entrepreneurs, whom the researcher met at the BNI's events, were contacted to ascertain whether they wished to participate in this research project. Securing their participation was somewhat time-consuming and more challenging than the researcher had anticipated, even with direct and indirect support from the researcher's personal contact network. The process resulted in 12 participants, who are owner-manager of SMEs, confirming their interest in participating.

Together with the purposive sampling, a snowball sampling technique was jointly used in which each interviewee was asked to refer other suitable companies. This was because owner-managers of SMEs generally rely on their informal networks within their industry and business sectors to undertake their business (Cordano, Marshall and Silverman, 2010; Russo and Perrini, 2010). Consequently, they will probably know which firms are primarily satisfied with all the criteria outlined by this study from their standpoints. Therefore, the researcher can save time in recruiting participants (Nguyen and Ngoc, 2020).

It is important to note that during the process of recruiting participants, one company (C06) was satisfied that all of the established criteria were provided by this study regarding size, business performance, industry activities, and mainly their obtained sustainability certifications (ISO 9001, 14001, Kaizen, 5S). More interestingly, the owner-manager of this SME offered the researcher an opportunity to access their business to conduct interviews with their staff who have experience and awareness of the company's sustainability activities. This situation was certainly unanticipated and was not the initial design of this study. It was recognised that the unit of analysis in this research is 'organisation'; therefore, multiple respondents from a single SME are not allowed (Muenjohn *et al.,* 2020). However, considering a different perspective of this research purpose, it can provide more crucial insights into the behaviour and thinking of the adoption of SPMS. It can also introduce organisational change, from the multiple respondents ranging from a single SME and from the lower management position to the top management level. The researcher can effectively explore the phenomenon under study in greater detail which subsequently contributes to the overall purpose of this research study. Considering the advantages and disadvantages, the researcher finally accepted the offer when the owner-manager consented that information shared by their staff would be kept confidential. This means the information would not be shared with him or anyone else by any method, except for the academic purpose of this study. Furthermore, the researcher suggested that the owner-

manager should implement a schedule to conduct interviews which should be most convenient for the company and its staff who are willing to participate in this study. Seventeen participants were recruited from this company, involving the owner-manager, middle-managers, and key staff.

Finally, the sampling process resulted in a total of 43 participants who were potential interviewees. The sample size was considered acceptable for the analysis as well as being comparable with the sample size from recent research on SMEs' sustainability initiatives. For example, the study on SMEs' environmental sustainability conducted by Wiesner *et al.* (2017) revealed that data saturation occurred around the eleventh interview with the same themes emerging within each interview data set. Caldera *et al.* (2019), in their recent study on identifying the enablers and barriers for successful implementation of sustainable business in SMEs, maintain that saturation can be achieved as the state of data satisfaction. This is a case where no new information was obtained from further data. With regard to these premises, this study did not use sample size as the exclusive determinant, but also carefully considered the depth of the data in order to obtain strong evidence of data saturation. Therefore, a sample of 43 interviews was adequate to investigate the factors influencing the adoption of SPMS in Vietnamese SMEs. Furthermore, this sample was not too large to challenge the extraction of thick and rich data while not too small to challenge the acquisition of data saturation (Gray, 2014). Details of the participants and their organisations are presented in Table 8.2.

Table 8.2 Overall information of interviewees and studied SMEs

General information		Number	Percentage (%)
Firm Size	Medium (< 50 ≤ 300 employees)	15	65
	Small (< 10 ≤ 50 employees)	5	35
	Micro (≤ 10 employees)	1	5
Firm' sustainability experience	Matured	13	65
	Beginner	7	35
Interviewee's position	Owner-manager	16	37.21
	Senior manager	4	9.30
	Middle-manager	7	16.28
	Key staff	9	20.93
	Shareholder	3	6.98
	Business customer	4	9.30
Gender	Male	30	70
	Female	13	30
Interviewee's age (years)	< 45 ≤ 55	6	14
	< 35 ≤ 45	18	42
	< 25 ≤ 35	19	44
Work experience (years)	> 20	8	19
	<10 ≤ 20	14	33
	<5 ≤ 10	19	44
	< 5	2	5

As can be seen from Table 8.2, the sample comprises 20 SMEs, of which 75% are medium-sized firms, followed by small and micro-size companies, each representing 35% and 5%, respectively. Regarding the firm's sustainability experience, SMEs which obtained

sustainability certifications/programmes (matured) such as ISO 9001, 14001, accounted for 65%, while the remaining 35% were beginners, implying that SMEs have been engaging with sustainability initiatives. However, they have not yet obtained a sustainability certification.

In terms of their managerial positions, the interviewees comprised owner-managers (37.21%), senior managers (9.30%), middle managers (16.28%), and staff (20.93%), shareholders (6.98%), and business customers (9.30%). Most interviewees had working experience ranging from over 20 years (19%), 10 to 20 years (33%), and 5 to 10 years (44%), and only 5% had less than five years of working experience. Regarding interviewees' age, nearly a half of them were between 25 to 35 years of age, 42 % were aged 35-45, and 14% were aged 45-55. Furthermore, the number of male interviewees exceeded the number of female ones (70 % and 30 %, respectively).

Finally, it was anticipated that many interviewees who participated in the qualitative phase might become respondents who also completed the quantitative survey. In this situation, it was possible that one form of data might present a bias which could confuse the results obtained from the other form of data from the same participants (Creswell and Plano Clark, 2011). To minimise potential bias, this study employed a data collection strategy; following the completion of the interviews, the questionnaire was distributed in order to obtain a large quantitative sample size. This enabled the study to avoid the possibility of the information provided in the quantitative questionnaire influencing interviewees' answers to the qualitative questions (Creswell and Plano Clark, 2011).

8.2.4 Pilot Interviews

Two pilot interviews were conducted in this study, the first of which was on 15 July 2018, and the second on 20 July of the same year. Both of the interviewees who took part in this study

were owner-managers of SMEs without any previous first-hand experience in participating in an interview in academic research. The principle objective of the pilot study was to assess the overall feasibility of the research design and instruments before the main investigation (Kim, 2011; Rasi, Abdekhodaee and Nagarajah, 2014). It addressed the following objectives:

- To ensure that the informed consent form, research purpose and objectives were clear and easy to understand
- To pilot the interview and assess if the guiding questions were clear to the interviewee and would result in relevant data
- To identify problems and ambiguous questions
- To check if there were any current issues or any overlooked aspects
- To adjust and revise research instruments
- To decide on the approach to data coding
- To test the recording set-up (how close people needed to sit and whether it was audible).

Based on the pilot interview analysis, the researcher slightly revised the order of the protocol questions and developed additional probing questions. This provided him with an estimation of how long, on average, an ideal interview should be in order to refine the interview schedule and overall approach. Furthermore, it was advantageous because the researcher could rehearse his practical interviewing techniques. Finally, the precise aims and objectives of the pilot interview involved aided the researcher in enhancing the rigour and trustworthiness of this qualitative phase.

8.2.5 Interview Protocol

The interview protocol was designed with a procedural guide and a list of interview questions directing the interviewer and interviewees. It involved two parts, the first containing a general

question about the interviewee' personal information such as background, position, experience and overview of their current business).

The second part included key questions related to the measurement of sustainability performance in SMEs. This focused on motivation, enablers, inhibitors, sustainability metrics development, stakeholder interests, external barriers and drivers which influence the adoption of sustainability performance measurement in SMEs. The same questions were used to interview key customers, but specifically modified to capture their opinions, from the outside, on the adoption of SPMS in SMEs.

Apart from the protocol at the beginning of the interview, each interviewee was provided with the same list of sustainability metrics which were identified from the literature as presented in Chapter 4. Consequently, this ensured that all the participants had an overview and comprehensive understanding of sustainability metrics which the researcher would mention during the interview. This enabled the researcher to confirm that the information gathered was objective, precise, and comparable across all the interviews.

The guiding questions are reviewed and commented by four Vietnamese PhD candidates, in the UK universities, who specialise in business management, in order to obtain validity with regard to content and structure. Subsequently, it is translated into Vietnamese and reviewed by a Vietnamese researcher for ease and convenience of collecting data from Vietnamese-speaking interviewees. The researcher planned to conduct interviews in Vietnamese or English to gain the most insightful information depending on the interviewee's language. Data collected is transcribed and translated into English.

After agreeing to participate in this study, the interviewees are contacted by telephone to arrange appointments which proved challenging because of the limited time available to the

researcher to complete the fieldwork. He applied practical tips to increase the acceptance and willingness of interviewees to participate. Notably, an official letter, including research information and consent form to conduct the study, was initially sent to the participating SMEs. The most challenging stage of this process was scheduling the interviews because the participants were busy; moreover, some unexpected issues might have arisen that led them to forget, delay or even cancel the appointment.

Therefore, it was deemed best to contact people at short notice, and within a week, to schedule a successful appointment. Due to the busy working schedules of interviewees, the interviews were conducted when participants were available. In all cases, interviewees were encouraged to suggest and determine the time and venue most convenient for them, and flexibility was allowed to enable them to express their opinions and experiences freely.

8.2.6 Establishing Ethical Guidelines for both Quantitative and Qualitative Studies

Before collecting the data, the researcher obtained ethical approval from the Faculty Research Ethics Committee of the University of the West of England. This ensured that ethical principles were considered when the research was conducted (Gray, 2014; Saunders, Lewis and Thornhill, 2019; Bell *et al.,* 2018). The participants had the right to withdraw at any time during the research, even though they had signed the consent form. If they wished to withdraw from the investigation after data had been collected, they would have been asked if they agreed that the data collected could be retained and included in the study. If they did not agree, these data would be destroyed and not included in the study. However, it would not be possible for them to withdraw their data from the study when the analysis had begun or was complete.

The researcher acknowledged that the participants, when provided with information, might be concerned that it might damage the image or reputation of their business. Therefore,

interviewees were informed of how their identity would be coded, and anonymity was assured. Sensitive information – in particular that provided during the interviews such as people's names, places, businesses, educational background, and occupation – was anonymised in the transcripts. Importantly, the researcher assigned pseudonyms to people's names (including key stakeholders) to the participants involved in the interviews. The same strategy was applied to places and businesses. Detailed information of any participant discussed in the interviews was not revealed to other participants. The participants were assured that no one, except for the researcher, would have access to their personal information.

8.2.7 The Procedure of Conducting Semi-structured Interviews and the Treatment of Recording

The interviews were conducted between 20 July and 5 September 2018 in Ho Chi Minh City, Vietnam. At the first stage of the formal interview each interviewee is provided with a hard copy of the research information, interview protocol, and questions. The interviewees are welcome to ask any question related to the research purposes and interview questions if they believed further clarification is required. After they understood this and are ready to be interviewed, they are asked to sign a consent form. The formal interview commences with a short personal introduction during which the researcher explains the purpose of his study. Next, each interviewee is asked some initial straightforward questions about the nature of the business, their background, and their involvement in the business. This enables the researcher to collect the demographic information and to familiarise himself with the company. The primary purpose of these initial tasks is to 'warm up' the interview atmosphere and to make the interviewees feel comfortable in expressing their viewpoints openly, sharing experiences and stories, and providing rich, descriptive data (Boyce and Neale, 2006). The participants are then asked the established guiding questions.

It is planned to conduct the interviews in Vietnamese or English, depending on the interviewee's language. However, all the interviewees found it difficult to express their views in English, but felt more comfortable communicating in Vietnamese. Therefore, the researcher conducts the interviews in Vietnamese in order to obtain rich information and maintain the high quality of the interview (Boyce and Neale, 2006). Subsequently, the researcher transcribes the audio recordings into the original language – Vietnamese.

The interviews are audio-recorded with the consent of the participants. However, some interviewees are reluctant to be recorded, but they are assured that their information is confidential and used solely for academic research. Furthermore, the tapes would be destroyed after the transcribing is completed. It is surprising that none of the interviewees requested the transcription of their interview.

Each interview lasts on average approximately 30 minutes, but they range from 23 to 82 minutes. This variation in length is because some interviewees requested that their information should not be recorded when referring to political issues that are a sensitive topic in Vietnam. Others who provide short answers are reluctant to provide detailed information about their business operations which are often commercially sensitive. They are only willing to answer questions quite briefly and without divulging too many details. However, the key points that emerges from their answers are captured and noted by the researcher.

Throughout the interviews, the researcher strives to adhere to the requisite procedures and ethical guidelines. This includes building a strong rapport with interviewees to gain their trust and ensure each interview is successful. To facilitate this, the guidelines proposed by Easterby-Smith *et al.* (2015) and Silverman (2013) are followed. These include, being patient and non-judgemental understanding interviewees and identifying with their experiences and thoughts,

demonstrating sensitivity, making sure each interview flows, and maintaining a clear focus on topics and issues pertinent to the research.

While conducting the interviews, the researcher follows the interview guidelines quite flexibly with open-ended questions. He anticipates that the interviewing process would often produce new ideas or significant issues that could usefully be discussed with other interviewees. Many new or exciting facets can be emerged from the interviews. These might include organisational sustainability orientation, organisational culture and change, socioeconomics in Vietnam, and the community where their businesses are located. The researcher then adjusts the questions and responds by posing follow-up questions to such new dimensions, and asks additional questions such as: 'Why do you think that?'; 'In such a situation, please could you tell me what you think you should do?' and 'Could you give a typical example about that please'. The follow-up questions are also used when answers are short or do not provide sufficient detail which helps the interviewees to express their ideas more comprehensively. By asking questions in this manner, the researcher allows the interviewees to expand their answers from which he could capture unanticipated facets at the beginning of the interview.

After each interview, the researcher reviewed and modified the protocol in order to satisfy the requirement of gaining richer and deeper information. Furthermore, he writes contextual interview notes and enters factual content information from the interview into the database; for example, key people, dates and events.

The qualitative reliability undertaken for the current study is followed by the data triangulation strategy outlined by Denzin (1989). Notably, with regard to time triangulation, data are gathered on the same phenomenon over a period, but in space triangulation, data are collected from the venue/site of each firm. Moreover, in person triangulation, data are gathered from

different key stakeholders including owners/managers, employees, shareholders and customers. The following sections present the process of analysing data using thematic analysis.

8.3 Thematic Analysis

In this study, thematic analysis is employed to analyse the interviews. It has been suggested that this is an appropriate method of identifying, analysing and reporting patterns (themes) (Clarke and Braun, 2013; Nowell *et al.,* 2017). It is also a way of presenting a level of patterned meaning within the set of data (Gray, 2014). Braun and Clarke (2006; p.97) emphasise that 'a rigorous thematic approach can produce an insightful analysis which answers particular research questions.'

It is important to highlight two main strategies in order to identify a potential theme which can initially emerge inductively from the drawn data or generated deductively from previous literature or a specific research question (Braun and Clarke, 2006; Brunosson, 2020; Creswell, 2013; Nowell *et al.,* 2017). Both of these methods are utilised in the current study. Initially, the researcher specifically uses a template to develop priori codes as well as broad themes inspired by the research questions and the literature, but remained open-minded to themes that subsequently emerge from the raw data during the coding process.

Template analysis (TA) is used to identify and analyse patterns in the qualitative interview data because it is considerably matched with the abductive approach (Clarke and Braun, 2013). Specifically, the hierarchical coding is applied in order to examine the interview transcript at varying levels of specificity from broad higher-order themes to obtain an overview, then moving on to more detailed, lower-order themes (Nowell *et al.,* 2017). The hierarchical coding process commences with four general priori themes relating to motivation, inhibitors, enablers

and external influences before moving to narrower themes. These initial broad themes are inspired by the research questions and theoretical framework which indicate factors influencing measuring sustainability performance (Braun and Clarke, 2006; Nowell *et al.,* 2017). Although the application of template analysis begin with a relatively deductive approach, the researcher is exposed to the possibilities of new themes which emerge during the data analysis (Tran, Deng and Ong, 2018).

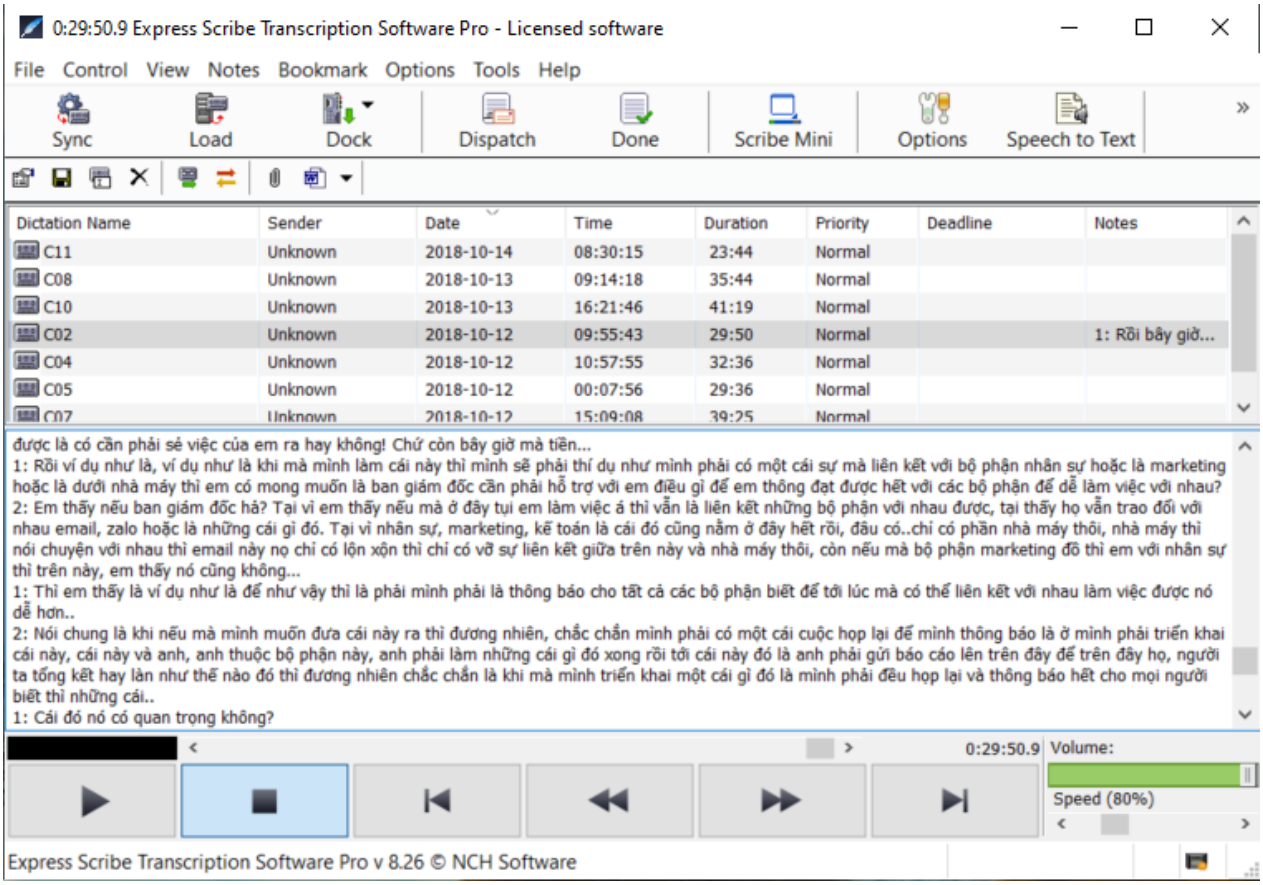
Having employed thematic analysis as the qualitative data technique, the researcher follows the outline guides proposed by Braun and Clarke (2006, p.87) comprising six phases: 1) familiarisation with data; 2) generating initial codes; 3) searching themes; 4) reviewing themes; 5) defining and renaming themes; and 6) producing the report. The first five stages are presented in this chapter, and the final one (producing the report) is presented in the next chapter as part of the findings.

The qualitative data analysis process is supported by the use of Nvivo software (version 12), which would help in sorting and organising the large data set more effectively (Jugder, 2016; Nowell *et al.,* 2017). Although this software cannot replace the iterative process of creating codes, it can help the researcher to facilitate efficient management of the analysis process more conveniently after using manual paper-based approaches to families with the data. This means the data analysis process can be more rigorous, comprehensive and practical. Another benefit is that the use of Nvivo software is suitable to conduct thematic content analysis since it allows the researcher to improve the reliability of the qualitative data analysis (Chandra, Paul and Chavan, 2020).

Phase 1: Familiarisation with Data

The researcher transcribed the interview in Vietnamese, by which he was able to immerse himself in the data by re-listening and typing the content of the interviews paying specific attention to voice, tones and emotions. This enabled him to facilitate the process of understanding the data more thoroughly. Therefore, the transcription process was very time-consuming and laborious, where the first interview, of about 30 minutes of audio recording, took over six hours to transcribe. The Express Scribe Transcription Software Pro was used to facilitate this process. This software was useful because it enabled the researcher to modify the speed of audio playback quickly, and to use foot pedal or keyboard controls such as stop, pause or rewind which are more convenient than using a 'mouse' (Figure 8.1).

Figure 8.1 A screenshot from the control panel of Express Scribe Transcription Software Pro



During the transcription process, the researcher noted initial ideas, interesting remarks (Gray, 2014) or potential patterns. Before the coding process, the researcher read through the transcripts a number of times until he felt comfortable with the content. This task was also valuable for checking the transcript for obvious mistakes made during transcription to ensure the reliability of the study throughout the data analysis. At this step, nine interviews (C02, C05, C06, C08, C09, C10, C11, C15, C17) out of 43 were selected as representative of the entire data set to develop the initial template. The researcher used field notes to enhance the understanding of the transcripts. These nine representative interviews were selected because they were particularly informative and comprehensive, covering a range of issues and knowledge mentioned in the dataset.

Phase 2: Coding Data

It has been maintained that coding is a critical starting point for any qualitative data analysis (Bell *et al.,* 2018). This phase involves the production of initial codes which emerged from the data with specific attention to striking features that would be relevant to answering the research question. At this stage, the Nvivo software was utilised to assist the process of data coding. All the 43 Word files of interview transcripts were imported into this software. Each interview transcript was allocated a code (or a node) to be easily viewed on the computer screen. At this step, four priori themes, developed in Phase 1, were created and represented as parent nodes (main themes) which helps to organise the meaningful data groups (Nowell *et al.,* 2017). It was acknowledged that the researcher maintained a consistent definition of the code throughout the process in order to ensure the study's reliability in the data analysis.

The researcher codes each transcript separately and systematically through the entire data set, in which each data item receives full and equal attention (Braun and Clarke, 2006). The data items are coded using units of text, sometimes a word, phrases, sentences or even a paragraph

as a text segment (Gioia *et al.,* 2013; Paterson *et al.,* 2013; Williams and Shepherd, 2017). If a data item is identified as being related to a theme or issue, and appropriate labels were immediately attached (Nowell *et al.,* 2017). This enables the researcher to simplify and identify the data's critical features relevant to the research question. During the coding process, the researcher utilises 'memo' in Nvivo to note and save interesting ideas or emerged impressions that might form the basis of potential themes and patterns across the data set (Nowell *et al.,* 2017). The researcher was also flexible and kept an open mind in identifying the manifest and latent meanings within the data set (Connelly and Peltzer, 2016). At the conclusion of this phase, the coding process resulted in a long list of codes. The researcher began to organise initial codes into a parent-child relationship, as illustrated in Figure 8.2.

Figure 8.2 An example of organising the initial codes into a parent-child relationship (screenshot from NVivo 12)

Nodes

Name	Files	References
MOTIVATION driving the adoption of SPMS	0	0
INHIBITORS hindering the adoption of SPMS	0	0
Uncomfortable experiences arising from sustainability	1	1
Unable to pay more competitive wages	2	2
Unable or unwilling to take the challenge	1	1
The short-term goal of immediate profitability	1	1
Simple and less formal organisational structures, routines, and rules	1	1
Risks asociated with implementing a new sustainability innitiative	1	1
Resistance to change	1	1
Profit-driven	1	1
More costly and risky to change current operational processes	1	1
Limited provision of education and training in general and for sustainability issues	1	1
Limited humance resource	1	1
Limited financial resource	2	2
Lack of top management commitment, involvement, and support	1	1
Lack of time	1	1
Lack of sustainability knowledge	2	2
Lack of sustainability information	2	2
Lack of specialist and expertise	1	1
Lack of owner interests	1	1
Lack of managerial skills	1	1
Lack of employee engagement	1	2
Lack of awareness and absence of perceived benefits	2	2
Initial investment costs; hidden costs are barriers	2	2
Inappropriate leadership and management styles	1	1
Difficulties in recruiting qualified personnel and professional managers	1	1
EXTERNAL FACTORS influencing the adoption of SPMS	0	0
ENABLERS facilitating the adoption of SPMS	0	0

Step 3. Searching for Themes

Theme development is considered to be a crucial part of most analytic processes in a study (Connelly and Peltzer, 2016). A theme is defined as 'an abstract entity that brings meaning and identity to a recurrent experience and variant manifestations. As such, a theme captures and unifies the nature or basis of the experience in a meaningful whole' (DeSantis and Ugarriza, 2000; p.362). The researcher began searching for themes by reviewing and comparing all the codes and relevant data extracts (Braun and Clarke, 2006; Nowell *et al.,* 2017) identified in the previous phase. Subsequently, he combined codes that conceptually overlapped by grouping them into appropriate categories (Woods, 2011), aiming to recognise the themes that emerged from them (Paterson *et al.,* 2013).

Phase 4: Reviewing Themes

In this phase, themes were reviewed and refined by being split, combined, or discarded (Braun and Clarke, 2006). The researcher initially checked whether the candidate themes accurately conveyed a story of the whole data set. He then reviews data extracts to confirm that the themes consciously cohered together with a precise and identifiable distinction between them (Braun and Clarke, 2006). This process was repeated until he is confident that there are no other new themes remained to be identified. Notwithstanding this, one key challenge for the researcher was to determine the 'level' of the themes, in which he intentionally combined the main theme 'motivation' as a sub-theme of the theme 'enablers'. He also reviews the coded data extracts for these themes and found that the latter were sufficiently specific and broad to capture the set of ideas. This resulted in there being a meaningful coherent pattern among them after the refinement which can help reduce data into a more manageable set of significant themes that summarise the text precisely and concisely (Attride-Stirling, 2001). Therefore, the researcher

finally decided to keep ‘motivation’ as one main theme because it comprises several sub-themes, and it would be better to present them separately with the main theme ‘enabler’.

Step 5. Defining and Naming Themes

This phase involved choosing an informative name for each theme. Initially, the researcher writes a detailed analysis for each one. Subsequently, he focused on the scope of each theme to identify interesting features in order to determine a meaningful story for each (Nowell *et al.,* 2017). In defining and naming a theme, he regarded it important that it should be ‘punchy’, which aimed to give the readers an immediate sense of what the theme conveys (Braun and Clarke, 2006). Finally, he re-examines the story of each theme to consider how all they all coordinate in relating the overall story of how factors influence the adoption of SPMS in Vietnamese SMEs (Nowell *et al.,* 2017). The researcher then modified and refined the theme definitions until the established themes are reached, after which the report could be written (Braun and Clarke, 2006).

Similar to the initial quantitative phrase (Chapter 6), validity issues are addressed for this qualitative phrase (Collis and Hussey, 2014). Validity in qualitative studies is mainly a matter of the researcher employing specific procedures to guarantee the credibility and accuracy of the findings (Creswell, 2013). Although the researcher was not a member of the Vietnamese SMEs community, two of his close friends are participants; therefore, this poses a threat in the form of researcher bias. Thus, “member checking” technique mainly addresses reliability because it had been suggested as a crucial for establishing accuracy and credibility in a study (Kim, 2011; Magolda, 2000; Nowell *et al.,* 2017). The feedback confirms that the final template is clear and comprehensive, and corresponded to their experience in the empirical context. Therefore, the researcher ensured the accuracy of the data (Mertens and Hesse-Biber, 2012; Torrance, 2012).

Although the researcher conducted this study alone, he consults the supervisory team to verify whether the established themes needed to be refined. This peer-debriefing process was advantageous in strengthening the validity and creditability of the research findings (Nowell *et al.,* 2017). The supervisors' feedback suggests that the researcher should use matrices and visualise established themes, which is presented in the next chapter as part of the findings.

8.4 Conclusion

This chapter has discussed, described, and explained the qualitative components of the study. This chapter has chosen purposive and snowball as sampling techniques; and semi-structure as the interview technique. Moreover, thematic analysis has been selected as the primary technique for quantitative data analysis. In this chapter, pilot interview, interview protocol, ethical guideline, procedure of conducting interview and the treatment of recording have been established. Moreover, participants and sample size of the qualitative study have been targeted in this chapter.

The following chapter presents the qualitative research findings and analysis of the PhD work.

CHAPTER 9 ANALYSIS AND DISCUSSION OF QUALITATIVE FINDINGS

9.1 Introduction

This chapter presents the findings from the 43 interviews with owner-managers, senior managers, key employees, shareholders, and key customers of Vietnamese SMEs. It comprises four main parts. The first part (9.2) provides a description of the cases. The second part (9.3) presents the thematic template. The third part (9.4) presents the key themes that emerged from the analysis describes the development of the thematic template.

9.2 Description of Cases

In total, 43 interviews were conducted with participants in 20 studied SMEs from a variety of backgrounds and holding various managerial positions including owner-managers, general directors, deputy general directors, middle-managers and key employees, shareholders. Four interviewees were business customers.

The studied SMEs comprised of firms from different business sectors. The common feature of these studied firms is that they do not operate solely in one sector such as manufacturing or service but engage in numerous other integrated and combined activities related to other sectors such trading and manufacturing, or manufacturing and service.

The size of the organisations was measured according to the official definition of SMEs provided by the Vietnamese government. Specifically, SMEs were classified into three major groups: micro, small and medium-sized firms (based on their number of employees). A micro, small and medium-sized enterprise is categorised as having between 1 and 10, 11 and 50, and 51 and 300 employees, respectively (Government Decree No. 90/2001/CP-ND on “Supporting

for Development of Small and Medium Enterprises"). The details of each organisation and its key informants are presented in Table 9.1 and Table 9.2.

Table 9.1 Non-state SMEs participating in the study

Company	Primary business activities	Size	Sustainability certification/programme
C01	Car assembling and trading	Medium	ISO 9001, ISO 14001, Kaizen
C02	Manufacturing and construction of mechanical products	Medium	ISO 9001, ISO 14001
C03	Furniture production and trading	Medium	ISO 9001, ISO 14001
C04	Plywood production and trading	Medium	ISO 9001, ISO 14001, FSC
C05	Manufacturing and construction of mechanical products	Medium	ISO 9001, ISO 14001
C06	Manufacturing and trading of insulation materials required in construction	Medium	ISO 9001, ISO 14001, Kaizen, 5S
C07	Furniture manufacturing and trading	Medium	ISO 9001, ISO 14001,
C08	Refrigerating equipment, commercial and industrial	Medium	ISO 9001, ISO 14001
C09	Manufacturing and construction of mechanical products	Medium	ISO 9001, ISO 14001
C10	Plastics manufacturing	Medium	ISO 9001, ISO 14001 Kaizen, 5S
C11	Production of construction materials	Medium	ISO 9001, ISO 14001,
C12	Construction company	Medium	ISO 9001, ISO 14001

C13	Labels and textile auxiliaries manufacturing	Medium	N/A
C14	Furniture manufacturing	Medium	N/A
C15	Plastics manufacturing	Small	ISO 9001, ISO 14001, Kaizen
C16	Agricultural products manufacturing and trading	Small	N/A
C17	Furniture manufacturing and trading	Small	N/A
C18	Air ticket trading and providing travel	Small	N/A
C19	Trading of mechanical products and accessories	Small	N/A
C20	Trading and installation of 3D printers	Micro	N/A

Table 9.2 Key Informant Information

No	Company	Position of the interviewee	Experience (years)	Age	Gender
1	C01	Owner-manager	> 20	< 45 ≤ 55	M
2	C02	Owner-manager	> 20	< 45 ≤ 55	M
3	C03	Owner-manager	<5 ≤ 10	< 35 ≤ 45	M
4	C04	Owner-manager	<5 ≤ 10	< 25 ≤ 35	M
5	C05	Deputy General Director	<5 ≤ 10	< 25 ≤ 35	M
6	C06	Owner-manager	> 20	< 35 ≤ 45	M
7	C07	Owner-manager	<10 ≤ 20	< 35 ≤ 45	M
8	C08	Owner-manager	<10 ≤ 20	< 35 ≤ 45	M

9	C09	General Director	> 20	< 35 ≤ 45	M
10	C10	Owner-manager	<10 ≤ 20	< 35 ≤ 45	F
11	C11	Owner-manager	<10 ≤ 20	< 35 ≤ 45	F
12	C12	General Director	> 20	< 45 ≤ 55	M
13	C13	Deputy Director	<10 ≤ 20	< 25 ≤ 35	M
14	C14	Owner-manager	<5 ≤ 10	< 35 ≤ 45	M
15	C15	Owner-manager	<10 ≤ 20	< 35 ≤ 45	F
16	C16	Owner-manager	> 20	< 45 ≤ 55	M
17	C17	Owner-manager	<10 ≤ 20	< 35 ≤ 45	F
18	C18	Owner-manager	<10 ≤ 20	< 35 ≤ 45	M
19	C19	Owner-manager	<10 ≤ 20	< 35 ≤ 45	M
20	C20	Owner-manager	<5 ≤ 10	< 25 ≤ 35	M
21	C06	Sales Manager	<5 ≤ 10	< 25 ≤ 35	M
22	C06	Sales Team Leader 1	<5 ≤ 10	< 25 ≤ 35	M
23	C06	Sales Team Leader 2	<5 ≤ 10	< 25 ≤ 35	M
24	C06	Customer Service Staff	<5 ≤ 10	< 25 ≤ 35	F
25	C06	Accounting Manager	<5 ≤ 10	< 25 ≤ 35	F
26	C06	Accountant 1	<5 ≤ 10	< 25 ≤ 35	F
27	C06	Accountant 2	<10 ≤ 20	< 35 ≤ 45	F
28	C06	Accountant 3	<10 ≤ 20	< 35 ≤ 45	F
29	C06	Marketing Manager	<5 ≤ 10	< 25 ≤ 35	F
30	C06	Product Marketing staff	<5 ≤ 10	< 25 ≤ 35	M
31	C06	Marketing Staff	< 5	< 25 ≤ 35	F

32	C06	Office Administrator	<5 ≤ 10	< 25 ≤ 35	F
33	C06	Human resource staff	< 5	< 25 ≤ 35	F
34	C06	Production Manager	<10 ≤ 20	< 35 ≤ 45	M
35	C06	Technical Team Leader	<10 ≤ 20	< 35 ≤ 45	M
36	C06	IT staff	<5 ≤ 10	< 25 ≤ 35	M
37	C08	Shareholder 1	> 20	< 45 ≤ 55	M
38	C13	Shareholder 2	> 20	< 45 ≤ 55	M
39	C03	Shareholder 3	<5 ≤ 10	< 35 ≤ 45	M
40	External	Business customer 1	<5 ≤ 10	< 25 ≤ 35	M
41	External	Business customer 2	<5 ≤ 10	< 25 ≤ 35	M
42	External	Business customer 3	<5 ≤ 10	< 25 ≤ 35	M
43	External	Business customer 4	<10 ≤ 20	< 35 ≤ 45	M

9.3 The thematic template

The coding process finalised with the final template in Table 9.3 focuses on the three main themes of ‘motivations that drive the SPMS adoption’, ‘internal factors that influence SPMS adoption’ and ‘external factors that influence SPMS adoption’.

Table 9.3 Thematic Template

Theme 1: Motivations that drive the SPMS adoption

• Mindset of top manager towards SPMS adoption
  o Growth mindset of business operation
  o The traditional mindset of business operations
• SPMS adoption provides support for better decision-making
• SPMS adoption enables to obtain resource efficiencies
• SPMS adoption enables to achieve cost reduction
• SPMS adoption enables customer responsiveness

Theme 2: Internal factors that influence SPMS adoption

• Organisational Considerations
  o Resource constraints and SPMS adoption
  o Defining appropriate objectives for SPMS adoption
  o Management capacity and SPMS adoption
  o Top management commitment, involvement, and support
• Knowledge management that enables the SPMS adoption
  o Internal knowledge acquisition and assimilation
  o External knowledge acquisition and assimilation
  o Provision of training and education
• Organisational Supports
  o Effective communication
  o More formal process, routine and procedure
  o Knowledge sharing and positive corporate culture
  o Establishment of incentives scheme

Table 9.3 Thematic template (continued)

Theme 3: External factors that influence SPMS adoption

• Social-economic environment
  o Entrepreneurial sustainability orientation
  o Cost-conscious domestic customers
• External barriers
  o Limited sustainability information providing
  o Absence of clear guidelines from the authorities
  o lack of economic incentives from the government
• Institutional Voids
  o The complexity of existing regulations
  o Lack of a sector-specific environmental standard
  o Local authorities have applied legal documents and regulations in inconsistent way
  o The intricate tax systems
  o The uncertainty of laws and regulations
  o Weak law enforcement

9.4 Key Findings

This section presents the key findings of the thematic template analysis. The findings elucidate links between the identified themes and sub-themes and how they interact with each other.

9.4.1 Theme 1: Motivations that drive SPMS adoption

This theme explores the motivations that drive SMEs to adopt SPMS, enabling them to potentially reap several significant benefits. The analysis follows the themes and sub-themes

in the final template (See Table 9.3). In this section, the sub-themes of 'mindset of top managers towards SPMS adoption', 'SPMS adoption provides support for better decision-making', 'SPMS adoption provides resource efficiencies', 'SPMS adoption enables cost reductions', and 'SPMS adoption enables customer responsiveness' are identified as key motivations driving SPMS adoption.

Mindset of top managers towards SPMS adoption

This section begins by introducing the theme 'mindset of top managers towards SPMS adoption' in the studied SMEs. Within this theme, the 'growth mindset of business operations' was identified as a key driver motivating SPMS adoption, while 'the traditional mindset of business operations' reported by two (C03, C12) of the 20 studied SMEs was identified as a critical factor impeding SPMS adoption.

Theme 1: Motivations that drive SPMS adoption **Sub-theme: Mindset of top managers**
o Growth mindset of business operations o The traditional mindset of business operations

Growth mindset of business operations

During the interview, most participants expressed a positive attitude towards SPMS adoption. The following quotes illustrate this:

> "Sustainability performance measurement is necessary… an essential task." (C02, Owner-manager)

> "Of course, when running a business, I always think about it [measuring sustainability performance]." (C15, Owner-manager)

> "Business sustainability and how to measure it is still quite new in Vietnam. If we take the opportunity to implement it fast, it will help us develop a sustainable competitive advantage." (C04, Owner-manager)

> "I believe sustainability will be a trend that Vietnamese firms must follow." (C08, Owner-manager)

The development of positive attitudes towards SPMS adoption by top managers was considered essential and necessary (C02, C15). They believed that sustainability would be a trend Vietnamese companies cannot ignore (C08) and that the first-mover would enjoy a sustainable competitive advantage (C04). The qualitative findings closely agree with those of Nguyen (2019), who recently provided empirical evidence indicating that a growth mindset is a crucial driver motivating owner-managers of Vietnamese SMEs to adopt sustainability management tools such as Kizen, ISO 14001. Moreover, the finding agrees with literature highlighting that top managers with growth mindsets are likely to drive their companies to engage in sustainability management and foster the implementation of sustainability performance measures in their organisation (Ghazilla, Sakundarini, Abdul-Rashid, Ayub, Olugu, Musa, *et al.,* 2015; Eikelenboom *et al.,* 2019). Therefore, top managers with a growth mindset motivate their company to adopt SPMS.

The traditional mindset of business operations

The literature review indicated that if SME owner-managers are uncertain about or lack interest in sustainability, this would result in a low rate of engagement with sustainability initiatives (Battisti and Perry, 2011; Pham, Yong and Truong, 2019). This was exemplified by two of the top managers out of the 20 SMEs studied (C03, C12). The following quote illustrates this viewpoint:

> "To be honest with you, we never talk about these issues; neither do we get time for such things. We just ensure that we comply with legal requirements. As a small firm we just deal with necessary things to survive, stay competitive, and make a profit. That is all. We have not had strategic planning for such things with a long-term view." (C12, General Director)

At the same time, most respondents expressed their frustration regarding the old-fashion business operation mindset of owner-managers in Vietnamese SMEs. The following quotes illustrate this:

> "I think that the most challenging is their old-fashioned mindset. They might be sceptical about the notion of sustainability. They might think of measuring sustainability performance, but for what! They don't have a vision for it, they just care about measuring expenses and profit, that is enough. Changing their mindset is extremely difficult." (C06, Owner-manager)

> "Personally, I think in Vietnam, many SME owners have a very limited perception about sustainability issues or measuring it. They are doing business with the thought that: I invest money to do business, so profit is my top priority." (C05, Deputy General Director)

These quotes demonstrate that short-term orientation sustainability (C12) and a profit-driven (C06, C05) approach are critical barriers impeding SPMS adoption. This finding can be explained by the fact that in Vietnam, SME owner-managers apparently operate their business in a self-interested manner to prioritise the acquisition of a quick profit (Nguyen and Pham, 2020; Tien, Anh and Ngoc, 2020) rather than adopt a profit-sacrificing sustainability approach (Pham, Yong and Truong, 2019). Another possible explanation may be an inherent assumption that sustainability initiatives have currently materialised in Western countries and there is less interest in Vietnam (Nguyen, Kelly and Bensemann, 2017). Against this background, it can be argued that if owner-managers do not change their traditional mindset, then the low level of

SPMS adoption among SMEs will continue. However, changing such a mindset to one that engages in sustainability engagement is not always an easy task. As Hasan (2016) claim, sustainability benefits do not often match the primary concern of maximising profit. The finding aligns with the principle of shareholder theory. In this school of thought, businesses do not have any moral obligations or social responsibilities other than to maximise their profits (Friedman, 1970; Hubbard, 2009; van Marrewijk, 2003).

SPMS adoption provides support for better decision-making

Theme: Motivations that drive SPMS adoption
Sub-theme: SPMS adoption provides support for better decision-making

One of the primary motivations established in the literature is that the adoption of a robust SPMS would support better decision-making, resulting in a better understanding of a company's current situation and their desired end state (Searcy, 2012). Owner-managers of SMEs often or at least partly rely more on their intuitive assessment (Csillag *et al.,* 2019; O'Regan, Sims and Ghobadian, 2005) than an efficient selection of more suitable options regarding sustainability activities (Rodríguez-Gutiérrez *et al.,* 2021). This is corroborated by the qualitative findings, as illustrated by the following quote:

> "To me, measuring sustainability performance could help businesses like us to avoid the spontaneity, intuitiveness, and subjectivity in our current measurement method, which seems no longer suitable for our development. We need appropriate sustainability metrics to be used as a back-bond for us to sustain and develop." (C08, Owner-manager)

The above quote (C08) demonstrates that the adoption of SPMS can be seen as an effective tool that supports better decision-making among owner-managers of SMEs and is therefore a critical driver.

SPMS adoption provides resource efficiencies

Theme 1: Motivations that drive SPMS adoption **Sub-theme: SPMS adoption provides resource efficiencies**

During the data analysis, obtaining resource efficiencies is frequently highlighted by the majority of studied SMEs as one of the most significant drivers motivating them to adopt SPMS. The following are the shared viewpoints of most interviewees.

> "From a management perspective, I think that the results from measuring sustainability are very helpful. Based on these, we can adjust the way we allocate resources so that they are more suitable. On the other hand, if there is anything that is lacking, it should be adjusted to be more appropriate." (C01, Owner-manager)

> "Sustainability performance measurement should be constantly considered. It is like a mirror. When we look into it, it reflects what we really are. If we do not look good, we can adjust it so that we are suitable for development." (C02, Owner-manager)

The above quote implies that SPMS adoption can help companies better allocate their resources (C01), track progress effectively, and engage in continuous development (C02), which is in line the work of Gunasekaran and Kobu (2007), who highlight these factors as the primary purpose of implementing a performance measurement system.

SPMS adoption enables cost reductions

Theme 1: Motivations that drive SPMS adoption
Sub-theme: SPMS adoption enables cost reductions

During the interview, "cost reduction" was frequently highlighted by most participants as a critical motivation likely to drive their companies towards SPMS adoption.

> "Because it relates to business cost reduction, every waste is a cost. Now I have just begun measuring it, based on the sets of indicators that I had from the implementation of ISO 14001 program." (C15, Owner-manager)

> "Personally, I think that to reduce production costs, we need to pay attention to sustainability performance measurement. It helps to measure, for example, energy consumption, energy-saving, water usage, etc. You [indicating the researcher] know that if we don't manage this well, the production costs will surely increase, which means our product price is likely to go up; and you know, it would be hard to sell it." (C14, Owner-manager)

The above opinion (C15, C14) highlights several key aspects of environmental performance, such as energy consumption, energy-saving, and water usage, that need to be measured and properly managed to help the company reduce costs. This finding partially reinforces Nath and Ramanathan's (2016) argument that the motivation for meeting environmental targets is primarily driven by economics.

SPMS adoption enables customer responsiveness

Theme 1: Motivations that drive SPMS adoption
Sub-theme: SPMS adoption enables customer responsiveness

The literature review revealed that businesses are increasingly under pressure from stakeholders to fulfil their responsibilities with regard to promoting sustainability activities in order to increase trustworthiness, reinforce relationships with said stakeholders, and demonstrate their commitment to enhancing environmental, social and economic performance. This observation is supported by this qualitative study, as confirmed in the following quotes by business customers:

> "For example, if 5 or 10 firms are selling a similar type of product, the ones who show a high value for sustainability, we are pretty sure that they stand out from the crowd as out potential long-term suppliers." (Business Customer 3)

> "When we decide to cooperate with suppliers (SMEs), we come to audit whether they meet our requirements regarding social and environmental issues. This is important and compulsory as we resell to our foreign customers who have strict demands regarding sustainability issues. Once a supplier meets the requirement, we want to establish a long-term relationship with them." (Business Customer 1)

The above opinions (Business Customers 1 and 3) demonstrate that pressure has been exerted on Vietnamese SMEs to enhance their sustainability performance outcomes. This qualitative finding can be explained by the work of Sommer (2017), who reported that most international buyers demand that their suppliers, particularly SMEs from developing countries, comply with sustainability standards and offer large, longer-term contracts. It has also been reported that the reputation of SMEs, in terms of sustainability performance outcomes, has been considered by large corporations as a strong criterion for selecting potential suppliers (Govindan *et al.,* 2015). Through such a strategic collaboration. SMEs are able to manage their reputational risks (Ahi and Searcy, 2013a).

On the same topic, the literature review in Section 3.2.2.2 gave a strong indication that coordination with relevant stakeholders is a critical starting point for the adoption of SPMS in

the SME setting (Garengo, Biazzo and Bititci, 2005; Harding, 2006; Jamali and Mirshak, 2007; Cory Searcy, 2009). This can help SMEs properly align their objectives with large companies – their relevant stakeholders – for whom SMEs often act as suppliers (Bos-brouwers, 2009; Granly and Welo, 2014). This assumption is fully corroborated by this qualitative study, as the following quotes illustrate:

> "To be honest with you [indicating the researcher], sustainability performance outcome is the key thing that we are confident in welcoming customers [international buyers] to our company to audit." (C15 – Owner-manager)

> "Currently in Vietnam, not many domestic business customers consider sustainability activities; but foreign customers, they always require partners like us to meet strict requirements about environmental requirements prior to discussing signing a contract." (C08, Owner-manager)

> "International customers come to our firms to audit; they carefully consider working environments, whether workers are treated well and fairly or not because they are afraid of reputational risks. If we don't meet their requirements, they will not buy our products even if we offer lower prices." (C14, Owner-manager)

The above opinions (C15, C08, C14) demonstrate a strength of SMEs, often described in the existing literature, that they acquire customer knowledge (Saad, Kumar and Bradford, 2017) as a result of establishing close relationships with their clients (Perrini and Tencati, 2006), which is essential as they are heavily dependent on customers for their survival (Fuller and Lewis, 2002). In this respect, the qualitative findings provide empirical evidence that sheds more light on normative isomorphic drivers, such as pressure from large international buyers, as those in powerful positions with high expectations for sustainability expect SMEs to address these issues (DiMaggio and Powell, 1983; Caldera, Desha and Dawes, 2019).

During the interviews, it was notable that almost half of the owner-managers expressed views about customer-oriented sustainability. It seemed that they had not been fully pushed or simply had no choice but to employ proactive behaviours to create win-win opportunities through the adoption of SPMS. The following quotes illustrate this:

> "We can use it as useful documents to support contract bidding, to share with existing and potential customers our efforts." (C08, Owner-manager)

> "The sustainability measurement system could be a PR [public relations] tool for the enterprise, the measurement of which leads to better improvement so the company will get more respect from the customers, and the company image will be better. The customers will also take part in the business when they feel more comfortable and happier; they trust the company more." (C14, Owner-manager)

> "With positive sustainability performance outcomes, we are more confident in introducing our products to foreign markets where firms' sustainability efforts are highly appreciated." (C06, Owner-manager)

The opinion of one owner-manager (C08) demonstrates a 'willing[ness] to share with existing and potential customers' their efforts towards sustainability performance through the adoption of SPMS. This is in line with the literature in the sense that it helps SMEs create a basis for rich communications with relevant stakeholders regarding their sustainability performance (Melnyk, Stewart and Swink, 2004; Perrini and Tencati, 2006; Searcy, 2012). Accordingly, this helps SMEs evaluate their measurement system, develop recommendations (Pádua and Jabbour, 2015), and devise a strategy for SPMS adoption (Searcy, 2011). This qualitative finding indicates that in order to mitigate a critical challenge in adopting SPMS (discussed in Section 3.2.2.2), a practical approach is to proactively respond to the requirements, expectations, and preferences of relevant stakeholders (Yu and Ramanathan, 2015) and open up win-win opportunities (Dey *et al.,* 2019; Shaw, Grant and Mangan, 2021; Yu, Ramanathan

and Nath, 2017). Therefore, customer responsiveness is a crucial enabler facilitating SMEs to adopt SPMS.

Moreover, the qualitative finding confirms the potential benefits, mentioned in Section 3.2.1, that can be derived from the adoption of SPMS, including support for entering new foreign markets (C06), contract bidding (C08), partnership strengthening, potential customer attraction, and enhancement of company image (C14). These are therefore reliable predictors driving SMEs to adopt SPMS.

Overall, customer pressure is a subsection of pressure from a wide range of stakeholders, which raises the question as to why this qualitative study did not investigate other forms of stakeholder pressure on SPMS adoption in the Vietnamese SME setting. Hence, the qualitative findings are in line with those found in the literature, where the principle of stakeholder theory highlights the way in which firms integrate sustainability initiatives to fulfil their responsibilities regarding the varied requirements, expectations, and preferences of stakeholders who might have conflicting interests (Freeman, 1984; Ramanathan, Poomkaew and Nath, 2014; Yu and Ramanathan, 2015; Mahmood *et al.,* 2019; Malesios *et al.,* 2020).

9.4.2 Theme 2: Internal factors that influence SPMS adoption

Internal factors refer to inhibitors and enablers within organisations that influence SPMS adoption. In this section, the sub-themes of ‘organisational considerations’, ‘knowledge management that enables the SPMS adoption’, and ‘organisational support’ are identified as key factors influencing SPMS adoption.

Organisational Considerations

In this study, organisational considerations refer to crucial aspects that influence SPMS adoption. During the data analysis, 'resource constraints' and 'management capacity' emerged as crucial inhibitors hampering SPMS adoption, while 'defining appropriate objectives for SPMS adoption' and 'top management commitment, involvement, and support' were vital enablers.

Theme 2: Internal factors that influence SPMS adoption **Sub-theme: Organisational considerations**
o Resource constraints and SPMS adoption o Defining appropriate objectives for SPMS adoption o Management capacity and SPMS adoption o Top management commitment, involvement, and support

Resource constraints and SPMS adoption

Throughout the analysis of the qualitative data, it became evident that almost every point made by participants about SPMS adoption was qualified by commenting that it had to be weighed against cost, as exemplified by C10:

> "Implementing SPMS definitely imposes a cost burden on firms. It is problematic. …we have to organise a team to run it. Current staff have to take on more tasks, and the recruitment of new staff for these jobs would increase operating expenses substantially… If it is not successful, it might negatively affect other activities as well." (C10, Owner-manager)

Similarly, the literature review indicated that initial investment and hidden costs are often significant obstacles for SMEs (Ghadge *et al.,* 2020; Hwang, Shan and Lye, 2018; Trianni, Cagno and Farné, 2016). This factor is supported by this study, as the following quotes illustrate:

> "The costs can be beyond our thoughts and imagination." (C01, Owner-manager)

> "Investments for SPMS may be costly. If a firm does not have a stable financial and human resource, they may not invest in it." (C12 - General Director)

> "The source of finance at start-up for this firm was through personal savings and family support without any external resource of funding…. new business ideas do not feel safe; we do not take them." (C14, Owner-manager)

The qualitative analysis indicated that limited financial and human resources can prevent SMEs from adopting SPMS. This barrier refers to the fact that the money comes directly from the owner-manager. If the SPMS adoption is unsuccessful, it can create financial difficulties As reported by Phan *et al.* (2015), owner-managers of Vietnamese SMEs often fear the accrual of debt.

Apart from resource constraints, limited of time was frequently cited as a barrier. The following quotes represent most of the viewpoints expressed.

> "As the firm owner, I am very busy coping with daily business pressures. To be honest with you [indicating the researcher], I do not have time to investigate things like sustainability performance measurement. I am not sure I have time for it." (C08, Owner-manager)

> "Doing so [SPMS adoption] means extra work for staff… everyone will see more work. They are not willing to do it. Everyone currently works 8 hours or more daily, it's very difficult, it takes a lot of time." (C10, Owner-manager)

> "The difficulty of SMEs is that one person must carry a lot of work… Employees may be reluctant to take on additional work." (C18, Owner-manager)

The above opinions of owner-managers (C10, C18) imply that a lack of employee engagement is a barrier hindering the adoption of SPMS. However, it appears that this is not because

employees lack enthusiasm for SPMS adoption but that the working conditions, particularly excessive workload and job pressure, might not allow them to do so (Johnson and Schaltegger, 2016; Sommer, 2017).

Overall, the above finding is in line with most of the literature on the development of sustainability metrics/indicators for SMEs, which indicate that resource constraints in terms of finance, humans, and time are significant inhibitors hindering companies from adopting SPMS (Hsu, Chang and Luo, 2017; Neri *et al.,* 2021; Singh, Olugu and Musa, 2016; Trianni *et al.,* 2019).

The above backdrop was anticipated as the literature review revealed that the development of sustainability metrics means SMEs must consider their inherited resource constraints in terms of finance, humans, time, sustainability knowledge, and skills (Arena and Azzone, 2012; Johnson and Schaltegger, 2016; Mengistu and Panizzolo, 2021). The findings from the qualitative study make it clear that the desirable general requirements of sustainability metrics, established in Section 4.2, can facilitate SPMS adoption among SMEs. The following quotes illustrate this aspect:

> "Yes, it needs to be a managerial tool, it must be quantifiable, it can 'talk' to managers." (C01, Owner-manager)
>
> "Not expensive and can be quickly implemented, easy to collect data." (C10, Owner-manager)
>
> "It must be suitable for the company's purposes and objectives…it must comply with the current legal requirements." (C05, Deputy General Director)
>
> "Simple, practical and easy for everyone to understand and use." (C06, Sale Manager)

Table 9.3 presents the number of times interviewees mentioned the desirable general requirements of sustainability metrics, which is consistent with the discussion in the literature review (Chapter Four, Section 4.2).

Table 9.4 Desirable general requirements of sustainability metrics discussed in interviews (not including the perspective of shareholders and business customers)

Desirable general requirements of SPMS	No. of Mentions
Company-tailored	25
A managerial tool	8
Quantifiable metrics	12
Easy to collect data	6
Simple and easy for everyone to understand and use	12
Practical and less expensive	14
Quick implementation	16
Compliance with legal requirements	8

Defining appropriate objectives for SPMS adoption

The literature review indicated that SPMS adoption is heavily dependent on the goals and specific conditions of each company, which can vary across scenarios. During the interviews, most top managers felt that owing to limited resources, it was better for SMEs to start with the most critical aspects when adopting SPMS rather than addressing a wide range of issues. The following quotes illustrate this:

> "We would apply things step-by-step. We do not have many available resources, so that in the beginning, we think we just need to focus on the most critical aspects rather than addressing a wide range of issues." (C17, Owner-manager)

> "In my opinion, I think it should start with the most crucial and important aspects to the firms; if not, SMEs would likely ignore it. It clearly depends on the specific conditions of each company." (C15, Owner-manager)

Based on the list provided by the researcher prior to each interview, it seemed that many top managers utilise the strengths of SMEs in terms of small firm-size, flexibility, and adaptability (Bourlakis *et al.,* 2014) to quickly and easily identify and define appropriate sustainability metrics for their company. The following quotes illustrate this:

> "I think economic metrics are vital for every firm, I already have these. As a service firm, I just focus on two more social metrics relating to customer and employee satisfaction. I don't mean social contribution and community involvement is not important, I have done it for many years. It is dependent on unusual situations or occasions. I don't think I need to measure it. For environment metrics, energy and water consumption, I can easily check by the operational expenses every single month. That is all, what do you [indicating the researcher] think?" (C18, Owner-manager)

> "To me, one of the biggest advantages of SMEs in adopting sustainability performance measurement is that they are very flexible due to their smaller size." (C05, Deputy General Director)

Notably, one owner-manager recognised the adoption of SPMS as beneficial in formulating corporate strategy as it facilitates a comparison of sustainability performance outcomes over the years, as expressed in the following quote:

> "From my perspective, a set of sustainability metrics should enable a company to compare their level of sustainability over the years, which is really useful in formulating corporate strategy." (C02, Owner-manager)

The above finding demonstrates that the successful adoption of SPMS among SMEs primarily depends on defining appropriate metrics that are aligned with the strategic objectives of the

company. The results closely agree with existing studies on the need to adopt metrics that SMEs can manage and use to capture their essential needs, rather than addressing a wide range of issues (Arena and Azzone, 2012; Van Passel *et al.,* 2007). It can therefore be suggested that priority should be given to the most important objectives rather than tackling all of them at once, or that goals can be sorted according to whether they are easier or harder to accomplish (Sousa and Aspinwall, 2010). Whichever approach is employed, the selected sustainability metrics must always be tailored to a company's objectives (Bourne, Kennerley and Franco-Santos, 2005) and suitable for integration into their business model (Aragón-Correa *et al.,* 2008; Shields, Welsh and Shelleman, 2018). It also requires SMEs to initially scan their available resources and identify relevant capabilities crucial for the adoption of SPMS.

As highlighted in the existing literature, SMEs often lack a formalised business strategy (Augusto *et al.,* 2019) due to difficulties in developing an effective mission, vision, and values (Ates *et al.,* 2013). The adoption of SPMS, therefore, is a potential opportunity for SMEs to formalise their company strategy (Garengo, Biazzo and Bititci, 2005; Russo and Perrini, 2010).

Management capacity and SPMS adoption

As discussed in the literature review (Section 3.3.2), the adoption of SPMS involves an organisational change through which new behaviours, habits, attitudes, and values emerge and develop within organisational structure and processes (Goddard *et al.,* 2016). During the interviews, most owner-managers expressed concerns that employees might not be open-minded to a new business idea such as SPMS adoption. The following quotes illustrate this:

> "Employees who are experienced, especially the mature ones, are often resistant to change." (C10, Owner-manager)

> "Some of our experienced and mature engineers, who are always of the mindset that: 'If I'm satisfied, I do. If I cannot work for you, I'll go to another tomorrow.' Honestly, they do not want to contribute." (C01, Owner-manager)

The above opinions (C10, C01) demonstrate that employee resistance to change is an inhibitor hindering SPMS adoption. The close agreement of the above qualitative finding with the literature (Furst and Cable, 2008; Nguyen, 2019) indicates that mature workers and experienced employees often demonstrate strong resistance to change.

Prior studies have found that the primary cause of resistance to change for sustainability engagement is because employees lack a comprehensive understanding of why they must do this (Wiesner, Chadee and Best, 2018), and a limited awareness and absence of perceived benefits regarding the integration of a sustainability initiative (Johnson and Schaltegger, 2016). These findings are corroborated by this study, as exemplified by one owner-manager:

> "People, I mean both staff and middle managers, may lack awareness and do not know about the benefits of sustainability performance measurement, so they can be reluctant to accept this idea. This is a challenge." (C02, Owner-manager)

Reviewing the above qualitative findings, one significant observation is that lower-level staff and middle managers are confirmed as demonstrating resistance to change for SPMS adoption (C02). It is important to note that the operational conditions of lower-level staff can be influenced by the decisions of middle managers (Nonaka, 1994), whose attitudes and behaviours tend to reflect those of top managers (Engert, Rauter and Baumgartner, 2016). In this light, the findings warn owner-managers of the crucial role played by middle managers in SPMS adoption. In SMEs, middle managers play a critical intermediary role between the 'top' and 'bottom' of the organisation, interpreting and communicating data, information, and knowledge emanating from different organisational actors (Camuffo and Comacchio, 2005).

Although they might not have the skills to implement change (Smith, 2018), they sometimes play the role of "change-agent" to support the self-revolution of the organisation (Nonaka, 1994).

During the interviews, some owner-managers expressed concerns about their limited communication and skills, which they believed made it difficult for them to motivate employees to adopt SPMS. The following quote illustrates this:

> "Frankly, my weakness is communication skills; I am afraid that I am not able to highly motivate employees to engage with a new idea such as sustainability performance measurement." (C10, Owner-manager)

Moreover, four owner-managers (C3, C13, C14, C20) felt that their low level of education (high school diploma) and lack of necessary managerial skills were limitations demotivating them from adopting SPMS in their organisation. All four owner-managers confessed that before running their own firms, they used to be blue-collar workers. The following quote illustrates this:

> "I firstly started as a blue-collar worker for a couple of years, and then opened my own business. I do not have the necessary managerial skills. This is really my limitation. To be honest with you [indicating the researcher]; my educational background is just a high school diploma." (C3 – Owner-manager)

The findings agree well with existing studies, indicating that a lack of the necessary managerial skills among SMEs' owner-managers is a barrier hindering the implementation of sustainability initiatives (Hoang Tien, 2019; Rachidi and El Mohajir, 2021; Shi *et al.,* 2008); and preventing the integration of performance measurement (Sardi *et al.,* 2020). The findings are also consistent with the recent work of Nguyen and Pham (2020), who found that low-quality entrepreneurship education is one of the weak characteristics of Vietnamese

entrepreneurs. They are also in line with the work of van Song *et al.* (2020), who provided empirical evidence for insufficient problem-solving, leadership, and communication skills among Vietnamese SMEs. In view of these findings, this study confirms that a lack of necessary managerial skills is a significant inhibitor. Another intriguing finding is that the low level of education of owner-managers is another inhibitor impeding SPMS adoption. Therefore, to effectively adopt SPMS, top managers of Vietnamese SMEs need to develop the capacity to manage and acquire the necessary managerial and leadership skills.

Top management commitment, involvement, and support

As found in previous studies, top management support regarding sustainability engagement is often signalled by their active involvement (Lee, 2009; Tran, Deng and Ong, 2018), encouragement, and supervision (Dora, Kumar and Gellynck, 2016). These findings are supported by this qualitative study as most top managers recognised their key role in the adoption of SPMS. The following quotes illustrate this aspect:

> "Surely, top managers need to be involved, and to instruct and supervise; if not, staff don't understand how to do things and what not to do. We need to encourage them and provide support. The role of top managers is very important. That is my opinion." (C06, Owner-manager)

> "The senior manager of the enterprise needs to evolve and do well first, and then the sustainability metrics can be identified. Sustainability performance measurement primarily depends on the vision of the top manager." (C02, Owner-manager)

The above finding (C06, C02) is in line with the work of Parisi (2013), who found that top management support is a significant enabler facilitating SPMS adoption. Similarly, employees shared the same view regarding the vital role of top managers in leading the adoption of SPMS. The following quotes illustrate this aspect:

> "The role of the director is very important, we follow him. If he does well, so do we. If he does not instruct us throughout the process of implementing the measurement, the project could fail." (C06, Accountant 2)

> "It depends on the owner whether they see it (sustainability performance measurement) as worth implementing in the organisation, and then staff like me have to follow." (C06, Accounting Manager)

A strong factor established in the literature is that the effective implementation of a sustainability initiative can be achieved with strong employee involvement and support (Parisi, 2013; Ghadge, Kaklamanou and Bourlakis, 2017; Siegel *et al.,* 2019). As discussed in Section 3.2.2.3, this requires top managers to promote employee empowerment relating to SPMS. This argument is corroborated by this qualitative study, as illustrated in the following quotes:

> "I am the owner of the firm, so sustainability performance measurement is necessary, therefore I ask our staff to implement and operate it, no problem." (C01, Owner-manager)

> "It is really good if we have standard sustainability metrics for better management. We will assign staff to do this task." (C07, Owner-manager)

The above perceptions (C01, C07) demonstrate that employee empowerment is an enabler facilitating SPMS adoption. Several landmark studies observed that providing employee empowerment is as an effective tool for intrinsically motivating people (Busse *et al.,* 2016). It prevents initial cost estimates from being exceeded when implementing performance measurement (Sousa and Aspinwall, 2010) and is positively associated with social, environmental, and economic performance (Yusoff *et al.,* 2016).

As the findings highlight, the role of top managers is to promote such positive associations and influence the behaviours of subordinates. This point is crucial for Vietnamese top managers,

whose leadership and management styles typically follow a top-down hierarchical approach (Wrana, Xuan and Nguyen, 2019). These styles are normally viewed as those of an autocratic leadership, which often prevents top managers from applying their emotional intelligence (Govender and Bussin, 2020). Therefore, they hamper the adoption of SPMS.

Overall, the analysis suggests that from the very outset, top managers need to be well prepared to be committed and involved; and to have an appropriate attitude (Burke and Gaughran, 2007b; Dora, Kumar and Gellynck, 2016), express openness, and engage in proactive behaviour (Nguyen and Tran, 2020). The finding also implies that top managers should convey a shared vision to all firm members (Dzhengiz and Niesten, 2020; Saratun, 2016; Xin *et al.,* 2020). This is vital in terms of encouraging staff at all levels to take on responsibilities (Nguyen and Tran, 2020). It also provides an impetus to foster and cultivate a growth mindset as well as gradually redirect and change a fixed mindset among all management levels and employees, which is a significant enabler facilitating SPMS adoption.

Knowledge management that enables SPMS adoption

In this study, knowledge management refers to the firms' ability to acquire external knowledge and integrate it with existing internal knowledge (Cohen and Levinthal, 1990; Csillag *et al.,* 2019; He *et al.,* 2019). During the data analysis, 'internal knowledge acquisition and assimilation', 'external knowledge acquisition and assimilation', 'training and education' emerged as enablers facilitating SPMS adoption.

Theme 2: Internal factors that influence SPMS adoption **Sub-theme: Knowledge management that enables SPMS adoption**
o Internal knowledge acquisition and assimilation o External knowledge acquisition and assimilation o Provision of training and education

Internal knowledge acquisition and assimilation

One of the primary concerns established in the literature is that the adoption of SPMS might engender various complexities for a SME. Thus, a certain amount of prior knowledge is required for success (Ahi and Searcy, 2013b; Høgevold *et al.,* 2015). During the interviews. seven companies (C01, C02, C06, C08, C09, C10, C15) demonstrated their engagement in acquiring and assimilating internal knowledge by hiring qualified and experienced internal staff or gaining assistance from the expertise of employees. This encourages the adoption of new sustainability initiatives such as CSR or ISO 14001, as reflected in the following quotes:

> "Fortunately, we recruited a professional manager, who is qualified and experienced with ISO 14001 standards on the environment; he successfully trained our current employees to be more professional and skilful." **(**C15, Owner-manager)

> "I hired a deputy director; he has knowledge and good experience in the area of corporate social responsibility; and another deputy director is my son, he used to study and graduated in business management from an American university. Both are running what you [indicating the researcher] just mentioned about, sustainability." (C01, Owner-manager)

The above finding (C01) is echoed by Johnson (2017), who suggests that SMEs can acquire sustainability knowledge with assistance from employees who have the requisite educational qualifications and expertise. The findings in the case of Company C15 are supported by those

of Kumar and Antony (2008), who highlighted the creativity of SMEs in that the primary source of knowledge sharing and transfer in Six Sigma and ISO certified firms was through in-house training of employees, rather than seeking the external help of consultants at a much higher cost. Such an approach can uniquely suit SMEs striving to integrate sustainability initiatives, primarily due to their small size and flexibility (Bourlakis *et al.,* 2014; Caldera, Desha and Dawes, 2019; Koirala, 2019).

However, the process of internal knowledge acquisition and assimilation is not always fruitful or valuable. One owner-manager confessed that it was extremely challenging and time-consuming due to the need to use existing human resources, clearly stating:

> The difficulty is that I use existing human resources and it really takes time to train. You [indicating the researcher] know that it took us about a year for our employees to begin to comprehend the process to effectively run ISO 14001." (C15, Owner-manager)

Another owner-manager described her negative experiences when a key employee, with an abundance of formal training and skills for IS0 14001, left the firm for a better career in a larger corporation with a higher salary. She explained this as follows:

> "To apply the ISO 14001, we sent a staff member for formal training courses to be in charge of this programme. Right after successfully completing these courses, we promoted him to a managerial position. However, just a couple of months later, he left us to work for another firm with better benefits. I was quite upset. This issue is really a dilemma for us." (C10, Owner-manager)

As indicated in the literature, prior knowledge and experience are often harnessed and stored in the minds of the owner-manager and/or key staff members (Jiang, Ritchie and Verreynne, 2021; Saad, Kumar and Bradford, 2017). In the case of Company C10, the key staff member left the firm just a couple of months after he received the formal training and skills for IS0

14001. The consequences of this should not only be viewed as a cost the company incurs but also as a loss of tacit knowledge, which subsequently leads to a decrease in organisational learning (Cardoni *et al.,* 2018). In this regard, the findings agree well with existing studies which found that SMEs usually face difficulties in retaining qualified staff (Perez-Sanchez, Barton and Bower, 2003; Pedersen, 2009; Othman and Mahmood, 2019).

External knowledge acquisition and assimilation

During the interviews, several owner-managers and senior managers of the studied SMEs talked about how they consciously acquired and collected sustainability-related knowledge from the external environment, and then informally assimilated this into their organisation. The following quotes highlight this aspect:

> "Normally, knowledge in our industry I learn from suppliers. A few months ago, I came to the U.S for a short course relating to sustainability issues in my industry. The course was offered by one of our key suppliers." (C08, Owner-manager)

> "I work with international customers; I have learned a lot from them and applied this to my company from the very beginning." (C15, Owner-manager)

> "I knew about the CSR concept from my friends, they shared this kind of knowledge with me; then I searched the internet, and I attempted to apply some ideas to my company a few years ago." (C06, Owner-manager)

> "I visited companies in Japan and I am really impressed. I would like to build my company like them. After that, I investigated Kaizen and 5S, and then applied this to my company." (C10, Owner-manager)

The above opinions demonstrate that sustainability-related knowledge regularly flows in different forms and from different sources, including short courses offered by their suppliers (C08), information-sharing with international buyers (C15), informal networks and the internet

(C06), and visiting and learning from firms in other countries (C10). The qualitative findings agree with Liao *et al.* (2003) in that individuals exhibiting proactive behaviour can effectively acquire external knowledge and transfer this to their own experiences.

As reported in Csillag *et al.* (2019), top managers – the developers of organisational learning and learning opportunities – play key roles in motivating employee to engage in the process. This finding is supported by the current study, as exemplified by the following employee:

> "Surely, the board of directors should do more research about the subject and explain it to the employees. They are decision-makers while the employees are not in the right position to investigate and learn about the subject." (C06, Sale Leader Team 2)

These findings are in line with those in the literature, where SMEs were found to acquire external knowledge through relationships with their partners (Saad, Kumar and Bradford, 2017), informal networks (Spence and Schimdpeter, 2003), and the internet (García-Sánchez, García-Morales and Martín-Rojas, 2018). Moreover, these findings also agree with the results reported by Csillag *et al.* (2019), who found that owners of SMEs are the persons generally responsible for bringing in knowledge from the external environment into the firms. These findings are also in line with those of Volberda, Foss and Lyles (2010) who found that prior knowledge of absorptive capacity is accumulated, updated, and developed through effective relations with an external network. In this study, one important mechanism for encouraging mimetic isomorphism was learning about the practices of successful organisations who have demonstrated leadership in sustainability initiatives, which also accords with the literature (Abdalla and Siti-Nabiha, 2015; DiMaggio and Powell, 1983; Ditlev-Simonsen and Midttun, 2011). Overall, top management can use learning orientation to organise knowledge based upon what and how their organisations learn about SPMS adoption, which subsequently

increases knowledge sharing and the trust culture among employees (Dibella, Nevis and Gould, 1996; Spicer, 2004).

Provision of training and education

During the interviews, most top managers of the studied SMEs reported that they have annually provided their employees with several workshop and training programmes to improve their skills, but these are not usually related to the topic of sustainability development. While most respondents expressed an insightful perception and understanding of the purpose and benefits of SPMS adoption, they confessed that they faced several challenges in translating such perceptions into practical action for themselves and their companies. The reasons for this seemed to be because SPMS adoption is a new project for the company, for which they probably have limited sustainability knowledge, expertise, and skills (Johnson and Schaltegger, 2016; Caldera, Desha and Dawes, 2019), and a lack of know-how (Gandhi, Thanki and Thakkar, 2018). The qualitative findings clearly indicated that these are inhibitors hindering SPMS adoption, as illustrated in the following quotes:

> "I don't have the knowledge and expertise or skills to do it. I have no ideas as to how to measure sustainability performance." (C20, Owner-manager)

> "As for sustainability activities, I can only do what I think could help sustain my firm. I am not sure about this. Actually, I do not have formal sustainability knowledge." (C10, Owner-manager)

> "Honestly, we have no idea how to do that. If necessary, we may seek support from the outside, such as external organisations." (C02, Owner-manager)

The above opinion of the owner-manager of Company C02 demonstrates that SMEs can be flexible in managing their trade-offs, for example in relation to time or a certain cost, to seek external support. Therefore, making appropriate use of external support in terms of

sustainability knowledge and skills relating to SPMS adoption is an enabler. Its success, however, depends on how proactive they are in effectively acquiring external knowledge and transferring this to their own experiences (Liao *et al.,* 2003).

During the interviews, provision of training and education relating to SPMS adoption frequently emerged as a significant enabler. The following quotes illustrate this aspect:

> "Training is really a good opportunity to increase awareness about the objectives, the benefits of the measurement of sustainability performance. Personally, I think that the simpler, the better. You [indicating the researcher] know that people have other jobs to be in charge of, not just this." (C09, General Director)

> "Before that, training and education should be provided to increase the benefits of the operations later on; it must be simple and easy to understand and people must know how to do it and evolve, step-by-step." (C06, Human Resource Staff)

The above qualitative findings closely agree (C09, C06) with Saad, Kumar and Bradford (2017) in the sense that new knowledge imparted within the setting of the SME needs to be practical and useful, rather than delivered in a conceptual form. The findings also make it clear that provision of training and education is crucial to enable SPMS adoption, which is also in line with literature that reports such training is likely to improve employees' abilities to recognise and acquire new knowledge (Caloghirou, Kastelli and Tsakanikas, 2004; Cohen and Levinthal, 1990; Johnson, 2017; Kwahk, Yang and Ahn, 2020; Muathe and Muithya, 2020; Tilleman, 2012). It is important to recognise that the provision of training and education is also a valuable opportunity for employees to share ideas, raise concerns, and make suggestions (Langwell and Heaton, 2016), which subsequently supports top managers in initiating more focused and effective actions towards SPMS adoption.

Organisational support

In this study, organisation support refers to firms being aware of appropriate enhancements that can be applied in organisational settings to support SPMS adoption. During the data analysis, 'effective communication, 'more formal processes, routines, and procedures', 'knowledge sharing and positive organisational culture', 'establishment of incentives scheme' emerged as enablers facilitating SPMS adoption.

Theme 2: Internal factors that influence SPMS adoption **Sub-theme: Organisational support**
o Effective communication o More formal processes, routines, and procedures o Knowledge sharing and positive corporate culture o Establishment of incentives scheme

Effective communication

The literature review indicated that the adoption of SPMS is likely to be a complex and lengthy process that may engender several communication and coordination problems (Taylor and Taylor, 2014). Consequently, when complexity and uncertainty increase, multiple issues are likely to arise for firms (Ates and Bititci, 2011; Jamali, 2006b). In this study, most respondents from SMEs recognised effective communication as a vital enabler of successful SPMS adoption. They believed that it helps convey information and practical commutation, ensuring the objectives and benefits of SPMS adoption are understood comprehensively across the entire organisation. The following quotes illustrate this:

> "I think that effective communication forms the foundation of SPMS adoption. It is useful to explain the objectives and help employees make sense of the entire process of measurement." (C02, Owner-manager)

> "Obviously, effective communication is vital. It helps to improve the flow of effective communication in the workplace; it could be in written or oral form. Through it, people in the company not only understand the objectives and benefits of measuring sustainability performance but also know how to contribute to achieving that goal." (C06, Marketing Manager)

These findings are in line with Perez-Valls, Cespedes-Lorente, and Moreno-Garcia (2016) who asserted that enhanced coordination and shared objective setting are crucial when integrating green practices, as are mechanisms that ensure the internal flow of information. The research findings are also in close agreement with the recent work of Dzhengiz and Niesten (2020), who argued that effective and timely top-down information flows improve the implementation of environmental practices. In view of the findings, it is primarily the top managers' responsibility to communicate the ideas, objectives, benefits, and procedures of SPMS adoption so that employees perceive them as motivating, thereby enhancing the effort and support of the entire organisation.

At the same time, effective communication is potentially useful in preventing coordination problems that might arise during the process of developing SPMS due to weak characteristics such as informal structures and loose control systems (Fassin, 2008). The use of written or oral forms of communication can improve vertical and horizontal communication flows, which may help firms foster the transit of information to the places where it is needed. These forms of communication facilitate knowledge sharing (Cesário and Chambel, 2017; Wang and Noe, 2009) which in turn facilitates SPMS adoption. Finally, the close agreement of the results with the literature suggests that effective information systems serve as a catalyst for facilitating

absorptive capacity (Peng, 2021) and organisational learning (Sroufe, 2017). This frequently encourages individuals to share their knowledge and information with others in the organisation (Bari, Ghaffar and Ahmad, 2020). Therefore, effective communication is a significant enabler facilitating SPMS adoption.

More formal processes, routines, and procedures

The literature also indicates that the adoption of SPMS is likely to trigger organisational change in terms of structure, processes, procedures, routines, and rules (Goddard *et al.,* 2016). Notably, several respondents from the studied SMEs were aware of this. The reasons for this largely seemed to be that they thought it would be difficult for their firms to adopt SPMS due to weak characteristics such as simple organisational structures, a lack of documented procedures (Cordano, Marshall and Silverman, 2010), and informal rules (Cassells and Lewis, 2011). Hence, developing more formal routines and processes are crucial enablers. The following quotes illustrate this:

> "Small firms normally have quite simple processes and routines and a lack of formality; I think these need to be upgraded if we want to apply the measurement effectively." (C11, Owner-manager)

> "Surely, there must be a clear and detailed process so people know what to do, and it makes it easier to check." (C15, Owner-manager)

On this issue, one staff member seemed to imply that a more formal procedure can facilitate the adoption of SPMS, stating:

> "We (staff) need to understand what exactly sustainability performance measurement is, and how to use it to produce accurate results." (C06, Sale Manager)

From a different angle, another staff member expressed her concern as to whether workloads are reasonably assigned to each staff member to minimise potential resistance and conflict. This raises a managerial issue as SMEs typically have a less formal approach to sustainability initiatives (Darcy *et al.,* 2014; Jenkins, 2006; Russo and Tencati, 2009), which might render the adoption of SPMS less feasible. This means that a more formal approach is an important enabler. In particular, proper accountabilities and responsibilities for measures applied to individuals and teams should be put in place, with their roles and goals clearly communicated (Darcy *et al.,* 2014; Lee, Rocco and Shuck, 2020; Weideman, 2018). This point is entirely supported by this study, as exemplified by one staff member:

> "Implementing sustainability performance measurement means more jobs for staff. Thus, it is important to make sure that the workload is divided fairly and clearly to reduce resistance and conflict among staff." (C06, Human Resource Staff)

Overall, the findings exhibit a range of values comparable with the literature, highlighting several key weaknesses of SMEs' unique characteristics in terms of their organisational system. This suggests a need to develop more formal processes, procedures, and routines that can be straightforwardly communicated to all employees throughout the organisation (Tarí and Molina-Azorín, 2010). It is important to note that the developmental process or adoption of SPMS is likely to be a complicated task, which probably requires an SME to devote considerable effort with respect to finance, human resources, knowledge, expertise, and time (Singh, Olugu and Musa, 2016; Caldera, Desha and Dawes, 2019; Trianni *et al.,* 2019; Cardoni *et al.,* 2020).

As suggested by Saad, Kumar and Bradford (2017), developing more formal systems, procedures, rules, and routines can help SMEs mitigate their weaknesses and foster the motivation and interest needed to collaborate within the organisation. For this purpose, the

benefits will initially be specific to the creation of a roadmap to support the process of SPMS adoption (Darcy *et al.,* 2014). The level of detail, however, depends on each organisational context and resource, which differs from one company to another. This is an effective way to maintain employees' trust and motivation and promote self-performance management (Sardi *et al.,* 2020) while simultaneously helping to minimise potential resistance and conflict among employees. In doing so, Vietnamese SMEs can be well prepared for organisational change through proactive, formal planning approaches and strategic controls (Ates and Bititci, 2011; Shahedul Quader, Kamal and Hassan, 2016). These, among other factors, facilitate the successful adoption of SPMS.

Knowledge sharing and organisational culture

Several respondents in the studied SMEs recognised the unique characteristics of their companies as strengths in supporting SPMS adoption. The following quotes illustrate this.

> "Clearly, SMEs have some advantages compared to large corporations due to having a flat organisational structure with a small number of employees, so that information is shared very quickly." (C05, Deputy General Director)

> "I think that the small size of SMEs is one of the advantages when implementing sustainability performance measurement. Due to its small size, people tend to work closely and cooperate effectively. People can share and exchange ideas much more easily compared with a large corporation with a thousand employees." (C18, Owner-manager)

> "In a small firm, people and each department work very closely together in an informal climate. People know each other very well… everybody knows every event that happens in the organisation…. The exchange of information, ideas between each other, between each department is very quick and easy." (C06, Marketing Manager)

The above opinions (C05, C18, C06) demonstrate that SMEs are in a better position than large corporations in terms of allowing the quick and easy exchange of information and ideas across the organisation as a result of their small size, flat organisational structure (C05), and informal climate (C06). These are therefore strengths of SMEs that facilitate knowledge sharing which, in turn, facilitates SPMS adoption.

Nevertheless, a sentiment expressed in one interview by a senior manager concerned an uncomfortable experience relating to internal trading that took place in his company, as a result of which he seemed to be unwilling to adopt SPMS as it would require employee involvement. According to the literature, this effect could be explained by SME owner-managers being quite sensitive about business information and often unwilling to share this with employees (Beaver, 2007). Hence, this is a barrier to SPMS adoption. The following quote elucidates this view:

> "To be honest with you [indicating the researcher], doing business in Vietnam, there are aspects that we should not let employees know. It is not good to let them know everything. We experienced one case where a staff member, who managed our customer relationship, referred our customers to our competitors. This staff member cooperated with our competitors for his interests." (C13 - Deputy Director)

During the interview, some owner-managers (C02, C06, C11) specifically emphasised the immense importance of organisational culture in supporting SPMS adoption, as illustrated in the following quotes:

> "Basically, if we all think about the organisational goals, we will overcome our ego. It is the organisational culture, we can create an environment where team spirit is central, encouraging collaboration in the workplace. Surely, collaboration is the very essence of culture. People can support each other, which is useful for measuring sustainability performance and other activities as well." (C02, Owner-manager)

> "In our firm, I always build an open relationship with employees through honest communication, as believe this is the best way to gain their trust in the management board". (C11, Owner-manager)

The above opinion of the owner-manager (C02) demonstrates that a corporate culture centrally built on team spirit, which could encourage collaboration in the organisation, is a significant enabler facilitating not only SPMS adoption but also the attainment of other organisational activities and goals. Furthermore, the other owner-manager (C11) views an open relationship with employees through honest communication as an essential aspect of the corporate culture. Notwithstanding this, from the perspective of a top manager, the owner-manager of the Company C11 further expressed her feeling that:

> "As you [indicating the researcher] may know, the Vietnamese, they will not share what exactly they think or feel as they are scared that firms' owners/managers or colleagues might not be happy. It is a feeling that 'a bad compromise is better than a good lawsuit'." (C11, Owner-manager)

On the same issue, one employee clearly expressed her view that:

> "I think in Vietnamese firms, top managers might not feel comfortable when they hear negative but true comments and constructive ideas from their employees. This is the culture, I think you [indicating the researcher] know that. For me, I am reluctant to express my viewpoint." (C06, Customer Service Staff)

As noted by Ngah and Jusoff (2009), the strength of SMEs lies in motivation and tacit knowledge of unique skills. However, the above opinions (C11, C06) suggest that employees **are unwilling to share their thinking and ideas**, which is a crucial barrier. Moreover, it is worth emphasising that in Vietnam, leadership and management styles typically follow a top-down hierarchical approach (Wrana, Xuan and Nguyen, 2019) in which operational personnel must gain permission from top management (Busse *et al.,* 2016). Taken together, a direct

consequence of this practice is that it has a negative influence on knowledge sharing which will transform it into a barrier, thus indicating that knowledge sharing is a driver of SMS adoption.

Overall, the findings are in line with those in the literature indicating that a flat organisational structure and an informal climate are strengths of SMEs in terms of supporting the knowledge sharing process as they provide quicker lines of communication (Conway, 2014) and faster decision-making processes regarding the implementation of new initiatives (Yusof and Aspinwall, 2000). Further, the study highlights that such strengths allow SMEs to build better communication and strong personal relationships in the organisation, which is an antecedent of knowledge sharing.

The results exhibit a range of values comparable with the literature in that a positive corporate culture is dependent on relationships built on trust and mutual understanding, which results in a long-term collaboration (Chee Tahir and Darton, 2010; Kucharčíková, Mičiak and Hitka, 2018; Kucharska and Kowalczyk, 2016). In this light, this study reinforces the suggestion of Wang and Noe (2009) that a positive culture alone may be insufficient to facilitate the open communication needed to promote an organisational culture that supports knowledge sharing. Moreover, the findings are echoed more recently in work by Ketprapakorn and Kantabutra (2019) who found that the development of a culture focusing on collaboration among employees is crucial for SMEs to engage with sustainability. This study demonstrates that a team spirit incorporating organisational goals inspired by the motivational behaviours of leaders is an essential enabler. Adopting SPMS involves an organisational change which requires asking managers and employees to adopt new behaviours, habits, attitudes, and values (Goddard *et al.,* 2016) relating to knowledge sharing (Wang and Noe, 2009). It also requires managers to encourage employees to express ideas, try new methods (Ghasemzadeh *et al.,* 2019), and share their knowledge and information with others (Bari, Ghaffar and Ahmad,

2020). Management support for knowledge sharing can, for instance, be demonstrated by emphasising the importance of sharing "lessons learned" instead of "mistakes made" (Teo, 2005). Therefore, it is the top manager who plays a key role in developing a trust culture among employees to avoid the exhibition of knowledge-hiding behaviours and increase knowledge sharing which, in turn, facilitates SPMS adoption.

Establishment of incentives scheme

The literature review indicated that the knowledge sharing process and the success of SPMS adoption are affected by organisational incentives and reward systems that drive employees' behaviour (Truong and Barraket, 2018; Zhu *et al.,* 2008; Zorpas, 2010). This suggestion is fully corroborated by this study, as exemplified by one owner-manager:

> "I have no doubt that rewards and recognitions are necessary to motivate and encourage people to achieve that performance goal." (C15, Owner-manager)

Similarly, another owner-manager implied that rewards and tolerance rather than blame are more suitable for the initial stage of SPMS adoption, as he notably commented:

> "For the beginning, I think 'carrot' is better than 'stick'." (C08, Owner-manager)

The above finding (C15, C08) is in line with literature emphasising that the tolerance of ambiguity, uncertainty, and errors facilitates organisational learning (Aboelmaged and Hashem, 2019a; Curado, Muñoz-Pascual and Galende, 2018) which, in turn, facilitates SPMS adoption.

On the same topic, most staff confessed that rewards and recognition would motivate them to support SPMS adoption whereas few owner-managers mentioned these issues. It is pertinent to note that offering rewards incurs costs, increasing the barrier of the cost of SMEs' initial

investment in SPMS adoption (Meager *et al.,* 2020). Nevertheless, when the researcher asked participants why SPMS adoption is highly regarded, one staff member responded that:

> "Over the long run, the company will save costs, generate more revenue and profit. So our salary is higher. This is better for everyone, don't you [the researcher] think?" (C06 - Human Resource Staff)

On the same issue, another staff commented on the notion of rewards:

> "Once the target of sustainability measurement is met, there should be rewards and recognition in both tangible and intangible ways, so we feel more motivated." (C06 Accountant 3)

Moreover, one owner-manager expressed that he is in favour of setting rewards based on performance. He seemingly utilised the flexibility and adaptability of SMEs, which are unique strengths (Burke and Gaughran, 2007b), in proposing an incentives scheme that can be applicable for SPMS adoption, as illustrated in the following quote:

> "We have this policy for achieving a sales target. I apply this to the measurement of sustainability performance." (C07, Owner-manager)

These findings are in accordance with Tuan (2016), who suggested that incentives or rewards should be offered in parallel to employee performance as this will encourage staff to transform their efforts into high performance. Several forms of rewards can be applied, including recognition and promotion programmes, profit-sharing, and an increase in pay (Azapagic, 2003; Li and Sandino, 2018); however, this depends on the specific conditions and circumstances of each company. In the context of Vietnamese SMEs, limited amounts of compensation and personal development opportunities are being offered to employees, resulting in a high turnover rate (Ehambaranathan, Samie and Murugasu, 2015; Zhu, Kara and Zhu, 2019). Therefore, establishing an appropriate incentives scheme is a significant enabler

that is associated with the need for Vietnamese SMEs to review their policies to facilitate the adoption of SPMS.

9.4.3 Theme 3: External factors that influence SPMS adoption

The data analysis revealed that external factors refer to external barriers from external organisations that demotivate SMEs from adopting SPMS. In this section, the sub-themes of 'social-economic environment', 'external barrier', and 'institutional voids' are identified as key barriers hindering SPMS adoption.

Social-economic environment

Theme 3: External factors that influence SPMS adoption **Sub-theme: Social-economic environment**
o Entrepreneurial sustainability orientation o Cost-conscious domestic customers

Entrepreneurial sustainability orientation

During the interviews, many top managers of the studied SMEs implied that sustainability principles are driven by their attitudes, values, and ethical and religious beliefs (Hasan, 2016; Lee, Herold and Yu, 2016; Mukherjee, 2019; Paterson, Specht and Duchon, 2013; Uygur, 2009). Moreover, evidence of trade-offs emerged, showing that studied SMEs are willing to sacrifice short-term economic benefits to pursue long-term sustainability. The following quotes illustrate this aspect:

> "We intend to buy another health insurance option, which far exceeds the required one, from the government…This would motivate the employees, as the insurance could

cover their family members as well, then they would prefer to stay with the company for longer." (C8, Owner-manager)

"When workers have a small child, we make the exception that they may leave 15 to 30 minutes earlier to pick their children up after school.... This might be a loss for the company, but I see it as a bonus for the employee; instead of giving them some money, the company adjusts their schedule to strengthen their employees' attachment to the company." (C17, Owner-manager)

"I am Buddhist. I believe in the Buddhist concept of karma. Our firm often donates to many orphan children, to pagoda or charities, but we do not want to show off; we just silently do it, that is our way. As you may know, in Vietnam, if we do good things and show it off, you may suffer from the social prejudice that 'empty vessels make the most noise.' Sometimes negative words hurt so much. So, we just need our employees, key customers to know that what we do for the community is enough." (C02, Owner-manager)

As indicated in the literature, social responsibilities are a duty, obligation, and the correct behaviour for firms (Marrewijk and Werre, 2002). SMEs often operate locally (Schlierer *et al.,* 2012) and embed themselves in local communities (Choi, Kim and Yang, 2018). Thus, community involvement and development can increase their legitimacy and elicit more approval from local stakeholders (Perrini and Tencati, 2006). The following quote expresses a viewpoint shared by most interviewees:

"In doing business, we always think about our duty to develop the community. For example, we often buy raw materials in the Northern provinces, so we support local infrastructure projects to help local people live better. This provides a mutual benefit between the local community and our firm." (C04, Owner-manager)

The findings indicate that Vietnamese SMEs conduct a cost-benefit analysis (Larrán Jorge *et al.,* 2015) to make complicated entrepreneurial and sustainability decision trade-offs. Also, Vietnamese SMEs tend to follow DiVito and Bohnsack's (2017) idea of pursuing a dual

orientation; specifically, entrepreneurial growth on one side and sustainable development on the other. In this respect, the findings shed light on how SMEs, often suffering from limited resources, have fashioned their entrepreneurial sustainability orientation, contributing to the underexplored area of inquiry raised by Jahanshahi and Brem (2017).

The qualitative findings reveal a positive managerial attitude towards sustainability activities linked to business performance and success, which is corroborated by the literature (Cardoni *et al.,* 2018; De La Torre and Agabriel, 2017; Moyeen and West, 2014). As stated by Kantabutra (2014), long-term value for multiple stakeholders also means ensuring long-term sustainable success. Thus, meeting key stakeholder needs is a driving force in facilitating Vietnamese SMEs to engage in socially responsible activities. The following quotes further illustrate this proposition.

> "So far, the local community have appreciated and recognised what we have done and how we have contributed to help the poor people." (C07, Owner-manager)

> "I often ask my staff to generate ideas as to whom and where we should do charitable donations. What I want is to engage my staff in the charitable work of the company." (C11, Owner-manager)

> "As an employee, I must say that I am so proud to work for a company responsible for the community and the society. I feel safe working for such a firm." **(**C06, IT staff)

> "I strongly admire firms that are doing business and sharing their benefits with the community and society. This shows that they are ethical enterprises." (Shareholder 1)

> "Firms are well known for supporting community well-being, always receiving greater respect not only from the business community but also from the wider society. I can assure you of that." (Business Customer 3)

Overall, the qualitative findings demonstrate the sustainability of the social-economic environments in which Vietnamese SMEs operate. As DiMaggio and Powell (1983) claim, individuals are strongly influenced by social and cultural forces and their surrounding environments. These findings can be explained by the national culture of Vietnam which inherits a deep-rooted set of religious beliefs from Buddhism (Le and Kieu, 2019) that encourages kindness. In this context, domestic companies often provide charity for the poor, which is donated to local religious events (Nguyen, Kelly and Bensemann, 2017).

The above qualitative findings support the work of Jenkins (2006) and Azmat (2010) in the sense that in developing countries, SMEs tend to pursue a silent version of sustainability and are willing to forgo some of their profits in order to serve a greater goal. The findings also reinforce those of Tien *et al.* (2020) who identified a positive association between entrepreneurial orientation towards sustainability and business performance/success among Vietnamese SMEs. However, this does not precisely specify whether their entrepreneurial sustainability orientation would result in the adoption of SPMS. Nevertheless, prior studies indicate that sustainable entrepreneurial orientation has a positive impact on a company's financial and sustainability performance (De *et al.,* 2020; Jahanshahi and Brem, 2017b), which is likely to lead to the implementation of sustainability initiatives (Aboelmaged and Hashem, 2019b). In this light, this study further highlights the fact that entrepreneurial sustainability orientation is a reliable predictor of SPMS adoption in SME settings.

Cost-conscious domestic customers

In contrast to international buyers, as discussed previously, most participants during the interviews expressed the view that domestic customers are less interested in the sustainability value of products or services and more in how to get the lowest price. The following quote illustrates this aspect:

> "Domestic customers, they are always concerned with lowering the price of products I can offer them. They differ from foreign customers who strongly demand sustainable characteristics from our products. So, I serve both. To be honest with you [indicating the researcher], I have two factories, one for products with cheaper prices, another for products following sustainability standards, relying on ISO." (C17, Owner-manager)

The above finding (C17) sheds light on how SMEs adopt organisational resilience to integrate the concept of TBL and focus on addressing the needs of stakeholders (Ahi and Searcy, 2013). The opinion of one owner-manager (Company C17) demonstrates that if domestic customers still search for lower product prices rather than encourage sustainability value, SMEs are likely to respond with the same strategy. A direct consequence of this practice is that SMEs will be less likely to engage with sustainability which, in turn, demotivates SPMS adoption.

The close agreement of the findings with the literature suggests that in developing countries, less customer pressure on sustainability issues results in less sustainability engagement from SMEs (Hasan, 2016; Jamali, Lund-Thomsen and Khara, 2017). These findings also align with previous research indicating that SMEs are also influenced by normative isomorphism drivers involving pressure from powerful bodies, including other organisational entities the SMEs are dependent upon (DiMaggio and Powell, 1983; Caldera, Desha and Dawes, 2019).

This qualitative study has identified a critical mechanism for encouraging normative isomorphism to respond to international business customers' demand for sustainability value. This is consistent with the findings of Wahga, Blundel and Schaefer (2017), who investigated Pakistan SMEs in the leather industry and found that international business customers are the ones most likely drive SMEs to think about sustainability value. As such, it is these key stakeholders, not cost-conscious domestic customers, who are motivating Vietnamese SMEs to adopt SPMS.

External barriers

This section focuses on the 'external barriers', including 'provision of limited sustainability information, 'absence of clear guidelines from the authorities', and 'lack of economic incentives' that emerged during the data analysis as critical barriers demotivating SPMS adoption.

Theme 3: External factors that influence SPMS adoption **Sub-theme: External barriers**
o Provision of limited sustainability information o Absence of clear guidelines from the authorities o Lack of economic incentives

Most participant reported that **the provision of limited sustainability information** was one of the most considerable challenges facing SMEs wishing to pursue sustainability initiatives. Importantly, the firms interviewed claimed that they did not receive sufficient information regarding sustainability initiatives through formal channels such as newsletters or emails. For example, one owner-manager mentioned that:

> "I am not sure about other firms, but my firm has not received any notices or invitations for workshops or training about sustainability development. I am really looking forward to joining such courses." (C19, Owner-manager)

The above opinion (C19) demonstrates that the provision of workshops and training regarding sustainability development are critical drivers motivating SMEs to engage with sustainability.

More importantly, the participant believed that the **absence of clear guidelines from the authorities** is an inhibitor as SMEs are unable to properly gauge their progress in implementing sustainability initiatives. One participant felt that the notion of sustainability currently

promoted by the Vietnamese government appears to be no more than a slogan, as the following quote indicates.

> "Honestly, I have recently learned about the concept of sustainability because it is ubiquitous in the media. But no clear guide or detailed information has been delivered to show us how to properly implement sustainability. It is still a slogan!" (C14, Owner-manager)

Most literature indicates that a **lack of economic incentives** also impede SME sustainability efforts (Dissanayake and Divakara, 2019; Hasan, 2016; Malesios *et al.,* 2020b; Pham, Yong and Truong, 2019). This finding is supported by this qualitative study, as illustrated in the following quote:

> "It is better to have a kind of sustainability reward to encourage firms doing well. This would mean upgrading a firm's level with a sustainability reward, recognition, or economic incentives. It is fair, isn't it?" (C08, Owner-manager)

These findings are in line with those in the literature, where a lack of support from government and insufficient economic incentives are the main barriers preventing firms from engaging with sustainability (Degong *et al.,* 2018; Do, 2020; Pham, Yong and Truong, 2019; Zhang, Bi and Liu, 2009). By contrast, sustainability reward, recognition, or economic incentives are critical drivers (C08).

Institutional Voids

This section reports the 'institutional voids', including 'complexity of existing regulations', 'lack of a sector-specific environmental standard', 'local authorities have applied legal documents and regulations in inconsistent ways', 'intricate tax systems', 'uncertainty of laws

and regulations', and 'weak law enforcement', that emerged during the data analysis as critical barriers demotivating SPMS adoption.

Theme 3: External factors that influence SPMS adoption **Sub-theme: Institutional voids**
o The complexity of existing regulations o Lack of a sector-specific environmental standard o Local authorities have applied legal documents and regulations in inconsistent ways o The intricate tax systems o The uncertainty of laws and regulations Weak law enforcement

Most respondents expressed their disappointment at **the complexity of existing regulations**. They admitted there had been national social and environmental laws and policies, but these were pretty general and lack standardisation, which has impeded corporate sustainability in Vietnam. It can thus be argued that such complexities make it difficult for SMEs to know how to comply with sustainability initiatives, or with what they should be complying, as demonstrated in the following quote by one owner-manager:

> "In Vietnam, we still do not see a standard requirement regarding environmental issues. For example, there are no clear regulations and detailed guidelines for us to follow." (C08, Owner-manager)

On the same issue, owners-managers of manufacturing firms frequently highlighted the **lack of a sector-specific environmental standard**. There is thus a risk that firms might lose confidence in expanding profitable business opportunities. As a typical example, one deputy director of a construction firms commented on a lack of precise environmental requirements

and guidelines for paints. Under these circumstances, they are operating under the risk of being fined or losing their license if they do not adopt environmental regulations. Yet the environmental regulations remain vague. The following quote reflects this view:

> "In our construction industry, there is no clear environmental requirements in terms of the type of paints that can be used. If we use a particular paint for a construction, and later the authority claimed that the type of paints we used have had negative impacts on the environment, who will be blamed? It is a risk of being fined or losing the license! We don't want to take this risk." (C05, Deputy General Director)

During the interviews, several owner-managers expressed their unhappiness at the fact that **local authorities have applied legal documents and regulations in inconsistent ways**, with many weak and vague points. Such a phenomenon was described by most owner-managers as extremely typical in the business environment, which has advocated for firms to expand their business market nationwide. It can be argued that such unfavourable external conditions create obstacles impeding firms' growth (Ha, Nam and Thanh, 2021; Quan, 2015). For example, one owner-manager said that:

> "Taking the decree on the good label as a typical example. For the same product, we met the good label requirements in Ho Chi Minh City market, but when we sold it to other cities, such as Hanoi, we were fined for inappropriate details about the good label, which is quite difficult to understand. It is so funny. Thus, we do not dare to expand our market share, as it is quite risky. In Vietnam, there is a lack of clarity and transparency, I must say." (C06, Owner-manager)

Furthermore, **the intricate tax systems** were also categorised under this theme as a key hindrance by owner-managers. Slow procedures and a lack of clarity and consistency among tax officials in how to accurately implement current tax legislation led to SMEs developing

negative perceptions of government administrative practices. As one SME owner-manager explained:

> "The legal documents often lack clarity and guidance which makes it very difficult for us to apply them in practice. When we have an inquiry, they (the officials) seemingly do not reply by written documents but by oral responses. Even if they reply by written documents, it often takes at least two or three months to respond. The official who is directly in charge during the tax finalisation period explained our prior inquiry quite differently, compared with the explanation they gave in a written response. Clearly these officials do not understand legislative documents in consistent ways." (C11, Owner-manager)

Most respondents identified **the uncertainty of laws and regulations** as a primary barrier. A relatively quick change of regulatory requirements was reported as being very difficult to predict. Some owner-managers also reported that they were unaware of all the local environmental and other social responsibility related laws. Moreover, they were not effectively informed and updated when any change in regulations took place. This reveals that both the government and the media are ineffective in disseminating the relevant information to local SMEs. As suggested by the following quotes, this issue may create a regulative risk for firms.

> "In Vietnam, the laws are violated and change very quickly. You [indicating the researcher] know that it is very difficult for SMEs like us to comply with it." (C11, Owner-manager)

> "You [indicating the researcher] know that for some published legislative documents, we do not know about their existence or have no information about it until we get a fine! We need a better communication channel to ensure that such any new change in laws is effectively disseminated to firms, so we are able to comply with it." (C14, Owner-manager)

Weak law enforcement was highlighted by almost all respondents as a crucial barrier for firms wishing to engage with sustainability activities. This issue is serious because when enforcement is weak, firm tends to ignore regulations to save money and are unwilling to implement sustainability initiatives in their business operations. Such a phenomenon is believed to be unfair to SMEs that genuinely invest to augment sustainability and are discouraged from doing so. Moreover, during the interviews, corruption was reported as the biggest barrier to environmental protection in Vietnam. Most owners-managers had experienced dealing with highly corrupt regulatory authorities and government officials. Even if firms are doing well with respect to environmental management, the owner-managers viewed their activities as part of the corruption cycle. As Nguyen *et al.* (2017) reported, over 30% of registered firms in Vietnam have had to make unofficial payments and approximately 40% expressed the view that their businesses would be poorly treated without bribery. The above views are illustrated by the following quotes.

> "Regarding the regulatory environment, there is still weak enforcement which some SMEs rely on to earn a profit. Others are paying bribes instead of investing in environmental management. Why is that? This is because, in Vietnam, paying bribes is cheaper and 'more convenient' than genuinely doing anything about environmental management. That is all." (C04, Owner-manager)

> "Our business activities generate very little wastewater to the environment. However, for every inspection we must pay bribes. If not, we might be put 'in trouble' somehow, you just do not know. Our factory is located in the industrial zone; I do know that some firms carrying out leather tanning generate an unacceptable amount of liquid waste, but they are still 'alive'. In Vietnam, there is no fairness for firms that are complying with legislation and doing well in terms of environmental management." (C09, General Director)

The above findings agree with previous literature on the Vietnamese context, which indicates that poor and weak institutions and highly inefficient and bureaucratic systems are common (Ha, Nam and Thanh, 2021; Quan, 2015). The problems facing SMEs in emerging economies are similar to those facing SMEs in Vietnam, particularly the laws governing private enterprise which, in terms of taxation systems, are overly complex and difficult to understand (Benzin *et al.,* 2005; Nguyen *et al.,* 2015). In addition, the laws and regulations lack clarity, and vague guidelines often result in confusion, making it difficult for firms to apply and comply with them (Nguyen and Pham, 2020). These observations also agree with the results reported by Silvestre (2015), who analysed institutional voids and sustainability trajectories in Brazil and concluded that the complexities of bureaucracy, corruption, and intricate tax systems are critical barriers hindering implementing sustainability initiatives for businesses (Silvestre, 2015). The findings revealed a range of opinions comparable with the findings of Wahga, Blundel and Schaefer (2017), who found that a lack of coercive isomorphic pressure (DiMaggio and Powell, 1983) prevented Pakistan SMEs in the leather industry from complying with regulations as local and national regulatory authorities could not adequately generate them due to their internal capacity constraints. Like Vietnam, such a situation may remain unchanged without upgraded regulations. Essentially, it depends on how quickly the Vietnamese government can improve regulations and enforcement (Pham, Yong and Truong, 2019).

9.5 Further discussion of managerial capacities in SPMS adoption

The importance of managerial capabilities in organisations was emphasised in the qualitative data analysis chapter. Managerial capabilities play an essential role in SPMS adoption, as observed by a large body of literature (Darcy *et al.,* 2014; Wiesner *et al.,* 2017; Williams and Schaefer, 2013). For instance, a strategic mindset in SMEs determines what activities serve the firm's needs and how to undertake them. The vision, experience, and managerial perceptions of the top managers of SMEs (Aragón-Correa *et al.,* 2008; Caldera, Desha and Dawes, 2018)

determine the scope and level of SPMS adoption. Therefore, top managers occupy a predominant position in adopting SPMS. In this sense, the managers 'mindset', which was mentioned by interviewees, is closely linked to the use of the term by Nguyen (2019), who refers to the ‘mindset’ of all management levels and employees in implementing the sustainable performance of SMEs in Vietnam.

The qualitative results agree with most of the existing studies that human resource support is one of the factors determining the successful implementation of sustainability initiatives (Siegel *et al.,* 2019), which can positively influence sustainability performance outcomes (Raziq and Wiesner, 2016; Nguyen and Tran, 2020). Therefore, the role of top managers is to convey a shared vision to all the firm’s employees (Dzhengiz and Niesten, 2020; Saratun, 2016; Xin *et al.,* 2020). However, this task does not simply mean that employees know their managers’ objectives (Aragón-Correa *et al.,* 2008). Rather, it needs to entail a shared feeling that the firm’s objectives are crucial and appropriate and that the rest of the employees may contribute to defining them (Aragón-Correa *et al.,* 2008).

It is important to reiterate that SPMS adoption is likely to be a complex and lengthy process, which may engender several communication and coordination problems (Taylor and Taylor, 2014). In such circumstances, limited leadership managerial skills are likely to create challenges (Shi *et al.,* 2008; Tien, Anh and Ngoc, 2020). Thus, enhancing these skills is critical in enabling Vietnamese SMEs to face increasingly complex processes during SPMS adoption. As Khurana, Haleem and Mannan (2019) claim, leadership and managerial skills are crucial determinants of the successful integration of sustainability initiatives within SMEs.

The evidence from the qualitative data shows that top managers who take a proactive stance towards the adoption of sustainability initiatives will create a high level of potential absorptive

capacity at the level of both individuals and organisations. Moreover, the qualitative findings identify a range of values comparable with theoretical developments highlighting a stronger link between absorptive capacity and organisational learning (Dzhengiz and Niesten, 2020; Goddard *et al.,* 2016; Saad, Kumar and Bradford, 2017; Zahra and George, 2002). Nevertheless, the close agreement of the qualitative findings with the literature suggest that organisational learning is a hard-won goal, which depends heavily on formal training, effective communication (Jamali, 2006b), a learning climate (Spicer, 2004), and a positive corporate culture (Bari, Ghaffar and Ahmad, 2020; Isensee *et al.,* 2020; Laforet, 2016).

Eikelenboom *et al.* (2019) suggest that transformational leadership is suitable for SMEs' owner-managers because it has a significant impact on organisational learning and the effective implementation of sustainability performance. More specifically, transformational leadership is appropriate for engaging employees in the workplace (Milhem, Muda and Ahmed, 2019; Taylor and Taylor, 2014) as it is beneficial in enabling a leader to move their team beyond immediate self-interest by appealing to their values, emotions, attitudes, and beliefs (Bass, 1999). It is argued that employees with a growth mindset are open to transformational leadership (Caniëls, Semeijn and Renders, 2018), which can influence their self-concordance (Bono and Judge, 2003). Further, transformational leadership is also geared towards the personal development of employees (Caniëls, Semeijn and Renders, 2018).

The discussion here is important and useful for SMEs in Vietnam, where leadership and management styles typically follow a top-down hierarchical approach (Wrana, Xuan and Nguyen, 2019) in which operational personnel must gain permission from top management (Busse *et al.,* 2016). This can demotivate organisational learning and impede SPMS efforts. Therefore, top managers with an appropriate leadership style should facilitate the adoption of SPMS.

It should be noted that extrinsic measurement and reward systems link employee behaviour to sustainability outcomes, which are likely to reinforce employees' intrinsic commitment to sustainability (Gold, Hahn and Seuring, 2013). It is also advantageous for employees' full potential to be realised at individual, team-based, and organisational levels (Tarí and Molina-Azorín, 2010). This can also create tacit knowledge, often deeply rooted in experience, skills, and know-how (Bierly, Damanpour and Santoro, 2009), which can be transferred through relational ties and knowledge sharing (Ngah and Jusoff, 2009). Hence, these are crucial enablers facilitating SPMS adoption.

9.6 Conclusion

The semi-structured interviews were analysed with respect to three main themes: motivations driving the adoption of SPMS; internal factors that influence the adoption of SPMS; and external factors that influence the adoption of SPMS.

Based on the qualitative findings, the motivations to adopt SPMS were mapped along with the benefits SMEs can bring. The studied SMEs view the adoption of SPMS as an effective sustainability management tool that provides support for better decision-making. This will enable SMEs to achieve the goal of cost reduction while responding to the varied requirements, expectations, and preferences of stakeholders who might have conflicting interests. Regarding the scope of SPMS adoption, the findings provide answers to fundamental questions relating to stakeholder theory such as "who (or what) are the stakeholders of the firm?", "to whom (or what) do managers pay attention?" (Mitchell, Wood and Agle, 1997, p. 853), and "who benefits?".

The findings also indicate that SMEs are influenced by normative isomorphism drivers involving pressure from international business customers on whom the SMEs are dependent for business and their survival. The results also suggest that one important mechanism for

encouraging mimetic isomorphism learning about the practices of successful organisations who have demonstrated leadership in sustainability initiatives. Conversely, a lack of coercive isomorphic pressure appears to demotivate SMEs from adopting SPMS.

Based on the interview data, this study found evidence of absorptive capacity, particularly knowledge acquisition and assimilation from both internal and external contexts, which the studied SMEs profoundly understood as prior knowledge and experience supporting SPMS adoption. The findings also indicate that the key strengths of SMEs, which were recognised and mapped along with the positive corporate culture, in which knowledge sharing process are encouraged to support the effective adoption of SPMS. At the same time, the findings also highlight the importance of more formal organisational process, routines, and rules; the provision of essential education and training; effective communication; improved managerial leadership; and top management support as crucial enablers facilitating SPMS adoption in the SME setting.

In summary, the findings from this study are valuable and useful in that they constitute the first informative investigation of the inhibitors and enablers, and external factors, influencing SMEs seeking to adopt SPMS. They also highlight the key inhibitors and crucial enablers SMEs should pay special attention to. The findings provide policymakers with a list of external barriers confronting SMEs to which they may refer in the future development of policy aimed at promoting SPMS adoption in the SME setting. Hence, the findings are in line with the concept of contingency theory which argues that optimal courses of action are contingent upon the internal and external circumstances surrounding SMEs.

Chapter 9 has discussed the relationships between, and the influences of, different forms of motivations and internal and external factors on the adoption of SPMS. The next and final

chapter of this thesis presents integrative conclusions and recommendations for future research on SPMS adoption in the SME setting.

CHAPTER 10 CONCLUSION AND RECOMMENDATIONS

10.1 Introduction

This chapter presents a summary of findings, the contribution to knowledge and the conclusions and recommendations of the study.

The chapter will commence with a cross analysis that checks and compares the quantitative and qualitative results. Following this there will be a review of the research process and a summary of the principal objectives and conclusions of each chapter. The chapter then provides recommendations for improvements in terms of future research, practice, and policy. Finally, the SPMS adoption model in the SME setting is proposed.

10.2 Overall discussion of the integrative result of quantitative and qualitative phases

The literature has informed the current mixed methods study about TBL sustainability that comprises a wide range of economic, social, and environmental issues; and each element has been increasingly complicated and widened. In the literature review, the current study concentrated on key sustainability aspects of SMEs to narrow down both the measurement scope and the options of identifying sustainability metrics. Along with that, a mixed approach was employed. It compromised an initial top-down approach, that enabled the researcher to develop sustainability metrics from the literature, which followed by a bottom-up approach to verify these metrics from the perspective of SMEs in the context of Vietnam.

These results are reported in detail in the integrated results section below.

10.2.1 Sustainability Metrics Identified for SMEs in Vietnam

From among twenty-six sustainability metrics identified within the literature, the initial quantitative analysis verified twelve, using a sample of 579 owner-managers and employees in

various Vietnamese SMEs. The set of sustainability metrics identified by the current study for Vietnamese SMEs is listed in Table 10.1 below:

Table 10.1 Sustainability Metrics Identified for SMEs in Vietnam

Performance	Metrics
Economic	1. Return on Investment (ROI)
	2. Operating profit
	3. Net profit
	4. Operational costs
Social	1. Employee job satisfaction
	2. Customer satisfaction
	3. Customer complaints
Environment	1. Water consumption
	2. Waste disposal
	3. Recycling of waste
	4. Hazardous waste
	5. Total waste

It is of vital importance, when using the suggested metrics, to identify the relevant measures within each of the metric sets; to give example, ‘employee job satisfaction’, various indicators such as ‘average salary’, ‘bonuses’, and ‘training and development’. The decision to select appropriate indicators for each metric depends on each company's specific objectives and conditions, which will differ from one company to another. In the interviews, Vietnamese SMEs have proved that they can be flexible to change to a new sustainability metric or indicator whenever necessary.

It should be noted that among the twenty-six metrics identified from the literature, fourteen metrics are not confirmed in the quantitative analysis; this does not mean that they are irrelevant, or that they are not critical since the average mean value of these metrics is above the medium value of 3. This means that a higher than the average number of respondents agreed with its relevance. As previously stated, the removal of these metrics is to obtain an acceptable and fitting measurement model of the complex higher-order structure of the current research hypotheses, constituting a typical SEM application. From this perspective, the quantitative results do not offer us many clues about how or why this variation of SPMS adoption happened. In line with the theoretical discussion, the empirical finding of the current mixed method further sheds light on key factors have influenced on SPMS adoption in the SME setting, discussed in the following sections.

10.2.2 The integrated results of motivation that drive SPMS adoption

The current study has greatly emphasised that motivation (perceived benefits) is one of the best predictors of future SPMS adoption. The integrated quantitative and qualitative results shed light on what motivation drives SMEs toward SPMS adoption, listed in Table 10.2.

Table 10.2 The integrated results of motivation that drive SPMS adoption

Quantitative results	Qualitative results
Cost reductions	Sustainable competitive advantage
Increased resource efficiencies	Support for better decision-making
Improved image among employees	Resources efficiencies
Improved image among customers	Tracking progress
	Continuous development
	Cost reductions
	Large international customer pressure
	Potential foreign customer attraction
	Strengthen current partnership
	Support contract bidding
	Enter a new foreign market
	Corporate strategy formulation

This current mixed methods study has indicated that the relevant stakeholders' opinions about SPMS adoption in the Vietnamese SME setting depends upon demand and interest in terms of the company sustainability. The integrated results have suggested that international business customers and employees are relevant stakeholders whose demands, needs, expectations, interests and supports have influenced SPMS adoption within the SME setting. Comparing the two results, the current study concludes that both yield similar results that one key sub stakeholder group that is seen to impose coercive influence on SPMS adoption is the customer. Despite the quantitative investigation failed to confirm that domestic customers have put relatively less pressure on the sustainability activities of SMEs (the variable EXB4 was

removed from SEM model), evidence from qualitative investigation proved it is a significant hinderance demotivating SMEs adopt SPMS.

In line with our theoretical discussion, the current study has expected to explore personal value of owners and senior managers that are relevant to their mindset of SPMS adoption, While the extent of quantitative data obtained by the current may be limited, the qualitative evidence indeed provided a greater understanding about owner's business philosophy motivated by Kamma in Buddhism; perceptions of duty, obligations and correct behaviour (Marrewijk and Werre, 2002), ethical beliefs (Alniacik, Moumen and Alniacik, 2020; Shrestha, 2017). As a consequence, the empirical findings suggest that for most SMEs, the adoption of SPMS is influenced and driven by personal value of owners and senior managers.

As shown in Table 10.2, Vietnamese SMEs have realised both the importance and the benefit of SPMS adoption. The integrated results shed more light on how sustainability metrics can be better selected in order to address all three pillars of TBL in an integrated manner with regard to attaining sustainable development (Khurana, Haleem and Mannan, 2019; Slaper and Hall, 2011). The merged data analysis of the current study suggests that to tackle any one of the dimensions in isolation might result in unintended consequences within another dimension (Rachuri, Sriram and Sarkar, 2009). In the current mixed method study, the qualitative findings have further explained how sustainability metrics selected in the initial quantitative result have been obtained (*see* Table 10.1). Therefore, the integrated empirical finding has displayed a trend that could be encouraged is an integration of all three performances of the TBL to define and identify most appropriate sustainability metrics.

10.2.3 The integrated results of inhibitors that hinder SPMS adoption

The integrative findings have provided us with a comprehensive understanding of several inhibitors that are faced by SMEs in Vietnam with regards to adopting SPMS. It is clear that Vietnamese SMEs have recognised internal challenges that need to be overcome to adopt SPMS effectively; for example, it has been recognised that top managers might be less keen on SPMS adoption if they believe their company cannot implement it and in some cases, managerial perception of SPMS adoption seems to be relatively subjective (Aragón-Correa *et al.,* 2008); this might result from the assumption that sustainability is not suitable for businesses in Vietnam.

A comparison of the two results reveals that qualitative findings serve to further our understanding that the SPMS adoption is constructed by social interaction within organisations, encompassing several implicit and explicit complex and complicated issues. During the interviews, company matters relating to the employees, such as resistance, less engagement, their mind-set, attitude and behaviour have emerged as significant challenges that are very demanding to manage effectively. As Branicki, Sullivan-Taylor and Livschitz (2018) claim, entrepreneurial resilience traverses individual resilience and organisational resilience without falling neatly into either category.

The integrative findings of inhibitors hindering Vietnamese SMEs toward SPMS adoption are summarised in Table 10.3. The findings from the current study therefore can be valuable and useful in sense of being the first informative investigation of inhibitors that hindering SPMS adoption; as such, they can serve as good references for Vietnamese SMEs to customise suitable solutions to address the identified inhibitors.

Table 10.3 The integrated results of inhibitors that hinder SPMS adoption

Quantitative results	Qualitative results
Slow recovery of investment	Traditional mindset of business operation
Perceived risk and uncertainties	Profit-driven above other goals
Additional cost involved: implementing, monitoring, labour cost)	Short-term orientation sustainability
Limited sustainability knowledge and expertise for an SPMS	Unwilling to share business information
Lack of sustainability measurement tool/framework	Limited resources (finance, human, time)
	Initial investment; hidden cost; Fear accrual of debt
	Limited essential managerial and leadership skills
	Limited educational background (owner-manager and blue-worker)
	Less employee engagement
	Resistance to change (matured workers, experienced employees, middle managers)
	Lack of knowledge, skills, know-how of SPMS adoption
	Absence of perceived benefits (reluctance)
	Lack of standard sustainability metrics
	Varied level of awareness across the organisational structure
	Informal process, policies,
	Lack of top management commitment, supports, involvement
	A challenge is presented in order that qualified employees are retained (losing tacit knowledge)
	Employees unwilling to share their thinking and ideas

10.2.4 The integrated results of enablers that facilitate SPMS adoption

The current study has focused on the vital role that top management plays regarding the success of SPMS adoption due to the fact that within most SMEs, the owner controls and manages the business; ownership and control are therefore the responsibility of the same person (Wickert, 2014; Raziq and Wiesner, 2016). Their control over the allocation of resources allows the business to prosper and adopt SPMS. The merged analysis has suggested that if the owner-manager commits, displays proactive behaviour, and supports and shares their positive view of SPMS adoption, then the employee will follow their example. Indeed, the conclusion that is reached from the current study suggests that the behaviour of the top managers' regarding SPMS adoption does shape the perceptions of the employee.

The integrative findings of enablers facilitating Vietnamese SMEs toward SPMS adoption are summarised in Table 10.4.

Table 10.4 The integrated results of enablers that facilitate SPMS adoption

Quantitative results	Qualitative results
Top management team communicates a clear and positive vision of SPMS	Growth mindset cultivation
Top management commitment, involvement, and full support	Top management vision, support, involvement, instruction, encouragement, and supervision
Top management team can provide adequate resources to support SPMS adoption	Essential managerial skills Appropriate leadership styles
Provides formal education and training so employees may obtain novel knowledge	Effective internal and external sustainability knowledge acquisition and assimilation
Having reward and recognition systems which encourage employees to obtain working skills and experience	Provision of education and training related to SPMS adoption
Has experience with ISO and/or has obtained sustainability certificates/programmes which have some advantages for knowledge acquisition and assimilation to support SPMS	Employee empowerment Employee involvement and support Reward and incentive establishment Tolerance of ambiguity, uncertainty, and errors
Employees are encouraged to present new ideas and contribute opinions	Flexibility and adaptability Informal climate
Employees feel involved in company decisions	Small size, effective sharing information
Free and open communication is encouraged	Effective knowledge sharing process (oral or written forms); positive corporate culture
	Positive corporate culture (trust)
	Effective communication system
	More formal systems, procedures, rules, and organisational routines

As can be seen in Table 10.4, the integrative findings have offered us a closed look at enablers that can support Vietnamese SMEs throughout the developmental process of SPMS. A comparison of quantitative and qualitative results reveals that both supports that absorptive capacity and organisational learning capacity are crucial enablers facilitating SPMS adoption among Vietnamese SMEs. The integrated finding of the current study suggests that Vietnamese SMEs, owing to resource constraints, can utilise in order to develop their knowledge management and adopt SPMS with a lower financial cost (Eikelenboom and de Jong, 2019; Horisch, Johnson and Schaltegger, 2015). The current study, therefore provides a response to the call for more research to be conducted by Cardoni *et al.* (2020) on the critical role of absorptive capacity in adopting SPMS. The qualitative investigation better our knowledge of SMEs, with regard to them having novel strengths such as flexibility, small firm-size, and an informal climate; all of which can facilitate the exchange of information, knowledge sharing and organisational learning.

Given the above, the current study suggests that identified enablers seem to be not often available and well-prepared in many Vietnamese SMEs to adopt SPMS effectively. For example, employee empowerment, education and training, positive corporate culture, or formal organisational process and structure are enablers, which necessitate SMEs be review and develop further if necessary. This implies that SMEs should be flexible to effectively manage their trade-offs to develop relevant capabilities. They should also proactively co-ordinate these capabilities create new ones in order that the adoption of SPMS can be facilitated and supported. However, this can be challenging as it requires time, resources, efforts and commitment for the development and adaption of innovative managerial and leadership approaches.

10.2.5 The integrated results of external barriers that hinder SPMS adoption

The integrative results helped us further understand significant external barriers that demotivate SMEs to adopt SPMS. The qualitative results helped us further explore institutional voids and the difficulties that have consumed both time and resources of SMEs. Under such circumstances, the SPMS adoption is likely to be embedded, or delayed. The integrative results of the current study regarding external barriers are summarised in Table. 10.5.

Table 10.5 The integrated results of external barriers that hinder SPMS adoption

Quantitative results	Qualitative results
Lack of government support in terms of information and seminars/workshops about sustainable development	Limited sustainability information provided
Lack of government laws and regulations	Absence of clear guidelines from the authorities
Lack of economic incentives and rewards for firms engaging in sustainability	Lack of economic incentives
	The complexity of existing regulations
	Lack of a sector-specific environmental standard
	Local authorities have applied legal documents and regulations in an inconsistent way
	The intricate tax systems
	The uncertainty of laws and regulations
	Weak law enforcement

From the data in Table 10.5, the integrated result has offered us a greater understanding of the key external barriers demotivating Vietnamese SMEs towards SPMS adoption, which can

inform policymakers to upgrade policies aimed at better supporting and assisting SME in adoption of SPMS. This is important and crucial as previously stated in Chapter 1 of this thesis, SMEs are considered as the drivers of any economy.

To make a long story short, from an internal perspective, the findings from the current study has informed us that Vietnamese SMEs appear not yet ready to implement SPMS. Although the suggested metrics from the current study are recommended for SMEs, many SMEs might not know how to balance priorities. This statement is particularly pertinent with regard to cost and management of short-and long-term trade-offs whilst the SME endeavours to implement SPMS effectively.

10.3 Summary of objectives and conclusions

Following a thorough review of the literature and exploration of the issues with practitioners through a questionnaire survey and semi-structured interviews, this section will outline the processes undertaken to address the objective and present a summary of the conclusions drawn.

Objective One: To examine the key aspects and significance of sustainability performance in organisations

The first objective of the study was to examine the literature available on key aspects of sustainability performance measurement. The research process commenced with the initial literature review in Chapter 2. This aimed to establish all three pillars of the TBL concept; economic, social and environment. We also aimed to establish a holistic understanding of the crucial aspects of the dimensions that were important for the current study; this raised the issue of needing to implement cross analysis (Chapter 10) and provided a useful foundation for identifying sustainability metrics appropriate for SMEs, the primary purpose of the current study.

Objective Two: To identify theories underpinning the measurement of sustainability performance

Objective two of the study was to identify theories underpinning the measurement of sustainability performance. To achieve this, stakeholder, institutional and contingency theories were reviewed in Chapter 2. In relation to the TBL concept, these theories provided internal and external oriented underpinnings that served as a theoretical lens through which elements that influenced SPMS adoption, within the setting of the SME, could be applied.

Objective Three: To investigate the unique characteristics and key internal and external factors that influence the adoption of sustainability metrics (sustainability performance measurement systems) within the SME setting.

Objective three was to explore the extent to which the unique characteristics of SMEs were considered to either be strengths or weaknesses influencing SPMS adoption. Consideration was also given to primary internal influences, including key motivations, inhibitors and enablers, as well as the main external factors that impacted SPMS adoption. To achieve this objective, a literature review (Chapter 3) was conducted which was further supported by a questionnaire survey (Chapters 6 and 7) undertaken by owner-mangers and key employees. This was followed by semi-structured interviews (Chapters 8 and 9) with practitioners to expand on the initial qualitative findings (Chapter 7) and to explore other factors impacting SPMS adoption within the SME setting in Vietnam (Chapter 9). Finally, the discussion of integrated finding is presented in the final section of this thesis (Chapter 10).

Objective Four: To identify, from the existing literature, sustainability metrics that are appropriate for use by SMEs to measure sustainability performance

Objective four explored and identified sustainability metrics that are appropriate for use by SMEs in order that they may measure sustainability performance. To address this objective, the overall research methodology and research design was set out and presented in Chapter 5. The process began with the review of key aspects of sustainability performance and factors that influence the SPMS adoption (Chapter 2 & 3). Based on this foundation, the preliminary list of sustainability metrics obtained from the literature was presented in chapter 4. Finally, the twelve most appropriate metrics for Vietnamese SMEs when they were considering their critical internal and external factors (Chapter 7) were checked and supported by a quantitative analysis of data collected from 579 valid questionnaires completed by SMEs (Chapter 6 & 7).

The process was then further checked through undertaking 43 semi-structured interviews with owner-managers, key employees, shareholders, and business customers. The main aim was to further explain the initial quantitative findings and explore more potential factors that influenced SPMS adoption (Chapter 8 and 9), and then to establish the extent to which the practitioners' evaluation and perception of the sustainability performance measurement went towards the SPMS adoption in the future. The research findings clearly reveal that the level of SPMS adoption would mainly depend on specific motivations, conditions and organisational contexts of each SME, meaning that the SPMS adoption differs from one company to another.

Objective Five: To investigate factors moderating the adoption of sustainability metrics in the context of Vietnamese SMEs

Objective seven explored moderating factors influencing the SPMS adoption, in the context of Vietnamese SMEs, from both an individual and organisational level. These were based on key characteristics of respondents (gender, age, management position and working experience), the company (firm age, firm size, business sector and company sustainability experience). These

moderating factors were informed by the review of literature (Chapter 3), which was then set out for quantitatively testing (Chapter 6). To achieve this objective, a series of eight multigroup analysis testing was carried out with SEM. The main aim was to figure out specific moderating effects on each relationship between six factors and SPMS adoption within the research framework of this study. The findings, presented in Chapter 7, reflected the effect of specific groups on six factors, which will provide SMEs top managers with managerial approaches to support the SPMS adoption.

Objective Six: To identify critical strategies enabling both practitioners in the SME setting and policymakers to facilitate the implementation of sustainability performance measurement in the context of Vietnamese SMEs

Recommendations for SMEs' owner-managers

- First, to deliver positive sustainability outcomes for themselves and other stakeholders. practitioners should take a long-term and holistic view of the overall benefits of adopting SPMS and not simply focus on the short-term profits and risks typically associated with the initial and hidden costs. This will enable them to achieve cost reductions and to use resources more efficiently and also to support other organisational goals. They are advised to initially scan their available resources and organisational capacities to comprehensively understand their optimal sustainability efforts. Based on this information, they can define appropriate objectives and establish escalating goals that are feasible for the adoption of SPMS.

- Practitioners should endeavour to acquire necessary managerial skills, particularly motivation and communication skills. And, no less importantly, they should deliver trust and empowering leadership styles with an appropriate attitude and open and

proactive behaviours, since all of these will aid effective communication and enhance employees' trust and motivation. This, in turn, promotes employee self-performance management, which will then lead to successful facilitation of the SPMS adoption. Additionally, owner-managers should consider giving empowerment to employees through proactive negotiations to discuss mutual benefits. Owner-managers should also review and enhance their multi-task and time management skills in order to properly involve, supervise and support employees throughout the process of SPMS adoption.

- Practitioners are advised to take a proactive approach to acquire external knowledge and integrate it with existing internal knowledge. For this purpose, they should endeavour to regular attend sustainability seminars, workshops and other sustainability training programmes, and derive sustainability knowledge from the internet. Above all, they need to promote strong motivation and commitment to learning through the establishment of long-term and trusted relationships with their partners. This helps the company to develop knowledge-based resources with less expenses and thereby to effectively respond to expectations and needs of their key stakeholders with regards to SPMS adoption.

- Overall, practitioners should review and make good effort to address the six factors and their moderating effects (verified in quantitative phase of this study) because all of them significantly influence the level of SPMS adoption. Equally important, they need to review and enhance organisational processes, structures, information sharing, corporate culture, and incentives scheme, as well as providing education and training in order to ensure there is a strong motivation and commitment to learn through the encouragement of the knowledge sharing process. These are crucial to facilitate the effective SPMS adoption within the organisation.

Recommendations for Vietnamese policymakers

- Policymakers and regulatory bodies should put in place sustainability training programmes to enable SMEs to enhance their sustainability knowledge and acquire skills that will equip them to deal with the notion of sustainability development in order to effectively adopt SPMS.

- Policymakers and regulatory bodies should put in place appropriate education and training, seminars and workshops in order to enhance the SMEs understanding of the notion of sustainability development when adopting SPMS. This will also help to change the mind-sets and attitudes of owner-managers, as well as reducing any misunderstandings of, and resistance to, SPMS adoption. Policymakers, together with other sustainable regeneration regulatory agencies, should produce guidelines to lead the practitioners within the SME.

- Adequate funding/financial support, along with incentives and reward schemes, should be established to encourage SMEs to prioritise the adoption and implementation of SPMS.

- Legislation should be introduced to motivate practitioners towards adopting SPMS. Enforcing compliance to such legislation will ensure that fairness is fundamental when encouraging SMEs to adopt SPMS.

10.4 Contributions of the current study

This section presents the theoretical, methodological and practical contributions of this study.

Theoretical contribution

The primary aim of this research is to identify appropriate sustainability metrics for SMEs in order that they may be able to measure and better manage sustainability performance from a new perspective. Thus far, most studies on selecting and developing sustainability metrics/indicators for SMEs are mainly based upon the perspective of external stakeholders such as experts and researchers. In this study, the focus has shifted to the perspective of SMEs. This thesis thus constitutes the first study conducted with regard to identifying sustainability metrics for SMEs in the context of Vietnam.

In line with the theoretical discussion, this research contributes to the identification of metrics that will assess the sustainability performance of SMEs, as well as those main characteristics of SMEs that can influence this performance. More specifically, SMEs are often described as having insufficient resources and of lacking awareness of sustainability standards (Sommer, 2017). To this end, this study has extended the extant literature on how, owing to their resource constraints, SMEs could utilise organisational capabilities to simultaneously address economic, social, and environmental sustainability performances (Dissanayake *et al.,* 2020; Eikelenboom and de Jong, 2019; Trianni *et al.,* 2019).

The combined findings taken from both quantitative and qualitative studies showed that both key internal stakeholders (top management and employees) and external stakeholders will influence the adoption of SPMS within the SME setting, but in different ways because of their different demands and conflicting interests. The current study examined contingent factors influencing the adoption of SPMS. Therefore, it enriches scholarly knowledge by highlighting the unique conditions in Vietnam and the distinct circumstances of SMEs. In this light, it helps to broaden the understanding of enablers and inhibitors and external barriers towards the adoption of SPMS in the SME setting. From this perspective, it enriches the theory of contingency. The current study highlighted that normative isomorphism and mimetic

isomorphism pressures simultaneously drive Vietnamese SMEs to adopt SPMS, while lacked coercive isomorphic pressure demotivate their efforts. Moreover, international business customers, employees were found as key stakeholder groups by the current study. Therefore, this thesis enriches the literature on sustainability performance measurement as well as stakeholder and institutional theories.

From the integrated finding of the current study, a novel framework (Figure 10.1) enabling understanding of how SMEs could overcome their resource constraints to adopt SPMS into their organisations was proposed. The framework shows the factors that have influence both at an organisational level (resources, organisational change, capabilities and role of managerial leadership) and at an external environment level (external organisations, policies and regulations). The framework shows the integration consideration of those elements and suggests further avenues of research on different manifestations of SPMS adoption within the SME setting.

Methodological contribution

Researchers have consistently called for greater methodological rigour in the field of SPMS. Trends in the field reveal quantitative methods to be the dominant data collection method, with qualitative methods employed less often. This study adopted a mixed methods approach combining quantitative and qualitative techniques for data gathering. This comprised surveys (579 respondents) generating quantitative data, and semi-structured interviews (43 interviewees) which generated qualitative data. The participants comprised owner-managers, key employees, shareholders, and business customers for twenty studied SMEs. The study drew a balanced perspective between the contrasting positivist and phenomenological paradigms and perspectives (Chapter 5). This is a realist perspective, making a major contribution to mixed methods research (Maxwell and Mittapalli, 2010). Such a balanced approach to data gathering

enabled the researcher to view research on SPMS adoption within the SME setting from different angles and perspectives.

This study employs a subsequential mixed-method design, where the quantitative and qualitative data strands yield results that complement one another (Bickman *et al.,* 2014; Bryman, 2006; Molina-Azorin, 2016). To this end, the integrated approach of quantitative and qualitative results is far more meaningful when combined than when they stand alone, and this has helped us generate several ideas about adoption of SPMS within the SME setting. The current study confirms the benefits of conducting pilot studies that have resulted in meaningful information and issues raised within the local context. This has helped the finalisation of both the survey questionnaire (quantitative phase) and the formulated interview questions (qualitative phase).

The initial quantitative analysis used a sample of 579 owner-managers and employees within Vietnamese SMEs. The results support the identification of six crucial factors that influence SPMS adoption. They include motivation (MOT), inhibitors (INH), top management support (TOP), absorptive capacity (ACA), organisation learning capacity (OLC) and external barriers (EXB). In addition, the initial quantitative results support the examination of the moderating effect of eight control variables on each relationship. The four moderating variables at the individual level are (1) managerial position, (2) gender (3) age of the participant and (4) work experience. The other four moderating variables at the business level include (1) business size (number of employees), (2) firm age (number of years since the firm's founding), (3) the business sector and (4) the company's sustainability experience. The following qualitative phase takes into consideration cultural, social and even political factors in order to ensure greater methodological rigour, validity and reliability of the overall results.

The current study also indicates that interviews provide more detailed and in-depth information about the relevant stakeholders' perceptions, opinions, and knowledge on SPMS adoption under investigation than does the survey.

In the qualitative phase, 43 semi-structured interviews were conducted with 43 participants from 20 SMEs, and also business customers. The qualitative results offer us a greater understanding by providing detailed assessments of the initial quantitative response patterns. The combination of quantitative and qualitative approaches therefore represents a significant contribution to research on SPMS (Imbrogiano, 2020).

Practical contribution

This study began by reflecting the concerns expressed in the literature that SMEs, owing to their resource constraints, have made insufficient efforts to develop and adopt sustainability metrics in order to measure and better manage their sustainability performance. Yet, a challenge remains in that understanding relevant capabilities is not always an easy thing, and clear guidance is also not always possible and relevant to companies in various contexts (Yu and Ramanathan, 2016). The study therefore made several practical contributions through its investigation of factors influencing SPMS in the SME setting. The practical contributions were two-fold.

First, the study highlights the benefits and why the need to adopt SPMS by SMEs. The results generate appropriate sustainability metrics, which are valuable to would-be entrepreneurs who need to implement these to better measure and manage sustainability performance within their organisations.

Secondly, the findings will help owner-managers of Vietnamese SMEs to understand the inhibitors, enablers, and external barriers to SPMS adoption and, most importantly, innovative ways to overcome these inhibitors.

10.5 Limitation of this study and suggestions for future research

This section addresses the limitations of this current study and ends with suggestions for future research.

The first limitation is the constrained generalisability of the findings to fixed business-sectors, although they could be generalised to service and manufacturing sectors. However, the extent to which each individual industry is similar to, or different from others, requires further investigation.

Secondly, to explore the topic further, different models can be experimented with when running the SEM test, such as separately testing the influence of top management support with regard to absorptive capacity, or organisational learning capacity.

Thirdly, a potential bias of this current study is splitting groups to explore moderating factors influencing the SPMS adoption. For example, the company age groups into two (($\leq$ 10 years, > 10 years), the purpose of this is so that a relatively balanced number for each group among the sample of this study is obtained. This could be a limitation of this study. Future works would be interesting in order to undertake further analyses or validation.

Finally, this study was limited to SMEs in the south of Vietnam. While the findings have major implications for research focusing on the adoption of SPMS, influenced by SMEs inhibitors and enablers, there is no guarantee that similar findings would be observed in other regions of Vietnam. For the findings to be generalised, future studies would need to be expanded to cover

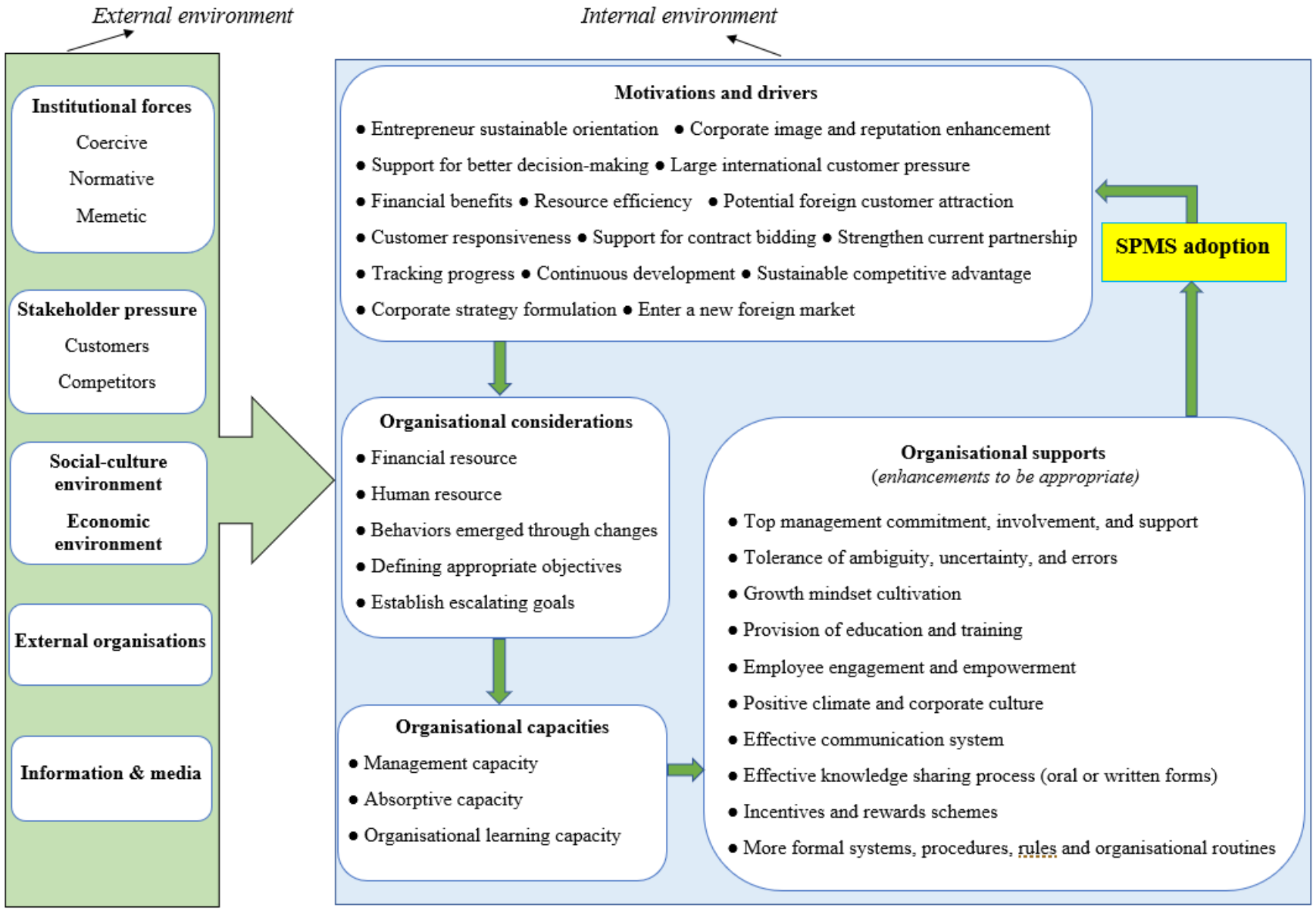
the scope of the research to include SMEs in other regions. Beyond this, it is also important to assess whether the findings can be applied to other emerging countries.

10.6 Towards and SPMS adoption model in the SME setting

This section presents a proposed SPMS adoption model. This model draws on the limited resources of the SME, and is based on empirical findings relating to both the survey and the interviews. The model allows for the adoption of SPMS in the SME setting. This model is summarised in Figure 10.1.

The model summarises the major findings and implications of the current study. The findings call for an understanding of SPMS adoption based on the inherent resource constraints of SMEs, which are crucial barriers that SMEs need to overcome in order to successfully adopt SPMS. The results also show that SMEs do not necessarily require the assistance of external supports, but a proactive approach towards SPMS adoption is needed. The research model is intended to foster new debates about the interpretation of SPMS adoption and relevant capacities within the SME setting, particularly in the context of developing countries. Future studies undertaken would expand upon or validate the model.

Figure 10.1 Proposed SPMS Adoption model in the SME setting



REFERENCE

Abbas, J. Raza, S. Nurunnabi, M. Minai, M.S. and Bano, S.Abbas, J. et al. (2019) The impact of entrepreneurial business networks on firms' performance through a mediating role of dynamic capabilities. *Sustainability (Switzerland)*. 11 (11).

Abbasi, M. and Nilsson, F. (2012) Themes and challenges in making supply chains environmentally sustainable. *Supply Chain Management: An International Journal*. 17 (5), pp.517–530.

Abdalla, Y.A. and Siti-Nabiha (2015) Pressures for sustainability practices in an oil and gas company: evidence from Sudan. *Qualitative Research in Accounting & Management*. 12 (3), pp.256–286.

Abdullahi, Y. et al. (2019) Technovation What speci fi c modes of internationalization in fl uence SME innovation in Sub-Saharan least developed countries (LDCs)? *Technovation*. 79 (May 2016), Elsevier Ltd, pp.56–70.

Aboelmaged, M. (2018) The drivers of sustainable manufacturing practices in Egyptian SMEs and their impact on competitive capabilities: A PLS-SEM model. *Journal of Cleaner Production*. 175, Elsevier Ltd, pp.207–221.

Aboelmaged, M. and Hashem, G. (2019) Absorptive capacity and green innovation adoption in SMEs : The mediating effects of sustainable organisational capabilities. *Journal of Cleaner Production*. 220, Elsevier Ltd, pp.853–863.

Adams, C.A. and Frost, G.R. (2008) Integrating sustainability reporting into management practices. *Accounting Forum*. 32 (4), pp.288–302.

Ageron, B., Gunasekaran, A. and Spalanzani, A. (2012) Sustainable supply management: An empirical study. *International Journal of Production Economics*. 140 (1), Elsevier, pp.168–182.

Agle, B.R. and Mitchell, R.K. (2016) Who Matters to CEOs ? An Investigation of Stakeholder Attributes and Salience , Corporate Performance , and CEO Values. 42 (5), pp.507–525.

Aguinis, H. and Glavas, A. (2012) What We Know and Don't Know About Corporate Social Responsibility: A Review and Research Agenda. *Journal of Management*. 38 (4), pp.932–968.

Agyemang, O.S. and Ansong, A. (2017) Corporate social responsibility and firm performance of Ghanaian SMEs. *Journal of Global Responsibility*. 8 (1), pp.47–62.

Ahi, P. and Searcy, C. (2013a) A comparative literature analysis of definitions for green and sustainable supply chain management. *Journal of Cleaner Production*. 52, pp.329–341.

Ahi, P. and Searcy, C. (2015) An analysis of metrics used to measure performance in green and sustainable supply chains. *Journal of Cleaner Production*. 86, pp.360–377.

Ahi, P. and Searcy, C. (2013) Assessing sustainability in the supply chain: A triple bottom line approach. *Applied Mathematical Modelling*. 39 (10–11), Elsevier Inc., pp.2882–2896.

Ahmad, N. et al. (2021) Sustainability as a "new normal" for modern businesses: Are smes of

pakistan ready to adopt it? *Sustainability (Switzerland)*. 13 (4), pp.1–17.

Ahmad, S., Wong, K.Y. and Rajoo, S. (2019) Sustainability indicators for manufacturing sectors: A literature survey and maturity analysis from the triple-bottom line perspective. *Journal of Manufacturing Technology Management*. 30 (2), pp.312–334.

Akhtar, C.S. et al. (2015) Can Intellectual Capital of SMEs Help in Their Sustainability Efforts. *Journal of Management Research*. 7 (2), p.82.

Altenburg, T. and Lütkenhorst, W., 2015. *Industrial policy in developing countries: Failing markets, weak states*. Edward Elgar Publishing.

Al-kalouti, J. et al. (2020) Investigating innovation capability and organizational performance in service firms. *Strategic Change*. 29 (1), pp.103–113.

Alagaraja, M. and Shuck, B. (2015) Exploring Organizational Alignment-Employee Engagement Linkages and Impact on Individual Performance: A Conceptual Model. *Human Resource Development Review*. 14 (1), pp.17–37.

Albort-Morant, G. et al. (2018) Potential and realized absorptive capacity as complementary drivers of green product and process innovation performance. *Sustainability (Switzerland)*. 10 (2).

Ali, M.M. et al. (2017) Comparative positioning of Small and Medium Enterprises in Bangladesh, Thailand and the Philippines. *Economy of Region*. 13 (2), pp.381–395.

Ali, Y. et al. (2020) Impact of Lean, Six Sigma and environmental sustainability on the performance of SMEs. *International Journal of Productivity and Performance Management*.

Alkhoraif, A., Rashid, H. and McLaughlin, P. (2019) Lean implementation in small and medium enterprises: Literature review. *Operations Research Perspectives*. 6 (December 2018), Elsevier, p.100089.

Almalki, S. (2016) Integrating Quantitative and Qualitative Data in Mixed Methods Research—Challenges and Benefits. *Journal of Education and Learning*. 5 (3), p.288.

Alniacik, E., Moumen, C. and Alniacik, U. (2020) The moderating role of personal value orientation on the links between perceived corporate social performance and purchase intentions. *Corporate Social Responsibility and Environmental Management*. 27 (6), pp.2724–2734.

AlNuaimi, B.K., Al Mazrouei, M. and Jabeen, F. (2020) Enablers of green business process management in the oil and gas sector. *International Journal of Productivity and Performance Management*. 69 (8), pp.1671–1694.

Amrina, E. and Yusof, S.M.M. (2011) Key performance indicators for sustainable manufacturing evaluation in automotive companies. *Industrial Engineering and Engineering Management (IEEM), 2011 IEEE International Conference on*. pp.1093–1097.

Anguera, M.T. et al. (2018) Revisiting the difference between mixed methods and multimethods: Is it all in the name? *Quality and Quantity*. 52 (6), pp.2757–2770.

Anisul Huq, F., Stevenson, M. and Zorzini, M. (2014) Social sustainability in developing country suppliers. Helen Walker, Professor Stefan Seur, P. (ed.) *International Journal of Operations & Production Management*. 34 (5), pp.610–638.

Anitha, J. (2014) Determinants of employee engagement and their impact on employee performance. *International Journal of Productivity and Performance Management*. 63 (3), pp.308–323.

Anlesinya, A. and Susomrith, P. (2020) Sustainable human resource management: a systematic review of a developing field. *Journal of Global Responsibility*. 11 (3), pp.295–324.

Antolín-López, R., Delgado-Ceballos, J. and Montiel, I. (2016) Deconstructing corporate sustainability: a comparison of different stakeholder metrics. *Journal of Cleaner Production*. 136, Elsevier Ltd, pp.5–17.

Aragón-Correa, J.A. et al. (2008) Environmental strategy and performance in small firms: A resource-based perspective. *Journal of Environmental Management*. 86 (1), pp.88–103.

Arbuckle, J. L. (2016). *IBM SPSS Amos 24 user's guide*. IBM.

Arena, M. and Azzone, G. (2012) A process-based operational framework for sustainability reporting in SMEs. *Journal of Small Business and Enterprise Development*. 19 (4), pp.669–686.

Arena, M., Azzone, G. and Bengo, I. (2015) Performance Measurement for Social Enterprises. *Voluntas*. 26 (2), pp.649–672.

Arend, R.J. (2014) Social and Environmental Performance at SMEs: Considering Motivations, Capabilities, and Instrumentalism. *Journal of Business Ethics*. 125 (4), pp.541–561.

Arevalo, J.A. and Aravind, D. (2011) Corporate social responsibility practices in India: approach, drivers, and barriers. *Corporate Governance: The international journal of business in society*. 11 (4), pp.399–414.

Arsawan, I.W.E. et al. (2020) Leveraging knowledge sharing and innovation culture into SMEs sustainable competitive advantage. *International Journal of Productivity and Performance Management*.

Ates, A. et al. (2013) The development of SME managerial practice for effective performance management. *Journal of Small Business and Enterprise Development*. 20 (1), pp.28–54.

Ates, A. and Bititci, U. (2011) Change process: A key enabler for building resilient SMEs. *International Journal of Production Research*. 49 (18), pp.5601–5618.

Attride-Stirling, J. (2001) Thematic networks: an analytic tool for qualitative research. *Qualitative Research*. 1 (3), pp.385–405.

Atu, O.-E.O.K. (2013) Triple bottom line accounting: A conceptual expose. *IOSR Journal of Business and Management*. 13 (4), pp.30–36.

Augusto, D. et al. (2019) Overcoming barriers towards Sustainable Product-Service Systems in Small and Medium-sized enterprises : State of the art and a novel Decision Matrix. *Journal*

of Cleaner Production. 222, Elsevier Ltd, pp.903–921.

Ayuso, S. and Navarrete-Báez, F.E. (2018) How Does Entrepreneurial and International Orientation Influence SMEs' Commitment to Sustainable Development? Empirical Evidence from Spain and Mexico. *Corporate Social Responsibility and Environmental Management*. 25 (1), pp.80–94.

Azapagic, A. (2004) Developing a framework for sustainable development indicators for the mining and minerals industry. *Journal of Cleaner Production*. 12 (6), pp.639–662.

Azapagic, A. (2003) Systems Approach to Corporate Sustainability: A General Management Framework. *Process Safety and Environmental Protection*. 81 (5), pp.303–316.

Azapagic, A. and Perdan, S. (2000) Indicators of Sustainable Development for Industry. *Process Safety and Environmental Protection*. 78 (4), pp.243–261.

Azmat, F. (2010) Exploring social responsibility of immigrant entrepreneurs: Do home country contextual factors play a role? *European Management Journal*. 28 (5), Elsevier Ltd, pp.377–386.

Bach, T., Le, T. and Bui, Y. (2020) Informal Short-term Borrowings and Small and Medium Enterprises' Performance in a Credit Crunch: Evidence from Vietnam. *Journal of Development Studies*. 00 (00), Routledge, pp.1–15.

Bai, Y., Yuan, J. and Pan, J. (2017) Why SMEs in emerging economies are reluctant to provide employee training: Evidence from China. *International Small Business Journal:Researching Entrepreneurship.Researching Entrepreneurship*. 35 (6), pp.751–766.

Bala, H. and Feng, X. (2019) Success of Small and Medium Enterprises in Myanmar: Role of Technological, Organizational, and Environmental Factors. *Journal of Global Information Technology Management*. 22 (2), Routledge, pp.100–119.

Bansal, P. (2005) Evolving sustainably: A longitudinal study of corporate sustainable development. *Strategic Management Journal*. 26 (3), pp.197–218.

Bansal, P. (2002) The corporate challenges of sustainable development. *Academy of Management Executive*. 16 (2), pp.122–131.

Bao, H., Wang, H. and Sun, C. (2019) How and when environmental regulation induces middle managers' proactive behavior. *Career Development International*. 24 (5), pp.438–452.

Bari, M.W., Ghaffar, M. and Ahmad, B. (2020) Knowledge-hiding behaviors and employees' silence: mediating role of psychological contract breach. *Journal of Knowledge Management*. 24 (9), pp.2171–2194.

Baron, R.M. and Kenny, D.A. (1986) The Moderator-Mediator Variable Distinction in Social Psychological Research. Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology*. 51 (6), pp.1173–1182.

Baruch, Y. and Holtom, B.C. (2008) Survey response rate levels and trends in organizational research. *Human Relations*. 61 (8), pp.1139–1160.

Bass, B.M. (1999) Two Decades of Research and Development in Transformational Leadership. *European Journal of Work and Organizational Psychology*. 8 (1), pp.9–32.

Battisti, M. and Perry, M. (2011) Walking the talk? Environmental responsibility from the perspective of small-business owners. *Corporate Social Responsibility and Environmental Management*. 18 (3), pp.172–185.

Baum, T. et al. (2016) Sustainability and the tourism and hospitality workforce: A thematic analysis. *Sustainability (Switzerland)*. 8 (8).

Baumgartner, R.J. (2014) Managing Corporate Sustainability and CSR: A Conceptual Framework Combining Values, Strategies and Instruments Contributing to Sustainable Development. 271 (November 2013), pp.258–271.

Baumgartner, R.J. and Ebner, D. (2010) Corporate Sustainability Strategies: Sustainability Profi les and Maturity Levels. *Sustainable Development Sust. Dev*. 18 (February), pp.76–89.

Beaver, G. (2007) The strategy payoff for smaller enterprises. *Journal of Business Strategy*. 28 (1), pp.11–17.

Bell, E., Bryman, A., Harley, B. & Bryman, A. (2018) *Business research methods*, Fifth edn, Oxford University Press, Oxford.

Bellantuono, N., Pontrandolfo, P. and Scozzi, B. (2016) Capturing the stakeholders' view in sustainability reporting: A novel approach. *Sustainability (Switzerland)*. 8 (4).

Benzin, C., Chu, M.H. and Callanan, G. (2005) A Regional Comparision of the Motivation and Problems of Vietnamese Entrepreneurs. *World Scientific*. 10 (1), pp.2–27.

Beresford, Melanie. 2008. "Doi Moi in Review: The Challenges of Building Market Socialism in Vietnam." *Journal of Contemporary Asia* 38 (2): 221–243.

Bhanot, N., Rao, P.V. and Deshmukh, S.G. (2017) An integrated approach for analysing the enablers and barriers of sustainable manufacturing. *Journal of Cleaner Production*. 142, Elsevier Ltd, pp.4412–4439.

Bi, Z.M.M. et al. (2015) Reusing industrial robots to achieve sustainability in small and medium-sized enterprises (SMEs). *Industrial Robot: An International Journal*. 42 (3), pp.264–273.

Bianchi, R. (1998) " Greening " SMEs ' Competitiveness. pp.269–281.

Bickman, L. et al. (2014) *Integrating Qualitative and Quantitative Approaches to Research The SAGE Handbook of Applied Social Research Methods*.

Bierly, P.E., Damanpour, F. and Santoro, M.D. (2009) The application of external knowledge: Organizational conditions for exploration and exploitation. *Journal of Management Studies*. 46 (3), pp.481–509.

Bititci, U.S. et al. (2005) Measuring and managing performance in extended enterprises.

International Journal of Operations & Production Management. 25 (4), pp.333–353.

Blunch, N. (2008) *Introduction to Structural Equation Modelling Using SPSS and AMOS* 1 Oliver's Yard, 55 City Road, London England EC1Y 1SP United Kingdom, SAGE Publications, Ltd.

Bodini, A. (2012) Building a systemic environmental monitoring and indicators for sustainability: What has the ecological network approach to offer? *Ecological Indicators*. 15 (1), Elsevier Ltd, pp.140–148.

Boley, B.B. and Uysal, M. (2013) Competitive synergy through practicing triple bottom line sustainability: Evidence from three hospitality case studies. *Tourism and Hospitality Research*. 13 (4), pp.226–238.

Bono, J.E. and Judge, T.A. (2003) Self-concordance at word: Toward understanding the motivational effects of transformational leaders. *Academy of Management Journal*. 46 (5), pp.554–571.

Borga, F. et al. (2006) Sustainability report in small enterprises: Case studies in Italian furniture companies. *Business Strategy and the Environment*. 18 (3), pp.162–176.

Bos-brouwers, H.E.J. (2009) Corporate sustainability and innovation in SMEs: Evidence of themes and activities in practice. *Business Strategy and the Environment*. 19 (June 2009), pp.417–435.

Boso, N., Danso, A., Leonidou, C., Uddin, M., Adeola, O. and Hultman, M., (2017) Does financial resource slack drive sustainability expenditure in developing economy small and medium-sized enterprises? *Journal of Business Research*. 80 (April), pp.247–256.

Bourlakis, M. et al. (2014) Firm size and sustainable performance in food supply chains: Insights from Greek SMEs. *International Journal of Production Economics*. 152, Elsevier, pp.112–130.

Bourne, M., Mills, J., Wilcox, M., Neely, A. and Platts, K., (2000) Designing, implementing and updating performance measurement systems. *International Journal of Operations & Production Management*. 20 (7), pp.754–771.

Bourne, M., Kennerley, M. and Franco-Santos, M. (2005) Managing through measures: a study of impact on performance. *Journal of Manufacturing Technology Management*. 16 (4), pp.373–395.

Bowen, P., Edwards, P., Simbayi, L. and Cattell, K., (2013) HIV/AIDS interventions by construction firms in the Western Cape, South Africa: A thematic analysis of qualitative survey data. *International Journal of Construction Management*. 13 (4), pp.11–33.

Boyce, C. and Neale, P. (2006) Conducting in-depth interviews: A Guide for designing and conducting in-depth interviews. *Evaluation*. 2 (May), pp.1–16.

Brandi, H.S., Daroda, R.J. and Olinto, A.C. (2014) The use of the Canberra metrics to aggregate metrics to sustainability. *Clean Technologies and Environmental Policy*. 16 (5), pp.911–920.

Branicki, L.J., Sullivan-Taylor, B. and Livschitz, S.R. (2018) How entrepreneurial resilience

generates resilient SMEs. *International Journal of Entrepreneurial Behaviour and Research*. 24 (7), pp.1244–1263.

Brannen, J. (2005) Mixing methods: The entry of qualitative and quantitative approaches into the research process. *International Journal of Social Research Methodology: Theory and Practice*. 8 (3), pp.173–184.

Braun, V. and Clarke, V. (2006) Using thematic analysis in psychology Using thematic analysis in psychology. *Qualitative Research in Psychology*. 3 (2), pp.77–101.

Brohi, N.A., Jantan, A.H., Qureshi, M.A., Bin Jaffar, A.R., Bin Ali, J. and Bin Ab Hamid, K., (2018) The impact of servant leadership on employees attitudinal and behavioural outcomes. *Cogent Business and Management*. 5 (1), Cogent, pp.1–17.

Brunosson, M. (2020) *Master thesis How socially responsible are SMEs in Vietnam ?*

Burrell, G. and Morgan, G., (2017). *Sociological paradigms and organisational analysis: Elements of the sociology of corporate life*. Routledge.

Bruwer, J. and Smith, J. (2018) The Role of Basic Business Skills Development and Their Influence on South African Small, Medium and Micro Enterprise Sustainability. *Journal of Economics and Behavioral Studies*. 10 (2), p.48.

Bryman, A. (2006) Integrating quantitative and qualitative research: How is it done? *Qualitative Research*. 6 (1), pp.97–113.

Bryman, A. (2008) Of methods and methodology. *Qualitative Research in Organizations and Management: An International Journal*. 3 (2), pp.159–168.

Buller, P.F. and McEvoy, G.M. (2012) Strategy, human resource management and performance: Sharpening line of sight. *Human Resource Management Review*. 22 (1), Elsevier Inc., pp.43–56.

Burke, S. and Gaughran, W.F. (2007) Developing a framework for sustainability management in engineering SMEs. *Robotics and Computer-Integrated Manufacturing*. 23 (6), pp.696–703.

Busse, C., Schleper, M.C., Niu, M. and Wagner, S.M., (2016) Supplier development for sustainability: contextual barriers in global supply chains. *International Journal of Physical Distribution and Logistics Management*. 46 (5), pp.442–468.

Büyüközkan, G. and Ifi, G. (2012) A novel hybrid MCDM approach based on fuzzy DEMATEL, fuzzy ANP and fuzzy TOPSIS to evaluate green suppliers. *Expert Systems with Applications*. 39 (3), pp.3000–3011.

Byrne, B. M. (2016). *Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming*, 3rd ed. New York: Routledge.

Byrne, J. and Humble, Á.M. (2007) An Introduction to Mixed Method Research. *Atlantic Research Centre fo familu-work issues*. December, pp.1–4.

Caldera, H.T.S., Desha, C. and Dawes, L. (2019) Evaluating the enablers and barriers for successful implementation of sustainable business practice in 'lean' SMEs. *Journal of Cleaner*

Production. 218, Elsevier Ltd, pp.575–590.

Caldera, H.T.S., Desha, C. and Dawes, L. (2018) Exploring the characteristics of sustainable business practice in small and medium-sized enterprises: Experiences from the Australian manufacturing industry. *Journal of Cleaner Production*. 177, Elsevier Ltd, pp.338–349.

Caloghirou, Y., Kastelli, I. and Tsakanikas, A. (2004) Internal capabilities and external knowledge sources: Complements or substitutes for innovative performance? *Technovation*. 24 (1), pp.29–39.

Camuffo, A. and Comacchio, A. (2005) Linking intellectual capital and competitive advantage: A cross-firm competence model for north-east italian smes in the manufacturing industry. *Human Resource Development International*. 8 (3), pp.361–377.

Canh, N.T., Liem, N.T., Thu, P.A. and Khuong, N.V., (2019) The impact of innovation on the firm performance and corporate social responsibility of Vietnamese manufacturing firms. *Sustainability (Switzerland)*. 11 (13).

Caniëls, M.C.J., Semeijn, J.H. and Renders, I.H.M. (2018) Mind the mindset! The interaction of proactive personality, transformational leadership and growth mindset for engagement at work. *Career Development International*. 23 (1), pp.48–66.

Cardoni, A., Zanin, F., Corazza, G. and Paradisi, A., (2020) Knowledge management and performance measurement systems for SMEs' economic sustainability. *Sustainability (Switzerland)*. 12 (7).

Cardoni, A. et al. (2018) The role of contingency factors on the relationship between sustainability practices and organizational performance. *Business Strategy and the Environment*. 27 (3), Elsevier Ltd, pp.423–433.

Carter, C.R. and Rogers, D.S. (2008) A framework of sustainable supply chain management: moving toward new theory. *International Journal of Physical Distribution & Logistics Management*. 38 (5), pp.360–387.

Cassells, S. and Lewis, K. (2011) SMEs and environmental responsibility: Do actions reflect attitudes? *Corporate Social Responsibility and Environmental Management*. 18 (3), pp.186–199.

Cegarra Navarro, J.G., Eldridge, S. and Wandosell, G. (2016) International organizational performance: The influence of congenital learning and realized absorptive capacity. *Journal of Small Business and Enterprise Development*. 23 (2), pp.453–473.

Cesário, F. and Chambel, M.J. (2017) Linking Organizational Commitment and Work Engagement to Employee Performance. *Knowledge and Process Management*. 24 (2), pp.152–158.

Cha, E.S., Kim, K.H. and Erlen, J.A. (2007) Translation of scales in cross-cultural research: Issues and techniques. *Journal of Advanced Nursing*. 58 (4), pp.386–395.

Chan, E.S.W. (2011) Implementing Environmental Management Systems in Small- and Medium-Sized Hotels: Obstacles. *Journal of Hospitality & Tourism Research*. 35 (1), pp.3–23.

Chandra, A.A., Paul, J. and Chavan, M. (2020) Internationalization challenges for SMEs: evidence and theoretical extension. *European Business Review*. 33 (2), pp.316–344.

Chavez, R. et al. (2020) The relationship between internal lean practices and sustainable performance: exploring the mediating role of social performance. *Production Planning and Control*. 0 (0), Taylor & Francis, pp.1–18.

Chee Tahir, A. and Darton, R.C. (2010) The Process Analysis Method of selecting indicators to quantify the sustainability performance of a business operation. *Journal of Cleaner Production*. 18 (16–17), Elsevier Ltd, pp.1598–1607.

Chen, D. et al. (2014) A holistic and rapid sustainability assessment tool for manufacturing SMEs. *CIRP Annals - Manufacturing Technology*. 63 (1), CIRP, pp.437–440.

Chen, L., Xu, J. and Zhou, Y. (2017) Regulating the environmental behavior of manufacturing SMEs: Interfirm alliance as a facilitator. *Journal of Cleaner Production*. 165, Elsevier Ltd, pp.393–404.

Choi, J.H., Kim, S. and Yang, D.H. (2018) Small and medium enterprises and the relation between social performance and financial performance: Empirical evidence from Korea. *Sustainability (Switzerland)*. 10 (6), pp.15–19.

Choongo, P. (2017) A Longitudinal Study of the Impact of Corporate Social Responsibility on Firm Performance in SMEs in Zambia. *Sustainability*. 9 (8), p.1300.

Chou, S.Y., Chang, T. and Han, B. (2016) A Buddhist application of corporate social responsibility: qualitative evidence from a case study of a small Thai family business. *Small Enterprise Research*. 23 (2), Taylor & Francis, pp.116–134.

Chow, W.S. and Chen, Y. (2012) Corporate Sustainable Development: Testing a New Scale Based on the Mainland Chinese Context. *Journal of Business Ethics*. 105 (4), pp.519–533.

Clark, P. (2007) Exploring the Nature of Research Questions in Mixed Methods Research. *Journal of Mixed Methods Research*. pp.207–211.

Clarke-Sather, A.R. et al. (2011) Development of social, environmental, and economic indicators for a small/medium enterprise. Balachandran, K. (ed.) *International Journal of Accounting & Information Management*. 19 (3), pp.247–266.

Clarke, V. and Braun, V. (2013) Teaching thematic analysis : Overcoming challenges and developing strategies for effective learning Associate Professor in Sexuality Studies Department of Psychology Faculty of Health and Life Sciences University of the West of England Coldharbour Lane Br. *The Psychologist*. 26 (2013), pp.120–123.

Clifton, D. and Amran, A. (2011) The Stakeholder Approach: A Sustainability Perspective. *Journal of Business Ethics*. 98 (1), pp.121–136.

Cohen, S. et al. (2014) The Growth of Sustainability Metrics. (May), pp.1–16.

Cohen, W.M. and Levinthal, D.A. (1990) Absorptive Capacity: A New Perspective on Learning and Innovation. *8/Administrative Science Quarterly,*. 35 (1), pp.128–152.

Collis, J. & Hussey, R. (2014). Business research: a practical guide for undergraduate & postgraduate students, Fourth edn, Palgrave Macmillan, Basingstoke, Hampshire.

Cong, L.C. and Thu, D.A. (2020) The competitiveness of small and medium enterprises (SMEs) in the tourism sector: the role of leadership competencies. *Journal of Economics and Development*. ahead-of-p (ahead-of-print).

Connelly, L.M. and Peltzer, J.N. (2016) Underdeveloped themes in qualitative research: Relationship with interviews and analysis. *Clinical Nurse Specialist*. 30 (1), pp.51–57.

Conway, E. (2014) Assessing sustainability support to small and medium sized enterprises (SMEs). *International Journal of Performance Engineering*. 10 (4), pp.377–386.

Cordano, M., Marshall, R.S. and Silverman, M. (2010) How do small and medium enterprises Go 'Green'? A study of environmental management programs in the U.S. wine industry. *Journal of Business Ethics*. 92 (3), pp.463–478.

Cormier, D., Gordon, I.M. and Magnan, M. (2004) Corporate environmental disclosure: Contrasting management's perception with reality. *Journal of Business Ethics*. 49, pp.143–165.

Courrent, J.M., Chassé, S. and Omri, W. (2018) Do Entrepreneurial SMEs Perform Better Because They are More Responsible? *Journal of Business Ethics*. 153 (2), pp.317–336.

Creswell, J. (1994). *Research Design, Qualitative and Quantitative Approaches*. Thousand Oaks, CA: Sage.

Creswell, J.W. and Creswell, D. (2018). *Research design: qualitative, quantitative & mixed methods approaches*, 5th, international student edn, SAGE, Los Angeles, CA; London.

Creswell, J. W. and Plano Clark, V. L. (2011) *Designing and conducting mixed methods research*, Thousand Oaks, California, Sage Publicaitons.

Cresswell, J. W and Tashakkori, A. (2007) Differing perspectives on mixed research methods. *Journal of Mixed Research Methods*. vol 1 ((4),), pp.303–308.

Creswell, J., W. (2009) Mapping the Field of Mixed Methods Research. *Journal of Mixed Methods Research*. 3 (2), pp.95–108.

Creswell, J.W., Shope, R., Plano Clark, V.L. and Green, D.O., (2006) How interpretive qualitative research extends mixed methods research. *Research in the Schools*. 13 (1), pp.1–11.

Creswell, J.W. (2013) The Selection of a Research Approach. *Research design: Qualitative, quantitative, and mixed methods approaches.* pp.3–23.

Criado-Gomis, A., Cervera-Taulet, A. and Iniesta-Bonillo, M.A. (2017) Sustainable entrepreneurial orientation: A business strategic approach for sustainable development. *Sustainability (Switzerland)*. 9 (9), pp.1–20.

Cronin, M.J. (2017) *Managing for Social Impact*

Crossnan, F. (2003) Research philosophy: towards an undertsanding. *Nurse Researcher*. 11

(1), pp.46–55.

Crotty, M. (1998). *The foundation of social research: Meaning and perspective in the research process*. Thousand Oaks, CA: Sage.

Csillag, S. et al. (2019) What makes small beautiful? Learning and development in small firms. *Human Resource Development International*. 22 (5), Routledge, pp.453–476.

Cubas-Díaz, M. and Martínez Sedano, M.Á. (2017) Measures for Sustainable Investment Decisions and Business Strategy - A Triple Bottom Line Approach. *Business Strategy and the Environment*.

Cui, Z., Liang, X. and Lu, X. (2015) Prize or price? Corporate social responsibility commitment and sales performance in the Chinese private sector. *Management and Organization Review*. 11 (1), pp.25–44.

Cumberland, D.M. et al. (2018) An emergent understanding of influences on managers' voices in SMEs. *Leadership and Organization Development Journal*. 39 (2), pp.234–247.

Curado, C. (2006) Organisational learning and organisational design. *Learning Organization*. 13 (1), pp.25–48.

Curado, C., Muñoz-Pascual, L. and Galende, J. (2018) Antecedents to innovation performance in SMEs: A mixed methods approach. *Journal of Business Research*. 89 (January), Elsevier, pp.206–215.

Curkovic, S., Sroufe, R. and Melnyk, S. (2005) Identifying the factors which affect the decision to attain ISO 14000. *Energy*. 30 (8 SPEC. ISS.), pp.1387–1407.

Danso, A. et al. (2019) Environmental sustainability orientation, competitive strategy and financial performance. *Business Strategy and the Environment*. 28 (5), pp.885–895.

Darcy, C. et al. (2014) A consideration of organisational sustainability in the SME context. Ronan Carbery, Prof. Thomas N. Gara, D. (ed.) *European Journal of Training and Development*. 38 (5), pp.398–414.

Das, M. and Rangarajan, K. (2017) Corporate Sustainability as a Business Strategy in SMEs - . pp.505–511.

Das, M., Rangarajan, K. and Dutta, G. (2020) *Corporate sustainability in SMEs: an Asian perspective Journal of Asia Business Studies*. 14 (1), 109–138.

De, D. et al. (2020) Impact of Lean and Sustainability Oriented Innovation on Sustainability Performance of Small and Medium Sized Enterprises: A Data Envelopment Analysis-based framework. *International Journal of Production Economics*. 219 (June 2018), Elsevier B.V., pp.416–430.

Denzin, N.K. & Lincoln, Y.S. (2018). The SAGE handbook of qualitative research, Fifth edn, SAGE, Los Angeles.

Denzin, N.K. (1989). *The research act: A theoretical introduction to sociological method* (3rd ed.). New York: McGraw-Hill.

Degong, M. et al. (2018) Do international capabilities and resources configure firm's sustainable competitive performance? Research within Pakistani SMEs. *Sustainability (Switzerland)*. 10 (11).

Delai, I. and Takahashi, S. (2013) Corporate sustainability in emerging markets: Insights from the practices reported by the Brazilian retailers. *Journal of Cleaner Production*. 47, Elsevier Ltd, pp.211–221.

Delai, I. and Takahashi, S. (2011) Sustainability measurement system: a reference model proposal. *Social Responsibility Journal*. 7 (3), pp.438–471.

Delmas, M. and Blass, V.D. (2010) Measuring Corporate Environmental Performance: The Trade-Offs of Sustainability Ratings. *Business Strategy and the Environment*. 19 (4), pp.245–260.

Denscombe, M. (2008) Communities of Practice. *Journal of Mixed Methods Research*. 2 (3), pp.270–283.

Denzin, N.K. (2010) Moments, Mixed Methods, and Paradigm Dialogs. *Qualitative Inquiry*. 16 (6), pp.419–427.

Denzin, N.K. (2012) Triangulation 2.0*. *Journal of Mixed Methods Research*. 6 (2), pp.80–88.

DeSantis, L. and Ugarriza, D.N. (2000) The concept of theme as used in qualitative nursing research. *Western Journal of Nursing Research*. 22 (3), pp.351–372.

Deshpande, R. (1983) 'Paradigms Lost': On Theory and Method in Research in Marketing. *Journal of Marketing*. 47 (4), p.101.

Dewasiri, N.J., Weerakoon, Y.K.B. and Azeez, A.A. (2018) Mixed Methods in Finance Research: The Rationale and Research Designs. *International Journal of Qualitative Methods*. 17 (1), pp.1–13.

Dey, P.K. et al. (2019) Could lean practices and process innovation enhance supply chain sustainability of small and medium-sized enterprises? *Business Strategy and the Environment*. 28 (4), pp.582–598.

Dey, P.K., Malesios, C., De, D., Chowdhury, S. and Abdelaziz, F.B., (2020) The Impact of Lean Management Practices and Sustainably-Oriented Innovation on Sustainability Performance of Small and Medium-Sized Enterprises: Empirical Evidence from the UK. *British Journal of Management*. 31 (1), pp.141–161.

Dhanesh, G.S. (2015) Corporate social responsibility (CSR) in India: A dialectical analysis of the communicative construction of the meanings and boundaries of CSR in India. *Public Relations Inquiry*. 4 (3), pp.287–303.

Dharam, H. and Singh, B. (2015) Achieving Environmental Sustainability of Small and Medium Enterprises Through Selective Supplier Development Programs. *International Journal of Advanced Research in Management and Social Sciences*. 4 (2), pp.35–50.

Dibella, A.J., Nevis, E.C. and Gould, J.M. (1996) Understanding Organizational Learning Capability. *Journal of Management Studies*. 33 (3), pp.361–379.

DiMaggio, P.J. and Powell, W.W. (1983) The Iron Cage Revisited : Institutional Isomorphism and Collective Rationality in Organizational Fields Author (s): Paul J . DiMaggio and Walter W . Powell Published by : American Sociological Association Stable URL : http://www.jstor.org/stable/2095101. *American Sociological Review*. 48 (2), pp.147–160.

Dissanayake, D. et al. (2020) Barriers for sustainability reporting: evidence from Indo-Pacific region. *Meditari Accountancy Research*.

Dissanayake, D., Tilt, C. and Xydias-Lobo, M. (2016) Sustainability reporting by publicly listed companies in Sri Lanka. *Journal of Cleaner Production*. 129, Elsevier Ltd, pp.169–182.

Dissanayake, S. and Divakara, S. (2019) a Literature Review on Intrapreneurial Constraints in the Development of Small and Medium Scale Enterprises Research Article a Literature Review on Intrapreneurial Constraints in the Development of. *International Journal of Current Research*. 11 (11), pp.8540–8547.

Ditlev-Simonsen, C.D. and Midttun, A. (2011) What motivates managers to pursue corporate responsibility? a survey among key stakeholders. *Corporate Social Responsibility and Environmental Management*. 18 (1), pp.25–38.

DiVito, L. and Bohnsack, R. (2017) Entrepreneurial orientation and its effect on sustainability decision tradeoffs: The case of sustainable fashion firms. *Journal of Business Venturing*. 32 (5), Elsevier Inc., pp.569–587.

Do, Q.C. (2020) *Social and Economic Upgrading in the Garment Supply Chain in Vietnam* (137).

Dobers, P. and Halme, M. (2009) Corporate social responsibility and developing countries. *Corporate Social Responsibility and Environmental Management*. 16 (5), pp.237–249.

Dora, M., Kumar, M. and Gellynck, X. (2016) Determinants and barriers to lean implementation in food-processing SMEs - A multiple case analysis. *Production Planning and Control*. 27 (1), Taylor & Francis, pp.1–23.

Durst, S. and Gueldenberg, S. (2010) What makes SMEs attractive to external successors? *VINE: The journal of information and knowledge management systems*. 40 (2), pp.108–135.

DWYER, L. (2005) Relevance of Triple Bottom Line Reporting To Achievement of Sustainable Tourism: a Scoping Study. *Tourism Review International*. 9 (1), pp.79–938.

Dzhengiz, T. and Niesten, E. (2020) Competences for Environmental Sustainability: A Systematic Review on the Impact of Absorptive Capacity and Capabilities. *Journal of Business Ethics*. 162 (4), Springer Netherlands, pp.881–906.

Easterby-Smith, M., Thorpe, R. & Jackson, P.R. 2015, *Management and business research*, Fifth edn, SAGE, London.

Edwards, V. and Phan, A. (2013) *Managers and management in Vietnam: 25 years of economic renovation (doi moi) Managers and Management in Vietnam: 25 Years of Economic Renovation (Doi Moi)*.

Ehambaranathan, E., Samie, A. and Murugasu, S. (2015) The Recent Challenges of

Globalization and the Role of Employee Engagement – The Case of Vietnam. *International Journal of Human Resource Studies*. 5 (1), p.69.

Eikelenboom, M. and de Jong, G. (2019) The impact of dynamic capabilities on the sustainability performance of SMEs. *Journal of Cleaner Production*. 235, pp.1360–1370.

Ekwueme, C.M., Egbunike, C.F. and Onyali, C.I. (2013) Benefits of Triple Bottom Line Disclosures on Corporate Performance: An Exploratory Study of Corporate Stakeholders. *Journal of Management and Sustainability*. 3 (2), pp.79–91.

Eldor, L. and Vigoda-Gadot, E. (2017) The nature of employee engagement: rethinking the employee–organization relationship. *International Journal of Human Resource Management*. 28 (3), Routledge, pp.526–552.

Elkington, J. (2001) Enter the Triple Bottom Line. *The Triple Bottom Line: Does it all Add Up?* 1 (1986), pp.1–16.

Elkington, J. (1997) Partnerships from Cannibals with Forks : The Triple Bottom line of 21 st Century Business. *Environmental Quality Management*. Autumn 199, pp.37–51.

Engert, S., Rauter, R. and Baumgartner, R.J. (2016) Exploring the integration of corporate sustainability into strategic management: A literature review. *Journal of Cleaner Production*. 112, Elsevier Ltd, pp.2833–2850.

Esben Rahbek Pedersen (2009) The many and the few: rounding up the SMEs that manage CSR in the supply chain. *Supply Chain Management: An International Journal*. 14 (2), pp.109–116.

Escobar, L.F. and Vredenburg, H. (2011) Multinational Oil Companies and the Adoption of Sustainable Development: A Resource-Based and Institutional Theory Interpretation of Adoption Heterogeneity. *Journal of Business Ethics*. 98 (1), pp.39–65.

Etuk, R.U., Etuk, G.R. and Michael, B. (2014) Small and medium scale enterprises (SMEs) and Nigeria's economic development. *Mediterranean Journal of Social Sciences*. 5 (7), pp.656–662.

European Commission (2002a) Communication from the Commission concerning Corporate Social Responsibility: A Business Contribution to Sustainable Development. (July), pp.1–24.

European Commission (2002b) *Observatory of European SMEs European SMEs and Social and Environmental Responsibility*

Evans, W.R. and Davis, W.D. (2011) An examination of perceived corporate citizenship, job applicant attraction, and CSR work role definition. *Business and Society*. 50 (3), pp.456–480.

Eze, U.C., Goh, G.G.G., Goh, C.Y. and Tan, T.L., (2013) Perspectives of SMEs on knowledge sharing. *VINE: The journal of information and knowledge management system*. 43 (2), pp.210–236.

Fairlie, P. (2011) Meaningful work, employee engagement, and other key employee outcomes: Implications for human resource development. *Advances in Developing Human Resources*. 13 (4), pp.508–525.

Fakhrudtdinov, A. (2012) Corporate Social Responsibility in Regional and International Entrepreneurship. *Australasian Journal of Regional Studies*. 18 (3), pp.82–85.

Fallis, A.. (2013) Leadership Qualities and Management Competencies. *European Academy of Business in Society*. 53 (9), pp.1689–1699.

Fan, C., Carrell, J. and Zhang, H. (2010) An investigation of indicators for measuring sustainable manufacturing. *Proceedings of the 2010 IEEE*.

Fassin, Y. (2008) SMEs and the fallacy of formalising CSR. *Business Ethics: A European Review*. 17 (4), pp.364–378.

Fatimah, Y.A. and Aman, M. (2018) Remanufacturing sustainability indicators: An Indonesian small and medium enterprise case study. *IOP Conference Series: Materials Science and Engineering*. 403 (1).

Faulkner, W. and Badurdeen, F. (2014) Sustainable Value Stream Mapping (Sus-VSM): Methodology to visualize and assess manufacturing sustainability performance. *Journal of Cleaner Production*. 85, Elsevier Ltd, pp.8–18.

Feil, A.A., de Quevedo, D.M. and Schreiber, D. (2015) Selection and identification of the indicators for quickly measuring sustainability in micro and small furniture industries. *Sustainable Production and Consumption*. 3 (June), Elsevier B.V., pp.34–44.

Fekpe, E. and Delaporte, Y. (2019) Sustainability integration and supply chain performance of manufacturing small and medium size enterprises. *African Journal of Economic and Management Studies*. 10 (2), pp.130–147.

Ferenhof, H.A. et al. (2014) Environmental management systems in small and medium-sized enterprises : an analysis and systematic review. *Journal of Cleaner Production*. 74, Elsevier Ltd, pp.44–53.

Ferguson, S.L., Kerrigan, M.R. and Hovey, K.A. (2020) Leveraging the opportunities of mixed methods in research synthesis: Key decisions in systematic mixed studies review methodology. *Research Synthesis Methods*. 11 (5), pp.580–593.

Ferreira, A. and Otley, D. (2009) The design and use of performance management systems: An extended framework for analysis. *Management Accounting Research*. 20 (4), pp.263–282.

Filser, M. et al. (2019) Entrepreneurship as catalyst for sustainable development: Opening the black box. *Sustainability (Switzerland)*. 11 (16).

Font, X., Garay, L. and Jones, S. (2016) Sustainability motivations and practices in small tourism enterprises in European protected areas. *Journal of Cleaner Production*. 137, Elsevier Ltd, pp.1439–1448.

Fornell, C. and Larcker, D.F. (1981) Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*. 3 (1), pp.134–135.

Francalanci, C. and Morabito, V. (2008) IS integration and business performance: The mediation effect of organizational absorptive capacity in SMEs. *Journal of Information Technology*. 23 (4), pp.297–312.

Franco, M. and Bourne, M. (2003) Factors that play a role in "managing through measures". *Management Decision*. 41 (8), pp.698–710.

Franco, M. and Matos, P.G. (2015) Leadership styles in SMEs: a mixed-method approach. *International Entrepreneurship and Management Journal*. 11 (2), pp.425–451.

Fraser, E.D.G. et al. (2006) Bottom up and top down: Analysis of participatory processes for sustainability indicator identification as a pathway to community empowerment and sustainable environmental management. *Journal of Environmental Management*. 78 (2), Academic Press, pp.114–127.

Freeman, R.E. et al. (2010) *Stakeholder Theory: The State Of The Art Journal of Chemical Information and Modeling*. 53 (9).

Friedman, M. (1970) The Social Responsibility of Business Is to Increase Its Profits. *Corporate Ethics and Corporate Governance*. pp.173–178.

Frondel, M., Horbach, J. and Rennings, K. (2008) What triggers environmental management and innovation? Empirical evidence for Germany. *Ecological Economics*. 66 (1), pp.153–160.

Fuller, T. and Lewis, J. (2002) 'Relationships mean everything' A typology of small-business relationship strategies in a reflexive context. *British Journal of Management*. 13 (4), pp.317–336.

Furst, S.A. and Cable, D.M. (2008) Employee Resistance to Organizational Change: Managerial Influence Tactics and Leader-Member Exchange. *Journal of Applied Psychology*. 93 (2), pp.453–462.

Gadenne, D.L., Kennedy, J. and McKeiver, C. (2009) An empirical study of environmental awareness and practices in SMEs. *Journal of Business Ethics*. 84 (1), pp.45–63.

Galbreath, J. (2019) Drivers of Green Innovations: The Impact of Export Intensity, Women Leaders, and Absorptive Capacity. *Journal of Business Ethics*. 158 (1), Springer Netherlands, pp.47–61.

Gale, N.K. et al. (2013) Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Medical Research Methodology*. 13 (1), pp.1–11.

Gallo, P.J. and Christensen, L.J. (2011) Firm Size Matters: An Empirical Investigation of Organizational Size and Ownership on Sustainability-Related Behaviors. *Business & Society*. 50 (2), pp.315–349.

Gandhi, N.S., Thanki, S.J. and Thakkar, J.J. (2018) Ranking of drivers for integrated lean-green manufacturing for Indian manufacturing SMEs. *Journal of Cleaner Production*. 171 (June 2008), Elsevier Ltd, pp.675–689.

Garbie, I. (2016) Sustainability in small and medium-sized manufacturing enterprises: An empirical study. *Journal of Engineering Research*. 13 (1), pp.42–57.

Garcia-Sabater, J.J. and Marin-Garcia, J.A. (2011) Can we still talk about continuous improvement? Rethinking enablers and inhibitors for successful implementation. *International Journal of Technology Management*. 55 (1), pp.28–42.

García-Sánchez, E., García-Morales, V.J. and Martín-Rojas, R. (2018) Influence of technological assets on organizational performance through absorptive capacity, organizational innovation and internal labour flexibility. *Sustainability (Switzerland)*. 10 (3).

Garengo, P., Biazzo, S. and Bititci, U. (2005) Performance measurement systems in SMEs: A review for a research agenda. *International Journal of Management Reviews*. 7 (1), pp.25–47.

Garengo, P. and Bititci, U. (2007) Towards a contingency approach to performance measurement: An empirical study in Scottish SMEs. *International Journal of Operations and Production Management*. 27 (8), pp.802–825.

Garengo, P. and Sharma, M.K. (2014) Performance measurement system contingency factors: A cross analysis of Italian and Indian SMEs. *Production Planning and Control*. 25 (3), pp.220–240.

Garvare R. and Johansson P. (2010) Management for sustainability – A stakeholder theory. *Total Quality Management & Business Excellence*. 21 (7), pp.737–744.

Gaskin, J., & Lim, J. (2018). Multigroup analysis, AMOS Plugin. Gaskination's StatWiki.

Gates, S. and Germain, C. (2010) Integrating sustainability measures into strategic performance measurement systems: An empirical study. *Management Accounting Quarterly*. 11 ((3)), pp.1–7.

Ghadge, A. et al. (2017) Implementing environmental practices within the Greek dairy supply chain Drivers and barriers for SMEs. *Industrial Management and Data Systems*. 117 (9), pp.1995–2014.

Ghadge, A. et al. (2020) Sustainability implementation challenges in food supply chains: a case of UK artisan cheese producers. *Production Planning and Control*. 0 (0), Taylor & Francis, pp.1–16.

Ghasemzadeh, P. et al. (2019) Moderating role of innovation culture in the relationship between organizational learning and innovation performance. *Learning Organization*. 26 (3), pp.289–303.

Ghazilla, R.A.R. et al. (2015a) Drivers and barriers analysis for green manufacturing practices in Malaysian smes: A preliminary findings. *Procedia CIRP*. 26, Elsevier B.V., pp.658–663.

Ghazilla, R.A.R. et al. (2015b) Drivers and barriers analysis for green manufacturing practices in Malaysian smes: A preliminary findings. *Procedia CIRP*. 26, Elsevier B.V., pp.658–663.

Ghazilla, R.A.R. et al. (2015c) Drivers and barriers analysis for green manufacturing practices in Malaysian smes: A preliminary findings. *Procedia CIRP*. 26, Elsevier B.V., pp.658–663.

Giang, M.H. et al. (2018) Impact of investment climate on total factor productivity of manufacturing firms in Vietnam. *Sustainability (Switzerland)*. 10 (12), pp.1–18.

Gianni, M., Gotzamani, K. and Tsiotras, G. (2017) Multiple perspectives on integrated management systems and corporate sustainability performance. *Journal of Cleaner Production*. 168, Elsevier Ltd, pp.1297–1311.

Gimenez, C., Sierra, V. and Rodon, J. (2012a) Sustainable operations: Their impact on the triple bottom line. D. Huaccho Huatuco, Jairo Rafael Mo, L. (ed.) *International Journal of Production Economics*. 140 (1), Elsevier, pp.149–159.

Gimenez, C., Sierra, V. and Rodon, J. (2012b) Sustainable operations: Their impact on the triple bottom line. D. Huaccho Huatuco, Jairo Rafael Mo, L. (ed.) *International Journal of Production Economics*. 140 (1), Elsevier Ltd, pp.149–159.

Gimenez, C. and Tachizawa, E.M. (2012) Extending sustainability to suppliers: a systematic literature review. *Supply Chain Management: An International Journal*. 17 (5), pp.531–543.

Gioia, D.A., Corley, K.G. and Hamilton, A.L. (2013) Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology. *Organizational Research Methods*. 16 (1), pp.15–31.

De Giovanni, P. (2012) Do internal and external environmental management contribute to the triple bottom line? *International Journal of Operations & Production Management*. 32 (3), pp.265–290.

Global Reporting Initiative (2015) Reporting Principles and Standard Disclosures Interpretations on the G4 Guidelines, issued by the Global Sustainability Standards Board, are located at the end of this document, and are to be considered by all users.

Goddard, J.U. et al. (2016) Implementing sustainability in small and medium-sized construction firms the role of absorptive capacity. *Engineering, Construction and Architectural Management*. 23 (4), pp.407–427.

Gold, S., Hahn, R. and Seuring, S. (2013) Sustainable supply chain management in 'Base of the Pyramid' food projects-A path to triple bottom line approaches for multinationals? *International Business Review*. 22 (5), pp.784–799.

Gong, M. et al. (2018) Inside out: The interrelationships of sustainable performance metrics and its effect on business decision making: Theory and practice. *Resources, Conservation and Recycling*. 128, Elsevier B.V., pp.155–166.

Govender, M. and Bussin, M.H.R. (2020) Performance management and employee engagement: A South African perspective. *SA Journal of Human Resource Management*. 18, pp.1–9.

Government of Vietnam 2001, *Decree Number 90/2001/ND-CP issued 23 November 2001 on SME development support*, Vietnamese Government, Hanoi.

Government of Vietnam 2009, *Decree 56/2009/ND-CP issued 30 June 2009 on supports to SME development*, Vietnamese Government.

Government of Vietnam 2014b, *Enterprise Law 68/2014/QH13 issued 26 November 2014*, Vietnamese Parliament, Hanoi.

Government of Vietnam 2014c, *Environmental protection Law 55/2014/QH13 issued 23 June 2014*, Vietnamese Parliament, Hanoi.

Government of Vietnam 2014d, *Medical insurance Law 46/2014/QH13 issued 13 June 2014*,

Vietnamese Parliament, Hanoi.

Government of Vietnam 2014e, *Social insurance Law 58/2014/QH13 24 November 2014*, Vietnamese Parliament, Hanoi.

Govindan, K. et al. (2014) Impact of supply chain management practices on sustainability. *Journal of Cleaner Production*. 85, Elsevier Ltd, pp.212–225.

Govindan, K. et al. (2015) Multi criteria decision making approaches for green supplier evaluation and selection: A literature review. *Journal of Cleaner Production*. 98, Elsevier Ltd, pp.66–83.

Govindan, K., Khodaverdi, R. and Jafarian, A. (2013) A fuzzy multi criteria approach for measuring sustainability performance of a supplier based on triple bottom line approach. *Journal of Cleaner Production*. 47, Elsevier Ltd, pp.345–354.

Goyannes, R. et al. (2018) Measurement of sustainability performance in Brazilian organizations. *International Journal of Sustainable Development & World Ecology*. 25 (4), Taylor & Francis, pp.312–326.

Graafland, J., Van de Ven, B. and Stoffele, N. (2003) Strategies and Instruments for Organising CSR by Small and Large Businesses in the Netherlands. *Journal of Business Ethics*. 47 (1), pp.45–60.

Granly, B.M. and Welo, T. (2014) EMS and sustainability: Experiences with ISO 14001 and Eco-Lighthouse in Norwegian metal processing SMEs. *Journal of Cleaner Production*. 64, Elsevier Ltd, pp.194–204.

Gray, D.E. (2014). *Doing research in the real world*, Third edn, SAGE Publications, London.

Greene, J.C. (2005) The generative potential of mixed methods inquiry. *International Journal of Research and Method in Education*. 28 (2), pp.207–211.

Greene, J.C., Caracelli, V.J. and Graham, W.F. (1989) Toward a Conceptual Framework for Mixed-Method Evaluation Designs. *Educational Evaluation and Policy Analysis*. 11 (3), pp.255–274.

Grigorescu, A. et al. (2020) Key drivers and skills needed for innovative companies focused on sustainability. *Sustainability (Switzerland)*. 12 (1).

Gualandris, J., Golini, R. and Kalchschmidt, M. (2014) Do supply management and global sourcing matter for firm sustainability performance? *Supply Chain Management: An International Journal*. 19 (3), pp.258–274.

Gualandris, J. and Kalchschmidt, M. (2014) Customer pressure and innovativeness: Their role in sustainable supply chain management. *Journal of Purchasing and Supply Management*. 20 (2), pp.92–103.

Guba, E.G. and Lincoln, Y.S., 1994. Competing paradigms in qualitative research. *Handbook of qualitative research*, 2(163-194), p.105.

Gunasekaran, A. and Kobu, B. (2007) Performance measures and metrics in logistics and

supply chain management: A review of recent literature (1995-2004) for research and applications. *International Journal of Production Research*. 45 (12), pp.2819–2840.

Gustafson, D. et al. (2016) Seven food system metrics of sustainable nutrition security. *Sustainability (Switzerland)*. 8 (3), pp.1–17.

Ha, L.T., Nam, P.X. and Thanh, T.T. (2021) Effects of Bribery on Firms' Environmental Innovation Adoption in Vietnam: Mediating Roles of Firms' Bargaining Power and Credit and Institutional Constraints. *Ecological Economics*. 185 (July 2020), Elsevier B.V., p.107042.

El Haddad, R., Karkoulian, S. and Nehme, R. (2019) The impact of 360 feedback appraisal system on organizational justice and sustainability: The mediating roles of gender and managerial levels. *International Journal of Organizational Analysis*. 27 (3), pp.712–728.

Hahn, T. et al. (2015) Advancing Research on Corporate Sustainability: Off to Pastures New or Back to the Roots? *Business & Society*. pp.1–31.

Hahn, T. et al. (2010) Trade offs in corporate sustainability: you can't have your cake and eat it. *Business Strategy and the Environment*. 19 (4), pp.217–229.

Hahn, T. and Figge, F. (2011) Beyond the Bounded Instrumentality in Current Corporate Sustainability Research: Toward an Inclusive Notion of Profitability. *Journal of Business Ethics*. 104 (3), pp.325–345.

Hair, J.F., Black, W.C., Babin, B.J. & Anderson, R.E. (2019). *Multivariate data analysis*, Eighth edn, Cengage, Australia.

Hák, T., Moldan, B. and Dahl, A.L. (2007) Sustainablity Indicators. (April).

Halcomb, E.J. and Hickman, L. (2015) Mixed methods research. Nursing Standard: promoting excellence in nursing care. *Nursing Standard: promoting excellence in nursing care*. 29 (32), pp.41–47.

Han, Y. (2017) Predicting Intentions to Purchase Sustainable Apparel in China: A Structural Equation Modeling Approach. *International Journal of Psychological Studies*. 9 (2), p.53.

Harding, R. (2006) Ecologically sustainable development: Origins, implementation and challenges. *Desalination*. 187 (1–3), pp.229–239.

Harrison, R.L. and Reilly, T.M. (2011) Mixed methods designs in marketing research. *Qualitative Market Research: An International Journal*. 14 (1), pp.7–26.

Hasan, M.N. (2016) Measuring and understanding the engagement of Bangladeshi SMEs with sustainable and socially responsible business practices: An ISO 26000 perspective. *Social Responsibility Journal*. 12 (3), pp.584–610.

Hassini, E., Surti, C. and Searcy, C. (2012) A literature review and a case study of sustainable supply chains with a focus on metrics. *International Journal of Production Economics*. 140 (1), pp.69–82.

Hatak, I., Floh, A. and Zauner, A. (2015) Working on a dream: sustainable organisational change in SMEs using the example of the Austrian wine industry. *Review of Managerial*

Science. 9 (2), pp.285–315.

He, Q., Gallear, D., Ghobadian, A. and Ramanathan, R., (2019) Managing knowledge in supply chains: a catalyst to triple bottom line sustainability. *Production Planning and Control*. 30 (5–6), Taylor & Francis, pp.448–463.

Heng, T.B., Lee, C.L., Foong, Y.P. and San, O.T., (2012) A framework of a sustainable performance measurements (SPMs) model for the Malaysian electronic and electrical Industry. *World Applied Sciences Journal*. 20 (1), pp.107–119.

Heron, J. and Reason, P. (1997) Inquiry Paradigm. *Qualitative Inquiry*. 3 (3), pp.274–294.

Herr, H. and Nettekoven, Z.M. (2018) The role of small and medium-sized enterprises in development: What can be learned from the German experience? *Global Labour University Working Paper*. (53), p.32.

Hill, J., Nancarrow, C. and Tiu Wright, L. (2002) Lifecycles and crisis points in SMEs: a case approach. *Marketing Intelligence & Planning*. 20 (6), pp.361–369.

Hillary, R. (2004) Environmental management systems and the smaller enterprise. *Journal of Cleaner Production*. 12 (6), pp.561–569.

Hoang Tien, N. (2019) Conditions for the development of Vietnamese business and entrepreneurship in Poland. *Science & Technology Development Journal - Economics - Law and Management*. 3 (1), pp.37–45.

Hoepfl, M.C. (1997) Choosing Qualitative Research: A Primer for Technology Education Researchers. *Journal of Technology Education*. 9 (1), pp.47–63.

Hogevold, N.M. et al. (2015) A triple bottom line construct and reasons for implementing sustainable business practices in companies and their business networks. *Corporate Governance*. 15 (4), pp.427–443.

Høgevold, N.M. et al. (2015) A triple bottom line construct and reasons for implementing sustainable business practices in companies and their business networks. *Corporate Governance*. 15 (4), pp.427–443.

Hoogendoorn, B., Guerra, D. and van der Zwan, P. (2015) What drives environmental practices of SMEs? *Small Business Economics*. 44 (4), pp.759–781.

Hoque, A.S.M.M. and Awang, Z. Bin (2019) Does gender difference play moderating role in the relationship between entrepreneurial marketing and bangladeshi SME performance? *Accounting*. 5 (1), pp.35–52.

Hörisch, J., Freeman, R.E. and Schaltegger, S. (2014) Applying Stakeholder Theory in Sustainability Management. *Organization & Environment*. 27 (4), pp.328–346.

Horisch, J., Johnson, M.P. and Schaltegger, S. (2015) Implementation of Sustainability Management and Company Size: A Knowledge-Based View. *Business Strategy and the Environment*. 24 (8), pp.765–779.

Hossain, M. and Kauranen, I. (2016) Open innovation in SMEs: a systematic literature review.

Journal of Strategy and Management. 9 (1), pp.58–73.

Hosseininia, G. and Ramezani, A. (2016) Factors Influencing Sustainable Entrepreneurship in Small and Medium-Sized Enterprises in Iran: A Case Study of Food Industry. *Sustainability*. 8 (10), p.1010.

Hsu, C.H., Chang, A.Y. and Luo, W. (2017) Identifying key performance factors for sustainability development of SMEs – integrating QFD and fuzzy MADM methods. *Journal of Cleaner Production*. 161, Elsevier Ltd, pp.629–645.

Hsu, J.-L. and Cheng, M.-C. (2012) What Prompts Small and Medium Enterprises to Engage in Corporate Social Responsibility? A Study from Taiwan. *Corporate Social Responsibility and Environmental Management*. 19 (5), pp.288–305.

Hubbard, G. (2009) Measuring organizational performance: Beyond the triple bottom line. *Business Strategy and the Environment*. 18 (December 2006), pp.177–191.

Hudson, L.A. and Ozanne, J.L. (1988) Alternative Ways of Seeking Knowledge in Consumer Research. *Journal of Consumer Research*. 14 (4), pp.508–521.

Hudson, M., Smart, A. and Bourne, M. (2001) Theory and practice in SME performance measurement systems. *International Journal of Operations & Production Management*. 21 (8), pp.1096–1115.

Husgafvel, R. et al. (2014) Social metrics in the process industry: background, theory and development work. *International Journal of Sustainable Engineering*. 7 (2), pp.171–182.

Husted, B.W. (2000) A Contingency Theory of Corporate Social Performance. *Business & Society*. 39 (1), pp.24–48.

Hutchins, M.J. and Sutherland, J.W. (2008) An exploration of measures of social sustainability and their application to supply chain decisions. *Journal of Cleaner Production*. 16 (15), pp.1688–1698.

Hwang, B.G., Shan, M. and Lye, J.M. (2018) Adoption of sustainable construction for small contractors: major barriers and best solutions. *Clean Technologies and Environmental Policy*. 20 (10), Springer Berlin Heidelberg, pp.2223–2237.

Imbrogiano, J.P. (2020) Contingency in Business Sustainability Research and in the Sustainability Service Industry: A Problematization and Research Agenda. *Organization and Environment*.

Ingwersen, W. et al. (2014) Integrated metrics for improving the life cycle approach to assessing product system sustainability. *Sustainability (Switzerland)*. 6 (3), pp.1386–1413.

International Energy Agency (2017) Key World Energy statistics.

Iraldo, F., Testa, F. and Frey, M. (2010) *Environmental Management System and SMEs: EU Experience, Barriers and Perspectives Environmental Management*. (June 2014).

Isaga, N., Masurel, E. and Van Montfort, K. (2015) Owner-manager motives and the growth of SMEs in developing countries. *Journal of Entrepreneurship in Emerging Economies*. 7 (3),

pp.190–211.

Isensee, C. et al. (2020) The relationship between organizational culture, sustainability, and digitalization in SMEs: A systematic review. *Journal of Cleaner Production*. 275, Elsevier Ltd, p.122944.

Ivankova, N. V., Creswell, J.W. and Stick, S.L. (2006a) Using Mixed-Methods Sequential Explanatory Design: From Theory to Practice. *Field Methods*. 18 (4), pp.1–8.

Ivankova, N. V, Creswell, J.W. and Stick, S.L. (2006b) Using mixed methods sequential explanatory design: From theory to practice. *Field Methods*. 18 (1), pp.3–20.

Jablin, F. and Putnam, L. (2001) *The New Handbook of Organizational Communication* 2455 Teller Road, Thousand Oaks California 91320 United States of America, SAGE Publications, Inc.

Jafari-Sadeghi, V. et al. (2020) Internationalisation business processes in an under-supported policy contexts: evidence from Italian SMEs. *Business Process Management Journal*. 26 (5), pp.1055–1074.

Jahanshahi, A.A., Brem, A. and Bhattacharjee, A. (2017) Who takes more sustainability-oriented entrepreneurial actions? The role of entrepreneurs' values, beliefs and orientations. *Sustainability (Switzerland)*. 9 (10).

Jamali, D. (2006) Insights into triple bottom line integration from a learning organization perspective. *Business Process Management Journal*. 12 (6), pp.809–821.

Jamali, D., Lund-Thomsen, P. and Jeppesen, S. (2017) SMEs and CSR in Developing Countries. *Business & Society*. 56 (1), pp.11–22.

Jamali, D., Lund-Thomsen, P. and Khara, N. (2017) *CSR Institutionalized Myths in Developing Countries: An Imminent Threat of Selective Decoupling Business and Society*. 56 (3).

Jamali, D. and Mirshak, R. (2007) Corporate Social Responsibility (CSR): Theory and practice in a developing country context. *Journal of Business Ethics*. 72 (3), pp.243–262.

Jarvenpaa, S.L. and Ives, B. (1991) Executive involvement and participation in the management of information technology. *MIS Quarterly: Management Information Systems*. 15 (2), pp.205–223.

Jenkins, H. (2009) A 'business opportunity' model of corporate social responsibility for small- and medium-sized enterprises. *Business Ethics-a European Review*. 18 (1), pp.21–36.

Jenkins, H. (2004) A Critique of Conventional CSR Theory: An SME Perspective. *Journal of General Management*. 29 (4), pp.37–57.

Jenkins, H. (2006) Small business champions for corporate social responsibility. *Journal of Business Ethics*. 67 (3), pp.241–256.

Jeppesen, S. et al. (2012) Corporate Social Responsibility and Competitiveness for SMEs in Developing Countries : South Africa and Vietnam to the Final report) Submitted by with Soeren Jeppesen (Copenhagen Business School), Bas Kothuis (Global Corporate Consultancy

) and Angie.

Jia, F. et al. (2018) Sustainable supply chain management in developing countries : An analysis of the literature. *Journal of Cleaner Production*. 189, Elsevier Ltd, pp.263–278.

Jiang, Q. et al. (2018) A principal component analysis based three-dimensional sustainability assessment model to evaluate corporate sustainable performance. *Journal of Cleaner Production*. 187, Elsevier Ltd, pp.625–637.

Jiang, Y., Ritchie, B.W. and Verreynne, M.L. (2021) Building dynamic capabilities in tourism organisations for disaster management: enablers and barriers. *Journal of Sustainable Tourism*. 0 (0), Routledge, pp.1–26.

Jick, T.D. (1979) Mixing Qualitative and Quantitative Methods : Triangulation in Action. *Administrative Science Quarterly*. 24 (4), pp.602–611.

Johnson, M.P. (2017) Knowledge acquisition and development in sustainability-oriented small and medium-sized enterprises: Exploring the practices, capabilities and cooperation. *Journal of Cleaner Production*. 142, Elsevier Ltd, pp.3769–3781.

Johnson, M.P. (2015) Sustainability Management and Small and Medium-Sized Enterprises: Managers' Awareness and Implementation of Innovative Tools. *Corporate Social Responsibility and Environmental Management*. 22 (5), pp.271–285.

Johnson, M.P. and Schaltegger, S. (2016) Two Decades of Sustainability Management Tools for SMEs: How Far Have We Come? *Journal of Small Business Management*. 54 (2), pp.481–505.

Johnson, R. and Onwuegbuzie, A. (2004) Mixed methods research: A research paradigm whose time has come. *Educational Researcher*. 33 (7), pp.14–26.

Jonker, J. and Pennink, B.W. (2009) *The essence of research methodology: A concise guide for master and PhD students in management science The Essence of Research Methodology: A Concise Guide for Master and PhD Students in Management Science*. Berlin, Heidelberg, Springer Berlin Heidelberg.

Jonsen, K., Fendt, J. and Point, S. (2018) Convincing Qualitative Research: What Constitutes Persuasive Writing? *Organizational Research Methods*. 21 (1), pp.30–67.

José Tarí, J. and Molina-Azorín, J.F. (2010) Integration of quality management and environmental management systems. Karapetrovic, S. (ed.) *The TQM Journal*. 22 (6), pp.687–701.

Joung, C.B. et al. (2013) Categorization of indicators for sustainable manufacturing. *Ecological Indicators*. 24, Elsevier Ltd, pp.148–157.

Jugder, N. (2016) The thematic analysis of interview data: an approach used to examine the influence of the market on curricular provision in Mongolian higher education institutions. *Hillary Place Papers*. 3rd Editio (Jan 2016).

Kadiresan, V. et al. (2016) *HR Practices and organizational commitment among SME employees which leads to retention*In: *Proceedings of the International Conference on*

Industrial Engineering and Operations Management. 8-10 March, 2472–2479.

Kaler, J. (2006) Evaluating stakeholder theory. *Journal of Business Ethics*. 69 (3), pp.249–268.

Kallmuenzer, A. et al. (2017) Trade-offs between dimensions of sustainability: exploratory evidence from family firms in rural tourism regions. *Journal of Sustainable Tourism*. 9582 (November), Taylor & Francis, pp.1–18.

Kane, L.V. et al. (2021) Corporate social responsibility in Vietnam: views from corporate and NGO executives. *Social Responsibility Journal*.

Kantabutra, S. (2014) Measuring corporate sustainability: A thai approach. *Measuring Business Excellence*. 18 (2), pp.73–88.

Karell, E. and Kirsi, N. (2020) A Mixed-Method Study of Design Practices and Designers ' Roles in Sustainable-Minded Clothing Companies.

Kaufmann, L. and Saw, A.A. (2014) Using a multiple-informant approach in SCM research. *International Journal of Physical Distribution and Logistics Management*. 44 (6), pp.511–527.

Keerthika, D. and Alagarsamy, S. (2018) A Multiple Measure of Organizational Performances and its Effect on Distinctive Marketing Competencies : An Empirical Study of India and the Maldives. *Journal of Management and Marketing Review*. 3 (3), pp.129–142.

Ketprapakorn, N. and Kantabutra, S. (2019) Culture development for sustainable SMEs: Toward a behavioral theory. *Sustainability (Switzerland)*. 11 (9).

Khadka, C. and Vacik, H. (2012) Comparing a top-down and bottom-up approach in the identification of criteria and indicators for sustainable community forest management in Nepal. *Forestry*. 85 (1), pp.145–158.

Khurana, S., Haleem, A. and Mannan, B. (2019) Determinants for integration of sustainability with innovation for Indian manufacturing enterprises: Empirical evidence in MSMEs. *Journal of Cleaner Production*. 229, Elsevier Ltd, pp.374–386.

Kim, C. and Lee, J. (2018) The effect of network structure on performance in South Korea SMEs: The moderating effects of absorptive capacity. *Sustainability (Switzerland)*. 10 (9).

Kim, J. et al. (2015) Measures of perceived sustainability. *Journal of Global Scholars of Marketing Science*. 25 (2), pp.182–193.

Kim, Y. (2011) The Pilot Study in Qualitative Inquiry: Identifying Issues and Learning Lessons for Culturally Competent Research. *Qualitative Social Work*. 10 (2), pp.190–206.

Kline, R.B., (2011). *Principles and Practice of Structural Equation Modeling*. Guilford Press, NY.

Klewitz, J. and Hansen, E.G. (2014) Sustainability-oriented innovation of SMEs: A systematic review. *Journal of Cleaner Production*. 65, Elsevier Ltd, pp.57–75.

Klewitz, J., Zeyen, A. and Hansen, E.G. (2012) Intermediaries driving eco-innovation in SMEs: A qualitative investigation. *European Journal of Innovation Management*. 15 (4),

pp.442–467.

Kloviene, L. and Speziale, M.-T. (2015) Is Performance Measurement System Going Towards Sustainability in SMEs? *Procedia - Social and Behavioral Sciences*. 213, pp.328–333.

Klovienė, L. and Speziale, M.T. (2015) Sustainability Reporting as a Challenge for Performance Measurement: Literature Review. *Economics and Business*. 26, p.44.

Kock, M. De (2013) Ontology and a Mixed Methods Epistemology in Applied Research. pp.170–177.

Kocmanova, A. and Docekalova, M. (2011) Corporate Sustainability : Environmental, Social, Economic, and Corporate Performance. LIX (7), pp.203–208.

Koirala, S. (2019) SMEs: Key Drivers of Green and Inclusive Growth. *OECD Green Growth Papers*. (March), pp.1–55.

Kor, Y.Y. (2003) Experience-Based Top Management Team Competence and Sustained Growth. *Organization Science*. 14 (6), pp.707–719.

Krajnc, D. and Glavic, P. (2003) Indicators of sustainable production. *Clean Technologies and Environmental Policy*. 5 (3–4), pp.279–288.

Krauss, S.E. and Putra, U. (2005) Research Paradigms and Meaning Making : A Primer. *The Qualitative Report*. 10 (4), pp.758–770.

Kucharčíková, A., Mičiak, M. and Hitka, M. (2018) Evaluating the effectiveness of investment in human capital in e-business enterprise in the context of sustainability. *Sustainability (Switzerland)*. 10 (9).

Kucharska, W. and Kowalczyk, R. (2019) How to achieve sustainability?—Employee's point of view on company's culture and CSR practice. *Corporate Social Responsibility and Environmental Management*. 26 (2), pp.453–467.

Kucharska, W. and Kowalczyk, R. (2016) Trust, collaborative culture and tacit knowledge sharing in project management: A relationship model. *In: Proceedings of the 13th International Conference on Intellectual Capital, Knowledge Management & Organizational Learning*. 2016, pp.159–166.

Kuckertz, A. and Wagner, M. (2010) The influence of sustainability orientation on entrepreneurial intentions - Investigating the role of business experience. *Journal of Business Venturing*. 25 (5), Elsevier Inc., pp.524–539.

Küçükbay, F. and Sürücü, E. (2019) Corporate sustainability performance measurement based on a new multicriteria sorting method. *Corporate Social Responsibility and Environmental Management*. 26 (3), pp.664–680.

Kumar, M. and Antony, J. (2008) Comparing the quality management practices in UK SMEs. *Industrial Management & Data Systems*. 108 (9), pp.1153–1166.

Kumar, P. et al. (2018) Environmental management and corporate social responsibility practices of small and medium-sized enterprises. *Journal of Cleaner Production*. 195, Elsevier

Ltd, pp.687–702.

Kumar, R., Singh, R.K. and Dwivedi, Y.K. (2020) Application of industry 4.0 technologies in SMEs for ethical and sustainable operations: Analysis of challenges. *Journal of Cleaner Production*. 275, Elsevier Ltd, p.124063.

Kundurpi, A. et al. (2021) Navigating between adaptation and transformation: How intermediaries support businesses in sustainability transitions. *Journal of Cleaner Production*. 283, Elsevier Ltd, p.125366.

Kurka, T. and Blackwood, D. (2013) Participatory selection of sustainability criteria and indicators for bioenergy developments. *Renewable and Sustainable Energy Reviews*. 24, Elsevier, pp.92–102.

Kwahk, K.Y., Yang, S.B. and Ahn, H. (2020) How organizational citizenship behavior affects ERP usage performance: The mediating effect of absorptive capacity. *Sustainability (Switzerland)*. 12 (11), pp.1–20.

De La Torre, A. and Agabriel, J. (2017) Prendre en compte l'efficience alimentaire des vaches allaitantes dans les recommandations alimentaires à travers la quantification de leurs dépenses non productives. *Productions Animales*. 30 (2), pp.153–164.

Laforet, S. (2016) Effects of organisational culture on organisational innovation performance in family firms. *Journal of Small Business and Enterprise Development*. 23 (2), pp.379–407.

Lähtinen, K. et al. (2014) A systematic literature review on indicators to assess local sustainability of forest energy production. *Renewable and Sustainable Energy Reviews*. 40, Elsevier, pp.1202–1216.

Lam, L. et al. (2021) The relation among organizational culture, knowledge management, and innovation capability: Its implication for open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*. 7 (1), pp.1–16.

Langwell, C. and Heaton, D. (2016) Using human resource activities to implement sustainability in SMEs. *Journal of Small Business and Enterprise Development*. 23 (3), pp.652–670.

Lappalainen, P. et al. (2019) Managing performance through employee attributes: implications for employee engagement. *International Journal of Productivity and Performance Management*. 69 (9), pp.2119–2137.

Lara, F.J. and Salas-Vallina, A. (2017) Managerial competencies, innovation and engagement in SMEs: The mediating role of organisational learning. *Journal of Business Research*. 79 (February), Elsevier, pp.152–160.

Larrán Jorge, M. et al. (2015) Competitiveness and environmental performance in Spanish small and medium enterprises: is there a direct link? *Journal of Cleaner Production*. 101, pp.26–37.

Laskar, N. and Maji, S.G. (2016) Corporate sustainability reporting practices in India: myth or reality? *Social Responsibility Journal*. 12 (4), pp.625–641.

Laurinkeviciute, A. and Stasiskiene, Z. (2011) SMS for decision making of SMEs. *Clean Technologies and Environmental Policy*. 13 (6), pp.797–807.

Lawrence, S.R. et al. (2006) Sustainability practices of SMEs: The case of NZ. *Business Strategy and the Environment*. 15 (4), pp.242–257.

Le, T.D. and Kieu, T.A. (2019) Ethically minded consumer behaviour in Vietnam: An analysis of cultural values, personal values, attitudinal factors and demographics. *Asia Pacific Journal of Marketing and Logistics*. 31 (3), pp.609–626.

Lee, J.Y., Rocco, T.S. and Shuck, B. (2020) What Is a Resource: Toward a Taxonomy of Resources for Employee Engagement. *Human Resource Development Review*. 19 (1), pp.5–38.

Lee, K. (2009) Why and how to adopt green management into business organizations? Dwyer, R. (ed.) *Management Decision*. 47 (7), pp.1101–1121.

Lee, K.H., Herold, D.M. and Yu, A.L. (2016) Small and Medium Enterprises and Corporate Social Responsibility Practice: A Swedish Perspective. *Corporate Social Responsibility and Environmental Management*. 23 (2), pp.88–99.

Lee, S. and Torm, N. (2017) Social security and firm performance: The case of Vietnamese SMEs. *International Labour Review*. 156 (2), pp.185–212.

Lee, Y. (2021) Linking internal CSR with the positive communicative behaviors of employees: the role of social exchange relationships and employee engagement. *Social Responsibility Journal*. (December).

Lenzen, M., Dey, C.J. and Murray, S.A. (2004) Historical accountability and cumulative impacts: The treatment of time in corporate sustainability reporting. *Ecological Economics*. 51 (3–4), pp.237–250.

Leonidou, L.C. et al. (2017) Internal Drivers and Performance Consequences of Small Firm Green Business Strategy: The Moderating Role of External Forces. *Journal of Business Ethics*. 140 (3), Springer Netherlands, pp.585–606.

Lewis, K. V., Cassells, S. and Roxas, H. (2015) SMEs and the Potential for A Collaborative Path to Environmental Responsibility. *Business Strategy and the Environment*. 24 (8), pp.750–764.

Li, S. and Rees, C.J. (2020) Determinants of the formalization of human resource management practices: An empirical study in SMEs in eastern and western China. *Journal of Small Business Management*. 00 (00), Routledge, pp.1–21.

Li, S.X. and Sandino, T. (2018) Effects of an Information Sharing System on Employee Creativity, Engagement, and Performance. *Journal of Accounting Research*. 56 (2), pp.713–747.

Li, T. et al. (2012) A PCA-based method for construction of composite sustainability indicators. *International Journal of Life Cycle Assessment*. 17 (5), pp.593–603.

Liao, S.H., Chen, C.C., Hu, D.C., Chung, Y.C. and Yang, M.J., (2017) Developing a

sustainable competitive advantage: absorptive capacity, knowledge transfer and organizational learning. *Journal of Technology Transfer*. 42 (6), Springer US, pp.1431–1450.

Liao, J., Welsch, H. and Stoica, M., (2003). Organizational absorptive capacity and responsiveness: An empirical investigation of growth–oriented SMEs. *Entrepreneurship Theory and practice*, 28(1), pp.63-86.

Liu, X. and Anbumozhi, V. (2009) Determinant factors of corporate environmental information disclosure: an empirical study of Chinese listed companies. *Journal of Cleaner Production*. 17 (6), Elsevier Ltd, pp.593–600.

Lopes, C.M., Scavarda, A., Hofmeister, L.F., Thomé, A.M.T. and Vaccaro, G.L.R., (2017) An analysis of the interplay between organizational sustainability, knowledge management, and open innovation. *Journal of Cleaner Production*. 142, pp.476–488.

Lopez-Perez, M.E., Melero, I. and Javier Sese, F. (2017) Management for Sustainable Development and Its Impact on Firm Value in the SME Context: Does Size Matter? *Business Strategy and the Environment*. 26 (7), pp.985–999.

Lozano, R. (2015) A Holistic Perspective on Corporate Sustainability Drivers: A holistic perspective on corporate sustainability drivers. *Corporate Social Responsibility and Environmental Management*. 22 (1), pp.32–44.

Luu, T.T. (2017) CSR and organizational citizenship behavior for the environment in hotel industry: The moderating roles of corporate entrepreneurship and employee attachment style. *International Journal of Contemporary Hospitality Management*. 29 (11), pp.2867–2900.

Malesios, C. (2018) Supply chain sustainability performance measurement of small and medium sized enterprises using structural equation modeling. Annals of Operations Research. Springer US.

Mangan, J., Lalwani, C. and Gardner, B. (2004) Combining quantitative and qualitative methodologies in logistics research. *International Journal of Physical Distribution & Logistics Management*. 34 (7), pp.565–578.

Maxwell, J.A. and Mittapalli, K. (2010) Realism as a Stance for Mixed Methods Research final. SAGE *Handbook of Mixed Methods in Social and Behavioural Research*. pp.145–167.

McKim, C.A. (2017) The Value of Mixed Methods Research: A Mixed Methods Study. *Journal of Mixed Methods Research*. 11 (2), pp.202–222.

Meissner, H. (2011) Best Practices for Mixed Methods Research in the Health Sciences. Methods. 29, pp.1–39.

Mertens, D.M. and Hesse-Biber, S. (2012) Triangulation and Mixed Methods Research: Provocative Positions. *Journal of Mixed Methods Research*. 6 (2), pp.75–79.

Molina-Azorin, J.F. (2012) Mixed methods research in strategic management: Impact and applications. *Organizational Research Methods*. 15 (1), pp.33–56.

Montiel, I. and Delgado-Ceballos, J. (2014) Defining and Measuring Corporate Sustainability: Are We There Yet? *Organization & Environment*. 27 (2), pp.113–139.

Mullen, M.R., Budeva, D.G. and Doney, P.M. (2009) A Critical Review with Recommendations. *Journal of Small Business Management*. 47 (823), pp.287–307.

Muñoz-Pascual, L., Curado, C. and Galende, J. (2019) The triple bottom line on sustainable product innovation performance in SMEs: A mixed methods approach. *Sustainability* (Switzerland). 11 (6).

Nguyen, H.D., Nguyen, L.D., Chih, Y.Y. and Le-Hoai, L., (2017) Influence of Participants' Characteristics on Sustainable Building Practices in Emerging Economies: Empirical Case Study. *Journal of Construction Engineering and Management*. 143 (8), p.05017014.

Nguyen, P. V. and Tran, K.T. (2020) Explicating energy saving intention from the prospect of small medium enterprises. *Entrepreneurship and Sustainability Issues*. 8 (2), pp.716–734.

Nguyen, T.L. (2019) STEAM-ME: A Novel Model for Successful Kaizen Implementation and Sustainable Performance of SMEs in Vietnam. Complexity. 2019.

Nielsen, B.B. and Raswant, A. (2018) The selection , use , and reporting of control variables in international business research : A review and recommendations. *Journal of World Business*. 53 (6), Elsevier, pp.958–968.

O'Cathain, A., Murphy, E. and Nicholl, J. (2007) Why, and how, mixed methods research is undertaken in health services research in England: A mixed methods study. *BMC Health Services Research*. 7, pp.1–11.

O'Regan, N., Sims, M. and Ghobadian, A. (2005) High performance: ownership and decision-making in SMEs. Management Decision. 43 (3), pp.382–396.

Obeng, B.A. (2019) Strategic networking and small firm growth in an emerging economy. *Journal of Small Business and Enterprise Development*. 26 (1), pp.43–66.

Panwar, R., Nybakk, E., Hansen, E. and Pinkse, J., (2016) The effect of small firms' competitive strategies on their community and environmental engagement. *Journal of Cleaner Production*. 129, Elsevier Ltd, pp.578–585.

Parisi, C. (2013) The impact of organisational alignment on the effectiveness of firms' sustainability strategic performance measurement systems: An empirical analysis. *Journal of Management and Governance*. 17 (1), pp.71–97.

Pham, H. and Kim, S. (2019) The effects of sustainable practices and managers ' leadership competences on sustainability performance of construction firms. Sustainable Production and Consumption. 20, Elsevier B.V., pp.1–14.

Pham, H., Yong, S. and Truong, K. (2019) Managerial perceptions on barriers to sustainable construction in developing countries : Vietnam case. Environment, Development and Sustainability. (0123456789), Springer Netherlands.

Phan, U.H., Nguyen, P.V., Mai, K.T. and Le, T.P., (2015) Key Determinants of SMEs in Vietnam. Combining Quantitative and Qualitative Studies. *Review of European Studies*. 7 (11), pp.359–375.

Powell, M. and Ansic, D. (1997) Gender differences in risk behaviour in financial decision-

making: An experimental analysis. *Journal of Economic Psychology*. 18 (6), pp.605–628.

Proctor, S. (1998) Linking philosophy and method in the research process: the case for realism. *Nurse Researcher*. 5 (4), pp.73–90.

Punzo, G., Panarello, D., Pagliuca, M.M., Castellano, R. and Aprile, M.C., (2019) Assessing the role of perceived values and felt responsibility on pro-environmental behaviours: A comparison across four EU countries. *Environmental Science & Policy*. 101 (September), Elsevier, pp.311–322.

Qorri, A., Mujkić, Z. and Kraslawski, A. (2018) A conceptual framework for measuring sustainability performance of supply chains. *Journal of Cleaner Production*. 189, pp.570–584.

Rao, P., la O'Castillo, O., Intal Jr, P.S. and Sajid, A., (2006) Environmental indicators for small and medium enterprises in the Philippines: An empirical research. *Journal of Cleaner Production*. 14 (5), pp.505–515.

Roxas, B. (2021) Environmental sustainability engagement of firms: The roles of social capital, resources, and managerial entrepreneurial orientation of small and medium enterprises in Vietnam. *Business Strategy and the Environment*. (January), pp.2194–2208.

Roxas, B. and Chadee, D. (2012) Environmental sustainability orientation and financial resources of small manufacturing firms in the Philippines. *Social Responsibility Journal*. 8 (2), pp.208–226.

Russo, A. and Tencati, A. (2009) Formal vs. informal CSR strategies: Evidence from italian micro, small, medium-sized, and large firms. *Journal of Business Ethics*. 85 (SUPPL. 2), pp.339–353.

Saad, M., Kumar, V. and Bradford, J. (2017) An investigation into the development of the absorptive capacity of manufacturing SMEs. *International Journal of Production Research*. 55 (23), Taylor & Francis, pp.6916–6931.

Saeed, A. et al. (2018) Institutional pressures, green supply chain management practices on environmental and economic performance: A two theory view. *Sustainability* (Switzerland). 10 (5), pp.1–24.

Sajan, M.P. et al. (2017) Lean manufacturing practices in Indian manufacturing SMEs and their effect on sustainability performance. *Journal of Manufacturing Technology Management*. 28 (6), pp.772–793.

Santiago-Brown, I. et al. (2015) What Does Sustainability Mean? Knowledge Gleaned From Applying Mixed Methods Research to Wine Grape Growing. *Journal of Mixed Methods Research*. 9 (3), pp.232–251.

Saunders, M.N.K., Lewis, P. & Thornhill, A. (2019). *Research methods for business students*, Eighth edn, Pearson, Boston.

Scotland, J. (2012) Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms. *English Language Teaching*. 5 (9), pp.9–16.

Searcy, C. (2011) Updating corporate sustainability performance measurement systems. Measuring Business Excellence. 15 (2), pp.44–56.

Shevchenko, A., Lévesque, M. and Pagell, M. (2016) Why Firms Delay Reaching True Sustainability. *Journal of Management Studies*. 53 (5), pp.911–935.

Simonette, M.J. et al. (2008) Efetividade Do Processo De Comunicação Com Base Na Teoria Do Comportamento Informacional: O Caso De Um Organismo Internacional Da Área Da Saúde Pública Sediado No Brasil. S*ystems Research and Behavioral Science*. 8 (3), pp.27–42.

Singh, M., Brueckner, M. and Padhy, P.K. (2014) Insights into the state of ISO14001 certification in both small and medium enterprises and industry best companies in India: The case of Delhi and Noida. *Journal of Cleaner Production*. 69, Elsevier Ltd, pp.225–236.

Singh, V., Chauhan, S.C. and Tejyan, S. (2017) Greenhouse gas emission reduction potentials in air transport: a structural equation modelling-based multi-group analysis. Technology Analysis and Strategic Management. 29 (4), Taylor & Francis, pp.442–461.

Singh, V. and Sharma, S.K. (2016) Analyzing the moderating effects of respondent type and experience on the fuel efficiency improvement in air transport using structural equation modeling. European Transport Research Review. 8 (2), *European Transport Research Review*.

Sommer, C. (2017) Drivers and Constraints for Adopting Sustainability Standards in Small and Medium-sized Enterprises (SMEs). *German Development Institute*. p.73.

Spector, P.E. and Brannick, M.T. (2011) Methodological urban legends: The misuse of statistical control variables. *Organizational Research Methods*. 14 (2), pp.287–305.

Stubblefield Loucks, E., Martens, M.L. and Cho, C.H. (2010) Engaging small- and medium-sized businesses in sustainability. Dillard, J. (ed.) *Sustainability Accounting, Management and Policy Journal*. 1 (2), pp.178–200.

Tran, N.M. and Pham, B.N.T. (2020) The influence of CEO characteristics on corporate environmental performance of SMEs: Evidence from Vietnamese SMEs. *Management Science Letters*. 10 (8), pp.1671–1682.

Tran, T., Deng, H. and Ong, C.E. (2019) Critical Factors for the Adoption of Social Sustainability Practices in Vietnamese Handicraft OrganizationsIn: 2018 IEEE Conference on e-Learning, e-Management and e-Services, IC3e 2018. 122–127.

Trianni, A., Cagno, E. and Farné, S. (2016) Barriers, drivers and decision-making process for industrial energy efficiency: A broad study among manufacturing small and medium-sized enterprises. Applied Energy. 162, Elsevier Ltd, pp.1537–1551.

Tur-Porcar, A., Roig-Tierno, N. and Mestre, A.L. (2018) Factors affecting entrepreneurship and business sustainability. *Sustainability* (Switzerland). 10 (2), pp.1–12.

Turner, S.F., Cardinal, L.B. and Burton, R.M. (2017) Research Design for Mixed Methods: A Triangulation-based Framework and Roadmap. *Organizational Research Methods*. 20 (2), pp.243–267.

Venkatesh, V., Brown, S.A. and Sullivan, Y.W. (2016) Guidelines for conducting mixed-

methods research: An extension and illustration. *Journal of the Association of Information Systems*. 17 (7), pp.435–495.

Vu, T.H., Nguyen, V.D., Ho, M.T. and Vuong, Q.H., (2019) Determinants of Vietnamese Listed Firm Performance: Competition, Wage, CEO, Firm Size, Age, and International Trade. *Journal of Risk and Financial Management*. 12 (2), p.62.

Wahyuni, D. (2012) The research design maze: Understanding paradigms, cases, methods and methodologies. *Journal of applied management accounting research*. 10 (1), pp.69–80.

Woods, M. (2011) Interviewing for research and analysing qualitative data : An overview. School of Humanities and Social Sciences, Massey University. pp.1–8.

Yu, W. et al. (2018) Operations capability, productivity and business performance the moderating effect of environmental dynamism. *Industrial Management and Data Systems*. 118 (1), pp.126–143.

Yu, W. and Ramanathan, R. (2016) Environmental management practices and environmental performance the roles of operations and marketing capabilities. I*ndustrial Management and Data Systems*. 116 (6), pp.1201–1222.

Yusoff, H., Jamal, A.D.A. and Darus, F. (2016) Corporate governance and corporate social responsibility disclosure: An Emphasis on the CSR key dimensions. *Journal of Accounting and Auditing: Research & Practice*. 2016 (1), pp.1–14.

Lincoln, Y. S., & Guba, E. G. (2000). Paradigmatic controversies, contradictions, and emerging confluences. In Edited by: N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (5th ed). Thousand Oaks, CA: Sage.

Liu, X. and Anbumozhi, V. (2009) Determinant factors of corporate environmental information disclosure: an empirical study of Chinese listed companies. *Journal of Cleaner Production*. 17 (6), Elsevier Ltd, pp.593–600.

Lo, S. and Sheu, H. (2007) Is Corporate Sustainability a Value-Increasing Strategy for Business ? Is Corporate Sustainability a Value- Increasing Strategy for Business ? *Corporate Governance An International Review*. 15 (February), pp.345–358.

Lopes, C.M. et al. (2017) An analysis of the interplay between organizational sustainability, knowledge management, and open innovation. *Journal of Cleaner Production*. 142, pp.476–488.

Lopes de Sousa Jabbour, A.B., Ndubisi, N.O. and Roman Pais Seles, B.M. (2020) Sustainable development in Asian manufacturing SMEs: Progress and directions. *International Journal of Production Economics*. 225 (November 2019), Elsevier B.V., p.107567.

Lopez-Perez, M.E., Melero, I. and Javier Sese, F. (2017) Management for Sustainable Development and Its Impact on Firm Value in the SME Context: Does Size Matter? *Business Strategy and the Environment*. 26 (7), pp.985–999.

Lourenco, I.C. et al. (2012) How Does the Market Value Corporate Sustainability Performance? *Journal of Business Ethics*. 108 (4), pp.417–428.

Lozano, J.M. (2005) Towards the relational corporation: from managing stakeholder relationships to building stakeholder relationships (waiting for Copernicus). *Corporate Governance*. 5 (2), pp.60–77.

Lozano, R. (2015) A Holistic Perspective on Corporate Sustainability Drivers: A holistic perspective on corporate sustainability drivers. *Corporate Social Responsibility and Environmental Management*. 22 (1), pp.32–44.

Lucato, W.C., Costa, E.M. and de Oliveira Neto, G.C. (2017) The environmental performance of SMEs in the Brazilian textile industry and the relationship with their financial performance. *Journal of Environmental Management*. 203, Elsevier Ltd, pp.550–556.

Lundin, M. (2002) Indicators for measuring the sustainability of urban water: A life cycle approach. pp.27–37.

Luu, T.T. (2017) CSR and organizational citizenship behavior for the environment in hotel industry: The moderating roles of corporate entrepreneurship and employee attachment style. *International Journal of Contemporary Hospitality Management*. 29 (11), pp.2867–2900.

Luu, T.T. (2016) The chain effect from human resource-based clinical governance through emotional intelligence and CSR to knowledge sharing. *Knowledge Management Research and Practice*. 14 (1), pp.126–143.

Maas, K., Schaltegger, S. and Crutzen, N. (2016) Advancing the integration of corporate sustainability measurement, management and reporting. *Journal of Cleaner Production*. 133, Elsevier Ltd, pp.859–862.

Mabhungu, I. and Van Der Poll, B. (2017) A Review of Critical Success Factors Which Drives the Performance of Micro, Small and Medium Enterprises. *International Journal of Business and Management*. 12 (6), p.151.

Magolda, P. (2000) Being at the wrong place, wrong time. *Theory into practice*. 39 (July 2015), pp.138–145.

Mahmood, Z. et al. (2019) Drivers and Barriers of Sustainability Practices in Emerging and Developing Economies. *Journal of Business and Social Review in Emerging Economies*. 5 (1), pp.213–222.

Mahmud, M., Soetanto, D. and Jack, S. (2021) A contingency theory perspective of environmental management:Empirical evidence from entrepreneurial firms. *Journal of General Management*.

Malesios, C. (2018) Supply chain sustainability performance measurement of small and medium sized enterprises using structural equation modeling. *Annals of Operations Research*. Springer US.

Malesios, C. et al. (2020a) Sustainability performance analysis of small and medium sized enterprises: Criteria, methods and framework. *Socio-Economic Planning Sciences*. 75 (October 2020), Elsevier Ltd, p.100993.

Malesios, C. et al. (2020b) Sustainability performance analysis of small and medium sized enterprises: Criteria, methods and framework. *Socio-Economic Planning Sciences*. 75

(November 2020), Elsevier Ltd, p.100993.

Malesios, C. et al. (2018) The impact of SME sustainability practices and performance on economic growth from a managerial perspective: Some modeling considerations and empirical analysis results. *Business Strategy and the Environment*. 27 (7), pp.960–972.

Mangan, J., Lalwani, C. and Gardner, B. (2004) Combining quantitative and qualitative methodologies in logistics research. *International Journal of Physical Distribution & Logistics Management*. 34 (7), pp.565–578.

Manning, B., Braam, G. and Reimsbach, D. (2019) Corporate governance and sustainable business conduct—Effects of board monitoring effectiveness and stakeholder engagement on corporate sustainability performance and disclosure choices. *Corporate Social Responsibility and Environmental Management*. 26 (2), pp.351–366.

Mansi, M. (2015) Sustainable procurement disclosure practices in central public sector enterprises: Evidence from India. *Journal of Purchasing and Supply Management*. 21 (2), Elsevier, pp.125–137.

Manuj, I. and Mentzer, J.T. (2008) Global supply chain risk management strategies. *International Journal of Physical Distribution and Logistics Management*. 38 (3), pp.192–223.

Markley, M.J. and Davis, L. (2007) Exploring future competitive advantage through sustainable supply chains. *International Journal of Physical Distribution & Logistics Management*. 37 (9), pp.763–774.

van Marrewijk, M. (2003) Concepts and definitions of CSR and corporate sustainability: Between agency and communion. *Journal of Business Ethics*. 44 (2), pp.95–105.

Marrewijk, M. Van and Werre, M. (2002) Multiple levels of corporate sustainability. *Journal of Business Ethics*. (Out), pp.1–12.

Marshall, M. (1996) The key informant technique. *Family Practice*. 13 (1), pp.92–97.

Martins, A.A. et al. (2007) Framework for sustainability metrics. *Industrial and Engineering Chemistry Research*. 46 (10), pp.2962–2973.

Masood, F., Soomro, S. and Ali, A. (2018) State of Growth Barriers of SMEs in Pakistan: A Review based on Empirical and Theoretical Models. *NICE Research Journal*. pp.158–182.

Massa, L., Farneti, F. and Scappini, B. (2015) Developing a sustainability report in a small to medium enterprise: process and consequences. *Meditari Accountancy Research*. 23 (1), pp.62–91.

Masurel, E. (2007) Why SMEs invest in environmental measures: Sustainability evidence from small and medium-sized printing firms. *Business Strategy and the Environment*. 16 (3), pp.190–201.

Maxwell, J.A. and Mittapalli, K. (2010) Realism as a Stance for Mixed Methods Research final. *SAGE Handbook of Mixed Methods in Social and Behavioural Research*. pp.145–167.

McAdam, R., Miller, K. and McSorley, C. (2019) Towards a contingency theory perspective

of quality management in enabling strategic alignment. *International Journal of Production Economics*. 207, Elsevier B.V., pp.195–209.

Mcgorry, S.Y. (2000) Measurement in a cross-cultural environment: Survey translation issues. *Qualitative Market Research: An International Journal*. 3 (2), pp.74–81.

McIntyre, R. (2001) *The Role of Small and Medium Enterprises in Transition: Growth and Entrepreneurship World Institute for Development Economics Research*. (49).

McKeiver, C. and Gadenne, D. (2005) Environmental management systems in small and medium businesses. *International Small Business Journal*. 23 (5), pp.513–537.

McKim, C.A. (2017) The Value of Mixed Methods Research: A Mixed Methods Study. *Journal of Mixed Methods Research*. 11 (2), pp.202–222.

McMurray, A.J. et al. (2014) Sustainable procurement in Malaysian organizations: Practices, barriers and opportunities. *Journal of Purchasing and Supply Management*. 20 (3), Elsevier, pp.195–207.

Meager, S. et al. (2020) Exploring the drivers and barriers to green supply chain management implementation: A study of independent UK restaurants. *Procedia Manufacturing*. 51 (2020), Elsevier B.V., pp.1642–1649.

Meath, C., Linnenluecke, M. and Griffiths, A. (2016) Barriers and motivators to the adoption of energy savings measures for small- and medium-sized enterprises (SMEs): The case of the ClimateSmart Business Cluster program. *Journal of Cleaner Production*. 112, pp.3597–3604.

Medne, A. and Lapina, I. (2019) Sustainability and continuous improvement of organization: Review of process-oriented performance indicators. *Journal of Open Innovation: Technology, Market, and Complexity*. 5 (3).

Meier, M. (2011) Knowledge Management in Strategic Alliances: A Review of Empirical Evidence. *International Journal of Management Reviews*. 13 (1), pp.1–23.

Meissner, H. et al. (2011) Best Practices for Mixed Methods Research in the Health Sciences. *Methods*. 29, pp.1–39.

Meixell, M.J. and Gargeya, V.B. (2005) Global supply chain design: A literature review and critique. *Transportation Research Part E: Logistics and Transportation Review*. 41 (6 SPEC. ISS.), pp.531–550.

Melnyk, S.A., Stewart, D.M. and Swink, M. (2004) Metrics and performance measurement in operations management: Dealing with the metrics maze. *Journal of Operations Management*. 22 (3), pp.209–217.

Mengistu, A.T. and Panizzolo, R. (2021) Indicators and framework for measuring industrial sustainability in italian footwear small and medium enterprises. *Sustainability (Switzerland)*. 13 (10).

Mertens, D.M. and Hesse-Biber, S. (2012) Triangulation and Mixed Methods Research: Provocative Positions. *Journal of Mixed Methods Research*. 6 (2), pp.75–79.

Milhem, M., Muda, H. and Ahmed, K. (2019) The Effect of Perceived Transformational Leadership Style on Employee Engagement: The Mediating Effect of Leader's Emotional Intelligence. *Foundations of Management*. 11 (1), pp.33–42.

Miller, G. (2001) The development of indicators for sustainable tourism: results of a Delphi survey of tourism researchers. *Tourism Management*. 22 (4), pp.351–362.

Minor, D. and Morgan, J. (2011) CSR as Reputation Insurance: Primum Non Nocere. *California Management Review*. 53 (3), pp.40–59.

Mishra, N. (2019) Knowledge management practice for effective operations in SMEs. *Production Planning and Control*. 30 (10–12), pp.795–798.

Mitchell, G. (1996) Problems and fundamentals of sustainable development indicators. *Sustainable Development*. 4, pp.1–11.

Mitchell, R.K., Wood, D.J. and Agle, B. (1997) Toward a Theory of Stakeholder Identification and Salience : Defining the Principle of Who and What Really Counts. *Academy of Management Review*. 22 (4), pp.853–886.

Mizruchi, M.S. and Fein, L.C. (1999) The social construction of organizational knowledge: A study of the uses of coercive, mimetic, and normative isomorphism. *Administrative Science Quarterly*. 44 (4), pp.653–683.

Molina-Azorín, J. and Cameron, R. (2010) The Application of Mixed Methods in Organisational Research: A Literature Review. *The Electronic Journal of Business Research Methods*. 8 (2), pp.95–105.

Molina-Azorin, J.F. et al. (2017) Mixed Methods in the Organizational Sciences: Taking Stock and Moving Forward. *Organizational Research Methods*. 20 (2), pp.179–192.

Molina-Azorin, J.F. (2016) Mixed methods research: An opportunity to improve our studies and our research skills. *European Journal of Management and Business Economics*. 25 (2), AEDEM, pp.37–38.

Molina-Azorin, J.F. (2012) Mixed methods research in strategic management: Impact and applications. *Organizational Research Methods*. 15 (1), pp.33–56.

Montabon, F., Sroufe, R. and Narasimhan, R. (2007) An examination of corporate reporting, environmental management practices and firm performance. *Journal of Operations Management*. 25 (5), pp.998–1014.

Montiel, I. (2008) Corporate social responsibility and corporate sustainability: separate pasts, common futures. *Organization & Environment*. 21 (3), pp.245–269.

Montiel, I. and Delgado-Ceballos, J. (2014) Defining and Measuring Corporate Sustainability: Are We There Yet? *Organization & Environment*. 27 (2), pp.113–139.

Moons, I. and De Pelsmacker, P. (2015) An extended decomposed theory of planned behaviour to predict the usage intention of the electric car: A multi-group comparison. *Sustainability (Switzerland)*. 7 (5), pp.6212–6245.

Moore, S.B. and Manring, S.L. (2009) Strategy development in small and medium sized enterprises for sustainability and increased value creation. *Journal of Cleaner Production*. 17 (2), Elsevier Ltd, pp.276–282.

Morioka, S.N. and Carvalho, M.M. (2016) Measuring sustainability in practice: exploring the inclusion of sustainability into corporate performance systems in Brazilian case studies. *Journal of Cleaner Production*. 136, Elsevier Ltd, pp.123–133.

Morioka, S.N. and de Carvalho, M.M. (2016) A systematic literature review towards a conceptual framework for integrating sustainability performance into business. *Journal of Cleaner Production*. 136, Elsevier Ltd, pp.134–146.

de Moura, G.B. and Saroli, L.G. (2020) Sustainable value chain management based on dynamic capabilities in small and medium-sized enterprises (SMEs). *International Journal of Logistics Management*. 32 (1), pp.168–189.

Moyeen, A. and West, B. (2014) Promoting CSR to foster sustainable development: Attitudes and perceptions of managers in a developing country. *Asia-Pacific Journal of Business Administration*. 6 (2), pp.97–115.

Muathe, S. and Muithya, V. (2020) Dynamic Capabilities and Performance in the Context of Microfinance Institutions in Kenya : An Exploratory Study. *International Journal of Business, Economics and Management Works*. 7 (8), pp.15–29.

Muenjohn, N. et al. (2020) Comparing perceptions of leadership, innovation and performance in Asian SMEs. *Asia Pacific Business Review*. 00 (00), Routledge, pp.1–15.

Mukherjee, K. (2019) Analysis of Sustainable Procurement in SMEs in Developing Countries Analysis of Sustainable Procurement in SMEs in Developing Countries. (93277).

Mullen, M.R., Budeva, D.G. and Doney, P.M. (2009) A Critical Review with Recommendations. *Journal of Small Business Management*. 47 (823), pp.287–307.

Muñoz-Pascual, L., Curado, C. and Galende, J. (2019) The triple bottom line on sustainable product innovation performance in SMEs: A mixed methods approach. *Sustainability (Switzerland)*. 11 (6).

Murphy, G.B., Trailer, J.W. and Hill, R.C. (1996) Measuring performance in entrepreneurship research. *Journal of Business Research*. 36 (1), pp.15–23.

Murray, A. (2010) Do Markets Value Companies ' Social and Environmental Activity ? An Inquiry into Associations among Social Disclosure , Social Performance and Financial Performance Alan Murray Submitted in fulfilment of the requirements for the Degree of PhD Department o. *DisClosure*. p.300.

Nardo, M. et al. (2005) *Handbook on constructing composite indicators OECD Statistics Working Papers*. (03).

Narkhede, B.E. (2017) Advance manufacturing strategy and firm performance: An empirical study in a developing environment of small- and medium-sized firms. *Benchmarking*. 24 (1), pp.62–101.

Nath, P. and Ramanathan, R. (2016) Environmental management practices, environmental technology portfolio, and environmental commitment: A content analytic approach for UK manufacturing firms. *International Journal of Production Economics*. 171, Elsevier, pp.427–437.

Nawi, N.C. et al. (2020) Strategic orientations and absorptive capacity on economic and environmental sustainability: A study among the batik small and medium enterprises in Malaysia. *Sustainability (Switzerland)*. 12 (21), pp.1–16.

Nayak, R. et al. (2019) The Challenges for Sustainability Marketing Approach: An Empirical Study in Vietnamese Fashion SMEs. *International Journal of Trade, Economics and Finance*. 10 (4), pp.104–107.

Neely, A., Gregory, M. and Platts, K. (1995) Performance measurement system design - A literature review and research agenda. *International Journal of Operations & Production Management*. 15 (4), pp.80–116.

Nejati, M., Amran, A. and Hazlina Ahmad, N. (2014) Examining stakeholders' influence on environmental responsibility of micro, small and medium-sized enterprises and its outcomes. *Management Decision*. 52 (10), pp.2021–2043.

Neri, A. et al. (2021) A triple bottom line balanced set of key performance indicators to measure the sustainability performance of industrial supply chains. *Sustainable Production and Consumption*. 26, Elsevier B.V., pp.648–691.

Newman, L. (2006) Change, uncertainty, and futures of sustainable development. *Futures*. 38 (5), pp.633–637.

Ngah, R. and Jusoff, K. (2009) Tacit Knowledge Sharing and SMEs' Organizational Performance. *International Journal of Economics and Finance*. 1 (1).

Ngaochay, T. and Walsh, J. (2017) Upgrading Employees Skills in Thai SMEs Sustainably. *Pacific Business Review International*. 9 (9), pp.129–136.

Nguyen, A.K.T. and Ngoc, K.M. (2020) Building a Conceptual Framework of Corporate Social Responsibility: An Experience of Qualitative Approach in Vietnam. *Journal of Asia-Pacific Business*. 21 (1), Routledge, pp.39–56.

Nguyen, H.D. et al. (2017) Influence of Participants' Characteristics on Sustainable Building Practices in Emerging Economies: Empirical Case Study. *Journal of Construction Engineering and Management*. 143 (8), p.05017014.

Nguyen, H.T.T. and Pham, H.S.T. (2020) An exploration of Vietnamese entrepreneurs. *Research Handbook on Entrepreneurship in Emerging Economies*. (May), pp.266–285.

Nguyen, M., Bensemann, J. and Kelly, S. (2018) Corporate social responsibility (CSR) in Vietnam: a conceptual framework. *International Journal of Corporate Social Responsibility*. 3 (1), International Journal of Corporate Social Responsibility, p.9.

Nguyen, M., Kelly, S. and Bensemann, J. (2017) Contextual factors affecting Corporate Social Responsibility in an emerging country : A Conceptual Framework on the nature of the CSR concept in Vietnam. *ResearchGate. Available online: http://www. researchgate.*

net/publication/317579309/(accessed on 20 July 2018).

Nguyen, P. V. and Tran, K.T. (2020) Explicating energy saving intention from the prospect of small medium enterprises. *Entrepreneurship and Sustainability Issues*. 8 (2), pp.716–734.

Nguyen, P.M. et al. (2020) Corporate social responsibilities of food processing companies in vietnam from consumer perspective. *Sustainability (Switzerland)*. 12 (1), pp.1–18.

Nguyen, Q.A., Sullivan Mort, G. and D'Souza, C. (2015) Vietnam in transition: SMEs and the necessitating environment for entrepreneurship development. *Entrepreneurship and Regional Development*. 27 (3–4), pp.154–180.

Nguyen, T. V. and Bryant, S.E. (2004) A study of the formality of human resource management practices in small and medium-size enterprises in Vietnam. *International Small Business Journal*. 22 (6), pp.595–618.

Nguyen, T.L. (2019) STEAM-ME: A Novel Model for Successful Kaizen Implementation and Sustainable Performance of SMEs in Vietnam. *Complexity*. 2019.

Nielsen, B.B. and Raswant, A. (2018) The selection , use , and reporting of control variables in international business research : A review and recommendations. *Journal of World Business*. 53 (6), Elsevier, pp.958–968.

Nigri, G. and Baldo, M. Del (2018) Sustainability reporting and performance measurement systems: How do small- and medium- sized benefit corporations manage integration? *Sustainability (Switzerland)*. 10 (12).

Nonaka, I. (1994) A Dynamic Theory of Organizational Knowledge Creation. *Organization Science*. 5 (1), pp.14–37.

Norman, W. and Macdonald, C. (2004) GETTING TO THE BOTTOM OF 'TRIPLE BOTTOM LINE' Wayne Norman and Chris MacDonald. *Business Ethics Quarterly*. 14 (2), pp.243–262.

Nowell, L.S. et al. (2017) Thematic Analysis: Striving to Meet the Trustworthiness Criteria. *International Journal of Qualitative Methods*. 16 (1), pp.1–13.

Nwobu, O., Faboyede, S. and Onwuelingo, A.T. (2015) The role of accounting services in small and medium scale businesses in Nigeria. *Journal of Accounting – Business & Management*. 22 (1), pp.55–63.

O'Cathain, A., Murphy, E. and Nicholl, J. (2007) Why, and how, mixed methods research is undertaken in health services research in England: A mixed methods study. *BMC Health Services Research*. 7, pp.1–11.

O'Driscoll, M.P. and Randall, D.M. (1999) Perceived organisational support, satisfaction with rewards, and employee job involvement and organisational commitment. *Applied Psychology*. 48 (2), pp.197–209.

O'Regan, N., Sims, M. and Ghobadian, A. (2005) High performance: ownership and decision-making in SMEs. *Management Decision*. 43 (3), pp.382–396.

Obeng, B.A. (2019) Strategic networking and small firm growth in an emerging economy. *Journal of Small Business and Enterprise Development*. 26 (1), pp.43–66.

OECD (2008) Measuring Material Flows and Resource Productivity. *Volume 1*. III, pp.1–164.

Olarewaju, A.D. and George, O.J. (2014) Mamagement theories and its application in organisations: the Nigerian experience. *BAM2014 Conference Procedings*. p.18.

Olaru, M. et al. (2010) Responsible Commercial Activity of SMEs and Specific Values of Sustainable Development in Terms of the European Excellence Model. *Amfiteatru Economic*. 12 (27), pp.10–26.

Othman, S.A. and Mahmood, N.H.N. (2019) Linking employee engagement towards individual work performance through human resource management practice: from high potential employee's perspectives. *Management Science Letters*. 9 (7), pp.1083–1092.

Pacheco, D.A. de J. et al. (2018) Eco-innovation determinants in manufacturing SMEs from emerging markets: Systematic literature review and challenges. *Journal of Engineering and Technology Management - JET-M*. 48 (February), Elsevier, pp.44–63.

Pacheco, D.F., Dean, T.J. and Payne, D.S. (2010) Escaping the green prison: Entrepreneurship and the creation of opportunities for sustainable development. *Journal of Business Venturing*. 25 (5), Elsevier Inc., pp.464–480.

Padin, C. et al. (2016) Validating a triple bottom line construct and reasons for implementing sustainable business practices in companies and their business networks. *Corporate Governance: The international journal of business in society*. 16 (5), pp.849–865.

Pádua, S.I.D. and Jabbour, C.J.C. (2015) Promotion and evolution of sustainability performance measurement systems from a perspective of business process management. *Business Process Management Journal*. 21 (2), pp.403–418.

Palmer, J., Russell, S. and McIntosh, M. (2012) Organizational change for sustainability: An agenda for cultural research. *Anzam 2012*. pp.1–14.

Panwar, R. et al. (2016) The effect of small firms' competitive strategies on their community and environmental engagement. *Journal of Cleaner Production*. 129, Elsevier Ltd, pp.578–585.

Papert, M., Rimpler, P. and Pflaum, A. (2016) International Journal of Physical Distribution & Logistics Management Article information :

Parisi, C. (2013a) The impact of organisational alignment on the effectiveness of firms' sustainability strategic performance measurement systems: An empirical analysis. *Journal of Management and Governance*. 17 (1), pp.71–97.

Parisi, C. (2013b) The impact of organisational alignment on the effectiveness of firms' sustainability strategic performance measurement systems: An empirical analysis. *Journal of Management and Governance*. 17 (1), pp.71–97.

Parker, C.M., Redmond, J. and Simpson, M. (2009) A review of interventions to encourage SMEs to make environmental improvements. *Environment and Planning C: Government and*

Policy. 27 (2), pp.279–301.

Parrish, B.D. (2010) Sustainability-driven entrepreneurship: Principles of organization design. *Journal of Business Venturing*. 25 (5), Elsevier Inc., pp.510–523.

Van Passel, S. et al. (2007) Measuring farm sustainability and explaining differences in sustainable efficiency. *Ecological Economics*. 62 (1), pp.149–161.

Paterson, T.A., Specht, D. and Duchon, D. (2013) Exploring costs and consequences of religious expression in family businesses. *Journal of Management, Spirituality and Religion*. 10 (2), pp.138–158.

Peña-Vinces, J.C. and Delgado-Márquez, B.L. (2013) Are entrepreneurial foreign activities of Peruvian SMNEs influenced by international certifications, corporate social responsibility and green management? *International Entrepreneurship and Management Journal*. 9 (4), pp.603–618.

Peng, M.Y.P. (2021) The roles of dual networks and ties on absorptive capacity in SMEs: the complementary perspective. *Total Quality Management and Business Excellence*. 0 (0), Taylor & Francis, pp.1–24.

Perera, D. and Chand, P. (2015) Issues in the adoption of international financial reporting standards (IFRS) for small and medium-sized enterprises (SMES). *Advances in Accounting*. 31 (1), Elsevier Ltd, pp.165–178.

Perez-Sanchez, D., Barton, J.R. and Bower, D. (2003) Implementing environmental management in SMEs. *Corporate Social Responsibility and Environmental Management*. 10 (2), pp.67–77.

Perez-Valls, M., Cespedes-Lorente, J. and Moreno-Garcia, J. (2016) Green Practices and Organizational Design as Sources of Strategic Flexibility and Performance. *Business Strategy and the Environment*. 25 (8), pp.529–544.

Perrini, F. and Tencati, A. (2006) Sustainability and stakeholder management: The need for new corporate performance evaluation and reporting systems. *Business Strategy and the Environment*. 15 (5), pp.296–308.

Pešalj, B., Pavlov, A. and Micheli, P. (2018) The use of management control and performance measurement systems in SMEs: A levers of control perspective. *International Journal of Operations and Production Management*. 38 (11), pp.2169–2191.

Pham, H. and Kim, S. (2019) The effects of sustainable practices and managers ' leadership competences on sustainability performance of construction firms. *Sustainable Production and Consumption*. 20, Elsevier B.V., pp.1–14.

Pham, H., Yong, S. and Truong, K. (2019) Managerial perceptions on barriers to sustainable construction in developing countries : Vietnam case. *Environment, Development and Sustainability*. (0123456789), Springer Netherlands.

Phan, U.H.P. et al. (2015) Key Determinants of SMEs in Vietnam. Combining Quantitative and Qualitative Studies. *Review of European Studies*. 7 (11), pp.359–375.

Phillips, R., Freeman, R.E. and Wicks, A.C. (2003) WHAT STAKEHOLDER THEORY IS NOT Robert Phillips, R. Edward Freeman, and Andrew C. Wicks. *Business Ethics Quaterly*. 13 (4), pp.479–502.

Du Pisani, J.A. (2006) Sustainable development – historical roots of the concept. *Environmental Sciences*. 3 (2), pp.83–96.

Piyathanavong, V. et al. (2019) The adoption of operational environmental sustainability approaches in the Thai manufacturing sector. *Journal of Cleaner Production*. 220, pp.507–528.

Polonsky, M.J. (1995) A stakeholder theory approach to designing environmental marketing strategy. *Journal of Business & Industrial Marketing*. 10 (3), pp.29–46.

Powell, M. and Ansic, D. (1997) Gender differences in risk behaviour in financial decision-making: An experimental analysis. *Journal of Economic Psychology*. 18 (6), pp.605–628.

Prashar, A. and Sunder M, V. (2020) A bibliometric and content analysis of sustainable development in small and medium-sized enterprises. *Journal of Cleaner Production*. 245, Elsevier Ltd, p.118665.

Preuss, L. and Perschke, J. (2010) Slipstreaming the larger boats: Social responsibility in medium-sized businesses. *Journal of Business Ethics*. 92 (4), pp.531–551.

Price, M. et al. (2019) Teacher Relationships and Adolescents Experiencing Identity-Based Victimization: What Matters for Whom Among Stigmatized Adolescents. *School Mental Health*. 11 (4), Springer US, pp.790–806.

Proctor, S. (1998) Linking philosophy and method in the research process: the case for realism. *Nurse Researcher*. 5 (4), pp.73–90.

Pryshlakivsky, J. and Searcy, C. (2015) A Heuristic Model for Establishing Trade-Offs in Corporate Sustainability Performance Measurement Systems. *Journal of Business Ethics*. 144 (2), Springer Netherlands, pp.323–342.

Pullman, M.E., Maloni, M.J. and Carter, C.R. (2009) Food for thought: Social versus environmental sustainability practices and performance outcomes. *Journal of Supply Chain Management*. 45 (4), pp.38–54.

Punzo, G. et al. (2019) Assessing the role of perceived values and felt responsibility on pro-environmental behaviours: A comparison across four EU countries. *Environmental Science & Policy*. 101 (September), Elsevier, pp.311–322.

Puppim de Oliveira, J.A. and Jabbour, C.J.C. (2017) Environmental Management, Climate Change, CSR, and Governance in Clusters of Small Firms in Developing Countries. *Business & Society*. 56 (1), pp.130–151.

Qorri, A., Mujkić, Z. and Kraslawski, A. (2018) A conceptual framework for measuring sustainability performance of supply chains. *Journal of Cleaner Production*. 189, pp.570–584.

Quan, L. (2015) Perceptions of leadership competencies and the acquisition of them by CEOs in vietnamese small enterprises. *Asian Social Science*. 11 (4), pp.17–25.

Queiroz, S.A.B. et al. (2020) Servitization and performance: impacts on small and medium enterprises. *Journal of Business and Industrial Marketing*. 35 (7), pp.1237–1249.

Rachidi, H. and El Mohajir, M. (2021) Improving SMEs' performance using innovative knowledge and financial system designed from the Moroccan business environment. *African Journal of Science, Technology, Innovation and Development*. 13 (1), Taylor & Francis, pp.15–30.

Rachuri, S., Sriram, R.D. and Sarkar, P. (2009) Metrics, standards and industry best practices for sustainable manufacturing systems. *2009 IEEE International Conference on Automation Science and Engineering*. pp.472–477.

Raderbauer, M. (2011) The Importance of Sustainable Business Practices in the Viennese Accommodation Industry Submitted by. (September).

Rahbauer, S. et al. (2018) Determinants for the adoption of green electricity by German SMEs – An empirical examination. *Energy Policy*. 123 (September), Elsevier Ltd, pp.533–543.

Ramanathan, R., Poomkaew, B. and Nath, P. (2014) The impact of organizational pressures on environmental performance of firms. *Business Ethics*. 23 (2), pp.169–182.

Rand, J. and Tarp, F. (2020) Micro, Small, and Medium Enterprises in VietnamIn: *Oxford University Press*. Oxford University Press.

Rao, P. et al. (2009) A metric for corporate environmental indicators ... for small and medium enterprises in the Philippines. *Business Strategy and the Environment*. 18 (1), pp.14–31.

Rao, P. et al. (2006) Environmental indicators for small and medium enterprises in the Philippines: An empirical research. *Journal of Cleaner Production*. 14 (5), pp.505–515.

Rasi, R.Z.R.M., Abdekhodaee, A. and Nagarajah, R. (2014) Stakeholders' involvements in the implementation of proactive environmental practices: Linking environmental practices and environmental performances in SMEs. *Management of Environmental Quality: An International Journal*. 25 (2), pp.132–149.

Raziq, A. and Wiesner, R. (2016) High Performance Management Practices and Sustainability of SMEs. Evidence from Manufacturing and Services-based Industries in Pakistan. *Journal of Management Sciences*. 3 (2), pp.83–107.

Rebs, T. et al. (2018) Stakeholder influences and risks in sustainable supply chain management: a comparison of qualitative and quantitative studies. *Business Research*. 11 (2), Springer International Publishing, pp.197–237.

Reed, M.S., Fraser, E.D.G. and Dougill, A.J. (2006) An adaptive learning process for developing and applying sustainability indicators with local communities. *Ecological Economics*. 59 (4), pp.406–418.

Reio, T. and Ghosh, R. (2009) Antecedents and Outcomes of Workplace Incivility. *Computational Complexity*. 2 (1), pp.1–9.

Revell, A. and Blackburn, R. (2007) The business case for sustainability? An examination of small firms in the UK's construction and restaurant sectors. *Business Strategy and the*

Environment. 16 (6), pp.404–420.

Revell, A., Stokes, D. and Chen, H. (2010) Small businesses and the environment: Turning over a new leaf ? *Business Strategy and the Environment*. 19 (5), pp.273–288.

Reyes-Rodriguez, J.F., Ulhoi, J.P. and Madsen, H. (2016) Corporate Environmental Sustainability in Danish SMEs: A Longitudinal Study of Motivators, Initiatives, and Strategic Effects. *Corporate Social Responsibility and Environmental Management*. 23 (4), pp.193–212.

Riaz, M. and Sherani (2021) Investigation of information sharing via multiple social media platforms: a comparison of Facebook and WeChat adoption. *Quality and Quantity*. (5888), Springer Netherlands.

Riikkinen, R., Kauppi, K. and Salmi, A. (2017) Learning Sustainability? Absorptive capacities as drivers of sustainability in MNCs' purchasing. *International Business Review*. 26 (6), Elsevier, pp.1075–1087.

Roberts, S. (2011) An exploratory analysis of factors mediating community participation outcomes in tourism. *Community Development*. 42 (3), pp.377–391.

Roberts, S. and Tribe, J. (2008) Sustainability indicators for small tourism enterprises – An exploratory perspective. *Journal of Sustainable Tourism*. 16 (5), pp.575–594.

Rocha-lona, L. et al. (2015) Corporate Sustainability and Business Excellence. *International Conference on Industrial Engineering and Operations Management*. pp.1–7.

Rodríguez-Gutiérrez, P. et al. (2021) An approach to using the best-worst method for supporting sustainability reporting decision-making in SMEs. *Journal of Environmental Planning and Management*. 0 (0), Routledge, pp.1–24.

Roehrich, K.J., Grosvold, J. and Hoejmose, U.S. (2014) Reputational risks and sustainable supply chain management. Helen Walker, Professor Stefan Seur, P. (ed.) *International Journal of Operations & Production Management*. 34 (5), pp.695–719.

Rosen, M.A. and Kishawy, H.A. (2012) Sustainable manufacturing and design: Concepts, practices and needs. *Sustainability*. 4 (2), pp.154–174.

Roxas, B. (2021) Environmental sustainability engagement of firms: The roles of social capital, resources, and managerial entrepreneurial orientation of small and medium enterprises in Vietnam. *Business Strategy and the Environment*. (January), pp.2194–2208.

Roxas, B. et al. (2017) Human and social capital and environmental management in small firms: a developing country perspective. *Asian Journal of Business Ethics*. 6 (1), Asian Journal of Business Ethics, pp.1–20.

Roxas, B. and Chadee, D. (2012) Environmental sustainability orientation and financial resources of small manufacturing firms in the Philippines. *Social Responsibility Journal*. 8 (2), pp.208–226.

Russo, A. and Perrini, F. (2010) Investigating stakeholder theory and social capital: CSR in large firms and SMEs. *Journal of Business Ethics*. 91 (2), pp.207–221.

Russo, A. and Tencati, A. (2009) Formal vs. informal CSR strategies: Evidence from italian micro, small, medium-sized, and large firms. *Journal of Business Ethics*. 85 (SUPPL. 2), pp.339–353.

Saad, M., Kumar, V. and Bradford, J. (2017) An investigation into the development of the absorptive capacity of manufacturing SMEs. *International Journal of Production Research*. 55 (23), Taylor & Francis, pp.6916–6931.

Saeed, A. et al. (2018) Institutional pressures, green supply chain management practices on environmental and economic performance: A two theory view. *Sustainability (Switzerland)*. 10 (5), pp.1–24.

Sajan, M.P. et al. (2017) Lean manufacturing practices in Indian manufacturing SMEs and their effect on sustainability performance. *Journal of Manufacturing Technology Management*. 28 (6), pp.772–793.

Salanova, M., Agut, S. and Peiró, J.M. (2005) Linking organizational resources and work engagement to employee performance and customer loyalty: The mediation of service climate. *Journal of Applied Psychology*. 90 (6), pp.1217–1227.

Sale, J.E.M., Lohfeld, L.H. and Brazil, K. (2002) Revisiting the Quantitative-Qualitative Debate: Implications for Mixed-Methods Research. *Quality and quantity*. 36 (1), pp.43–53.

Salzmann, O., Ionescu-Somers, A.M. and Steger, U. (2005) The business case for corporate sustainability: Literature review and research options. *European Management Journal*. 23 (1), pp.27–36.

Santiago-Brown, I. et al. (2015) What Does Sustainability Mean? Knowledge Gleaned From Applying Mixed Methods Research to Wine Grape Growing. *Journal of Mixed Methods Research*. 9 (3), pp.232–251.

Saratun, M. (2016) Performance management to enhance employee engagement for corporate sustainability. *Asia-Pacific Journal of Business Administration*. 8 (1), pp.84–102.

Sardi, A. et al. (2020) The role of HRM in the innovation of performance measurement and management systems: a multiple case study in SMEs. *Employee Relations: The International Journal*.

Sarkis, J. and Dhavale, D.G. (2015) Supplier selection for sustainable operations: A triple-bottom-line approach using a Bayesian framework. *International Journal of Production Economics*. 166, Elsevier, pp.177–191.

Sarkis, J., Gonzalez-Torre, P. and Adenso-Diaz, B. (2010) Stakeholder pressure and the adoption of environmental practices: The mediating effect of training. *Journal of Operations Management*. 28 (2), Elsevier B.V., pp.163–176.

Sartori, S., Latrônico, F. and Campos, L.M.S. (2011) Sustainability and sustainable development: a taxonomy in the field of literature. *Ambiente & Sociedade*. 17 (1), pp.01–22.

Saunders, M.N.K., Lewis, P. & Thornhill, A. (2019) *Research methods for business students*, Eighth edn, Pearson, Boston

Schaufeli, W.B., Bakker, A.B. and Salanova, M. (2006) The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement*. 66 (4), pp.701–716.

Schlierer, H.J. et al. (2012) How Do European SME Owner-Managers Make Sense of 'Stakeholder Management'?: Insights from a Cross-National Study. *Journal of Business Ethics*. 109 (1), pp.39–51.

Schmidt, L., Nave, J.G. and Guerra, J. (2006) Who's afraid of Local Agenda 21? Top-down and bottom-up perspectives on local sustainability. *International Journal of Environment and Sustainable Development*. 5 (2), pp.181–198.

Schneider, A. and Meins, E. (2012) Two Dimensions of Corporate Sustainability Assessment: Towards a Comprehensive Framework. *Business Strategy and the Environment*. 21 (4), pp.211–222.

Schrettle, S. et al. (2014) Turning sustainability into action: Explaining firms' sustainability efforts and their impact on firm performance. *International Journal of Production Economics*. 147 (PART A), pp.73–84.

Schwarz, J., Beloff, B. and Beaver, E. (2002) *Use sustainability metrics to guide decision-making Chemical Engineering Progress*. 98 (7), 58–63.

Scotland, J. (2012) Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms. *English Language Teaching*. 5 (9), pp.9–16.

Scott, W.R. (2008) Approaching adulthood: The maturing of institutional theory. *Theory and Society*. 37 (5), pp.427–442.

Searcy, C. (2009a) Corporate sustainability performance measurement: Lessons from system of systems engineering. *Conference Proceedings - IEEE International Conference on Systems, Man and Cybernetics*. (October), pp.1057–1060.

Searcy, C. (2012) Corporate Sustainability Performance Measurement Systems: A Review and Research Agenda. *Journal of Business Ethics*. 107 (3), pp.239–253.

Searcy, C. (2016) Measuring Enterprise Sustainability. *Business Strategy and the Environment*. 25 (2), pp.120–133.

Searcy, C. (2009b) Setting a course in corporate sustainability performance measurement. *Measuring Business Excellence*. 13 (3), pp.49–57.

Searcy, C. (2011) Updating corporate sustainability performance measurement systems. *Measuring Business Excellence*. 15 (2), pp.44–56.

Sekaran, U. & Bougie, R.J. (2016). Research methods for business: a skill building approach, 7th edn, John Wiley & Sons, Chichester.

Sengupta, K. and Chattopadhyay, A. (2006) Importance of appropriate marketing strategies for sustainability of small businesses in a developing country. Shukla, P. (ed.) *Asia Pacific Journal of Marketing and Logistics*. 18 (4), pp.328–341.

Seo, H.G. et al. (2016) SME's appropriability regime for sustainable development-the role of absorptive capacity and inventive capacity. *Sustainability (Switzerland)*. 8 (7), pp.1–16.

Seuring, S. (2013) A review of modeling approaches for sustainable supply chain management. *Decision Support Systems*. 54 (4), pp.1513–1520.

Seuring, S. and Müller, M. (2008) From a literature review to a conceptual framework for sustainable supply chain management. *Journal of Cleaner Production*. 16 (15), pp.1699–1710.

Shahedul Quader, M., Kamal, M.M. and Hassan, A.B.M.E. (2016) Sustainability of positive relationship between environmental performance and profitability of SMEs: A case study in the UK. *Journal of Enterprising Communities*. 10 (2), pp.138–163.

Shahzad, M. et al. (2020) Impact of knowledge absorptive capacity on corporate sustainability with mediating role of CSR: analysis from the Asian context. *Journal of Environmental Planning and Management*. 63 (2), Routledge, pp.148–174.

Shashi et al. (2018) Sustainability orientation, supply chain integration, and SMEs performance: a causal analysis. *Benchmarking*. 25 (9), pp.3679–3701.

Shaw, S., Grant, D.B. and Mangan, J. (2021) A supply chain practice-based view of enablers, inhibitors and benefits for environmental supply chain performance measurement. *Production Planning and Control*. 32 (5), Taylor & Francis, pp.382–396.

Sheehan, M., Garavan, N.T. and Carbery, R. (2014) Sustainability, corporate social responsibility and HRD. Ronan Carbery, Prof. Thomas N. Gara, D. (ed.) *European Journal of Training and Development*. 38 (5), pp.370–386.

Shevchenko, A., Lévesque, M. and Pagell, M. (2016) Why Firms Delay Reaching True Sustainability. *Journal of Management Studies*. 53 (5), pp.911–935.

Shi, H. et al. (2008) Barriers to the implementation of cleaner production in Chinese SMEs: government, industry and expert stakeholders' perspectives. *Journal of Cleaner Production*. 16 (7), pp.842–852.

Shibin, K.T. et al. (2018) The Management of Operations Frugal innovation for supply chain sustainability in SMEs : multi-method research design research design. *Production Planning & Control*. 29 (11), Taylor & Francis, pp.908–927.

Shields, J. and Shelleman, J.M. (2015) Integrating sustainability into SME strategy. *Journal of Small Business Strategy*. 25 (2), pp.59–76.

Shields, J.F., Welsh, D.H.B. and Shelleman, J.M. (2018) Sustainability reporting and its implications for family firms. *Journal of Small Business Strategy*. 28 (1), pp.66–71.

Shnayder, L., Van Rijnsoever, F.J. and Hekkert, M.P. (2015) Putting your money where your mouth is: Why sustainability reporting based on the triple bottom line can be misleading. *PLoS ONE*. 10 (3), pp.1–23.

Shrestha, B.K. (2017) Religious Ethics and Socially Responsible Behaviors of Small Firms in Nepal. *Journal of Religion and Business Ethics*. 3 (2), p.5.

Shuaib, M. et al. (2014) Product sustainability index (ProdSI): A metrics-based framework to evaluate the total life cycle sustainability of manufactured products shuaib et al. prodsi framework to evaluate product sustainability. *Journal of Industrial Ecology*. 18 (4), pp.491–507.

Siegel, R. et al. (2019a) Integrated green lean approach and sustainability for SMEs: From literature review to a conceptual framework. *Journal of Cleaner Production*. 240.

Siegel, R. et al. (2019b) Integrated green lean approach and sustainability for SMEs: From literature review to a conceptual framework. *Journal of Cleaner Production*. 240.

Siew, R.Y.J. (2015) A review of corporate sustainability reporting tools (SRTs). *Journal of Environmental Management*. 164, Elsevier Ltd, pp.180–195.

Silverman, D. (2013). *Doing qualitative research*, Fourth edn, SAGE, Los Angeles.

Silvestre, B.S. (2015) Sustainable supply chain management in emerging economies: Environmental turbulence, institutional voids and sustainability trajectories. *International Journal of Production Economics*. 167, Elsevier, pp.156–169.

Simonette, M.J. et al. (2008) Efetividade Do Processo De Comunicação Com Base Na Teoria Do Comportamento Informacional: O Caso De Um Organismo Internacional Da Área Da Saúde Pública Sediado No Brasil. *Systems Research and Behavioral Science*. 8 (3), pp.27–42.

Simpson, M., Padmore, J. and Newman, N. (2012) Towards a new model of success and performance in SMEs. *International Journal of Entrepreneurial Behavior & Research*. 18 (3), pp.264–285.

Singh, M., Brueckner, M. and Padhy, P.K. (2015) Environmental management system ISO 14001: Effective waste minimisation in small and medium enterprises in India. *Journal of Cleaner Production*. 102, Elsevier Ltd, pp.285–301.

Singh, M., Brueckner, M. and Padhy, P.K. (2014) Insights into the state of ISO14001 certification in both small and medium enterprises and industry best companies in India: The case of Delhi and Noida. *Journal of Cleaner Production*. 69, Elsevier Ltd, pp.225–236.

Singh, R.K. et al. (2012) An overview of sustainability assessment methodologies. *Ecological Indicators*. 15 (1), Elsevier Ltd, pp.281–299.

Singh, S. et al. (2015) Fuzzy-based sustainability evaluation method for manufacturing SMEs using balanced scorecard framework. *Journal of Intelligent Manufacturing*. Springer US, pp.1–18.

Singh, S., Olugu, E.U. and Fallahpour, A. (2014) Fuzzy-based sustainable manufacturing assessment model for SMEs. *Clean Technologies and Environmental Policy*. 16 (5), pp.847–860.

Singh, S., Olugu, E.U. and Musa, S.N. (2016) Development of Sustainable Manufacturing Performance Evaluation Expert System for Small and Medium Enterprises. *Procedia CIRP*. 40, Elsevier B.V., pp.609–614.

Singh, S. and Srivastava, S. (2018) Moderating effect of product type on online shopping

behaviour and purchase intention: An Indian perspective. *Cogent Arts and Humanities*. 5 (1), Cogent, pp.1–27.

Singh, V., Chauhan, S.C. and Tejyan, S. (2017) Greenhouse gas emission reduction potentials in air transport: a structural equation modelling-based multi-group analysis. *Technology Analysis and Strategic Management*. 29 (4), Taylor & Francis, pp.442–461.

Singh, V. and Sharma, S.K. (2016) Analyzing the moderating effects of respondent type and experience on the fuel efficiency improvement in air transport using structural equation modeling. *European Transport Research Review*. 8 (2), European Transport Research Review.

Sirsly, C.T. and Sur, S. (2014) Strategies for sustainability initiatives : why ownership matters.

Slaper, T.F. and Hall, T.J. (2011) The Triple Bottom Line: What Is It and How Does It Work? *Indiana Business Review*. 86 (1), pp.4–8.

Smith, M.K. (2018) High-involvement innovation: views from frontline service workers and managers. *Employee Relations*. 40 (2), pp.208–226.

Sodhi, M.S.M.S. and Tang, C.S. (2018) Corporate social sustainability in supply chains: a thematic analysis of the literature. *International Journal of Production Research*. 56 (1–2), pp.882–901.

Soilemezi, D. and Linceviciute, S. (2018) Synthesizing Qualitative Research: Reflections and Lessons Learnt by Two New Reviewers. *International Journal of Qualitative Methods*. 17 (1), pp.1–14.

Sommer, C. (2017) Drivers and Constraints for Adopting Sustainability Standards in Small and Medium-sized Enterprises (SMEs). *German Development Institute*. p.73.

Song, B. and Choi, D. (2018) Dynamic capability of the firm as driver of green supply chain management implementation. *Sustainability (Switzerland)*. 10 (7).

Soundararajan, V., Jamali, D. and Spence, L.J. (2018) Small Business Social Responsibility: A Critical Multilevel Review, Synthesis and Research Agenda. *International Journal of Management Reviews*. 20 (4), pp.934–956.

Sousa, S. and Aspinwall, E. (2010) Development of a performance measurement framework for SMEs. 21 (5), Routledge , pp.475–501.

Spector, P.E. and Brannick, M.T. (2011) Methodological urban legends: The misuse of statistical control variables. *Organizational Research Methods*. 14 (2), pp.287–305.

Spence, L.J. and Schimdpeter, R. (2003) SMEs, Social Capital and the Common Good on JSTOR. *Journal of business ethics*. p.16.

Spence, L.J., Schmidpeter, R. and Habisch, A. (2003) Assessing Social Capital : Small and Medium Sized Enterprises in Germany and the U . K . pp.17–29.

Sperber, A.D. et al. (2014) Conducting multinational, cross-cultural research in the functional gastrointestinal disorders: Issues and recommendations. A Rome Foundation working team report. *Alimentary Pharmacology and Therapeutics*. 40 (9), pp.1094–1102.

Spicer, D.P. (2004) *Organisational Learning and Performance SMEs* (04).

Sridhar, K. and Jones, G. (2013) The three fundamental criticisms of the Triple Bottom Line approach: An empirical study to link sustainability reports in companies based in the Asia-Pacific region and TBL shortcomings. *Asian Journal of Business Ethics*. 2 (1), pp.91–111.

Srisathan, W.A., Ketkaew, C. and Naruetharadhol, P. (2020) The intervention of organizational sustainability in the effect of organizational culture on open innovation performance: A case of thai and chinese SMEs. *Cogent Business and Management*. 7 (1), Cogent.

Sroufe, R. et al. (2010) Are You a Leader or a Laggard? HR's Role in Creating a Sustainability Culture. *People & Strategy*. 33 (1), pp.34–42.

Sroufe, R. (2017) Integration and organizational change towards sustainability. *Journal of Cleaner Production*. 162, Elsevier Ltd, pp.315–329.

Steinhofel, E. et al. (2019) *Sustainability reporting in German manufacturing SMEs*In: *Procedia Manufacturing*. 33, Elsevier B.V., 610–617.

De Steur, H. et al. (2020) Drivers, adoption, and evaluation of sustainability practices in Italian wine SMEs. *Business Strategy and the Environment*. 29 (2), pp.744–762.

Stubblefield Loucks, E., Martens, M.L. and Cho, C.H. (2010) Engaging small- and medium-sized businesses in sustainability. Dillard, J. (ed.) *Sustainability Accounting, Management and Policy Journal*. 1 (2), pp.178–200.

Suh, C.J. and Lee, I.T. (2018) An empirical study on the manufacturing firm's strategic choice for sustainability in SMEs. *Sustainability (Switzerland)*. 10 (2).

Sukkar, A.E. (2017) Sustainability : Its factors and its performance evaluation. *Journal of Commerce & Educational Thoughts*. 1 (1), pp.14–30.

Sundaram, A.K. and Inkpen, A.C. (2004) The corporate objective revisited. *Organization Science*. 15 (3).

Sundin, E., Nässlander, E. and Lelah, A. (2015) Sustainability indicators for small and medium-sized enterprises (SMEs) in the transition to provide Product-Service Systems (PSS). *Procedia CIRP*. 30, pp.149–154.

Suriyankietkaew, S. (2016) Effects of sustainable leadership on customer satisfaction: Evidence from Thailand. *Asia-Pacific Journal of Business Administration*. 8 (3), pp.245–259.

Susanto, A.& P. (2021) Strengthen the Resilience of Small and Medium Enterprises (SMEs) in Covid-19 Pandemic Through the Strengthening Entrepreneurial Orientation and Religiosity (A Conceptual Framework). *PSYCHOLOGY AND EDUCATION*. 58 (3), pp.615–625.

Svensson, G. et al. (2016) A Triple Bottom Line Dominant Logic for Business Sustainability: Framework and Empirical Findings. *Journal of Business-to-Business Marketing*. 23 (2), pp.153–188.

Svensson, G. and Wagner, B. (2015) Implementing and managing economic, social and environmental efforts of business sustainability. *Management of Environmental Quality: An*

International Journal. 26 (2), pp.195–213.

Székely, F. and Knirsch, M. (2005) Responsible leadership and corporate social responsibility: Metrics for sustainable performance. *European Management Journal*. 23 (6), pp.628–647.

Tabachnick, B.G. & Fidell, L.S. (2014). *Using multivariate statistics*, International; Sixth; edn, Pearson, Harlow, Essex.

Tan, H.X. et al. (2015) A sustainability indicator framework for Singapore small and medium-sized manufacturing enterprises. *Procedia CIRP*. 29, Elsevier B.V., pp.132–137.

Tanzil, D. and Beloff, B.R. (2006) Assessing impacts: Overview on sustainability indicators and metrics. *Environmental Quality Management*. 15 (4), pp.41–56.

Tashakkori, A. et al. (2015) *Overview of Contemporary Issues in Mixed Methods Research SAGE Handbook of Mixed Methods in Social & Behavioral Research*.

Taylor, A. and Taylor, M. (2014) Factors influencing effective implementation of performance measurement systems in small and medium-sized enterprises and large firms: A perspective from Contingency Theory. *International Journal of Production Research*. 52 (3), pp.847–866.

Teck Hui, L. (2008) Combining faith and CSR: a paradigm of corporate sustainability. *International Journal of Social Economics*. 35 (6), pp.449–465.

Teddlie, C. and Yu, F. (2007) Mixed Methods Sampling: A typology with examples. *Journal of Mixed Methods Research*. 1 (1), pp.77–100.

Teo, T.S.H. (2005) Meeting the challenges of knowledge management at the Housing and Development Board. *Decision Support Systems*. 41 (1), pp.147–159.

Thomas, D.R. (2003) A general inductive approach for qualitative data analysis.

Tien, N.H. et al. (2020) Small family business in Vietnam succession and sustainable development. *International Journal of Entrepreneurship*. 24 (1).

Tien, N.H., Anh, D.B.H. and Ngoc, N.M. (2020) Corporate financial performance due to sustainable development in Vietnam. *Corporate Social Responsibility and Environmental Management*. 27 (2), pp.694–705.

Tiep, L.T., Huan, N.Q. and Hong, T.T.T. (2021) Determinants for competitiveness in the context of international integration pressure: Case of small and medium enterprises in emerging economy–Vietnam. Liu, G. (ed.) *Cogent Business & Management*. 8 (1), Cogent, p.1893246.

Tilleman, S. (2012) Is Employee Organizational Commitment Related to Firm Environmental Sustainability? *Journal of Small Business & Entrepreneurship*. 25 (4), pp.417–431.

Tolstoy, D. (2019) The Proactive Initiation of SMEs' Foreign Business Relationships. *European Management Review*. 16 (4), pp.1159–1173.

Torrance, H. (2012) Triangulation, Respondent Validation, and Democratic Participation in Mixed Methods Research. *Journal of Mixed Methods Research*. 6 (2), pp.111–123.

Tran, A.N. and Jeppesen, S. (2016a) SMEs in their Own Right: The Views of Managers and Workers in Vietnamese Textiles, Garment, and Footwear Companies. *Journal of Business Ethics*. 137 (3), Springer Netherlands, pp.589–608.

Tran, A.N. and Jeppesen, S. (2016b) SMEs in their Own Right: The Views of Managers and Workers in Vietnamese Textiles, Garment, and Footwear Companies. *Journal of Business Ethics*. 137 (3), Springer Netherlands, pp.589–608.

Tran, N.M. and Pham, B.N.T. (2020) The influence of CEO characteristics on corporate environmental performance of SMEs: Evidence from Vietnamese SMEs. *Management Science Letters*. 10 (8), pp.1671–1682.

Tran, T., Deng, H. and Ong, C.E. (2018) Critical Factors for the Adoption of Social Sustainability Practices in Vietnamese Handicraft Organizations. *2018 IEEE Conference on e-Learning, e-Management and e-Services (IC3e)*. IEEE, pp.122–127.

Tran, T., Deng, H. and Ong, C.E. (2019) *Critical Factors for the Adoption of Social Sustainability Practices in Vietnamese Handicraft Organizations*In: *2018 IEEE Conference on e-Learning, e-Management and e-Services, IC3e 2018*. 122–127.

Trang, H. and Yekini, L. (2014) Investigating the link between CSR and Financial performance-Evidence from Vietnamese listed companies. *British Journal of Arts and Social Sciences*. 17 (1), pp.85–101.

Tremblay, A. and Badri, A. (2018) A novel tool for evaluating occupational health and safety performance in small and medium-sized enterprises: The case of the Quebec forestry/pulp and paper industry. *Safety Science*. 101 (May 2017), Elsevier, pp.282–294.

Trianni, A. et al. (2019) Measuring industrial sustainability performance: Empirical evidence from Italian and German manufacturing small and medium enterprises. *Journal of Cleaner Production*. 229, Elsevier Ltd, pp.1355–1376.

Trianni, A. and Cagno, E. (2012) Dealing with barriers to energy efficiency and SMEs: Some empirical evidences. *Energy*. 37 (1), Elsevier Ltd, pp.494–504.

Trianni, A., Cagno, E. and Farné, S. (2016) Barriers, drivers and decision-making process for industrial energy efficiency: A broad study among manufacturing small and medium-sized enterprises. *Applied Energy*. 162, Elsevier Ltd, pp.1537–1551.

Trifković, N. (2017) Spillover Effects of International Standards: Working Conditions in the Vietnamese SMEs. *World Development*. 97 (October 2016), pp.79–101.

Truong, A. and Barraket, J. (2018) Engaging workers in resource-poor environments : the case of social enterprise in Vietnam. *The International Journal of Human Resource Management*. 5192, Routledge, pp.1–22.

Tsalis, T. a. et al. (2013) A framework development to evaluate the needs of SMEs in order to adopt a sustainability-balanced scorecard. *Journal of Integrative Environmental Sciences*. 10 (February 2015), pp.179–197.

Tsang, E.W.K. (1997) Organizational learning and the learning organization: A dichotomy between descriptive and prescriptive research. *Human Relations*. 50 (1), pp.73–89.

Tuan, L.T. and Rowley, C. (2015) From value-based human resource practices to i-deals: Software companies in vietnam. *Personnel Review*. 44 (1), pp.39–68.

Tumpa, T.J. et al. (2019) Barriers to green supply chain management: An emerging economy context. *Journal of Cleaner Production*. 236.

Tur-Porcar, A., Roig-Tierno, N. and Mestre, A.L. (2018) Factors affecting entrepreneurship and business sustainability. *Sustainability (Switzerland)*. 10 (2), pp.1–12.

Turcu, C. (2013) Re-thinking sustainability indicators: Local perspectives of urban sustainability. *Journal of Environmental Planning and Management*. 56 (5), pp.695–719.

Turner, S.F., Cardinal, L.B. and Burton, R.M. (2017) Research Design for Mixed Methods: A Triangulation-based Framework and Roadmap. *Organizational Research Methods*. 20 (2), pp.243–267.

UNIDO (1992). *Handbook of Industrial Statistics*. New York: United Nations.

Upadhye, B. et al. (2021) Can planning prompt be a boon for impulsive customers? Moderating roles of product category and decisional procrastination. *Psychology and Marketing*. (January).

Urban, B. and Naidoo, R. (2012) Business sustainability: empirical evidence on operational skills in SMEs in South Africa. *Journal of Small Business and Enterprise Development*. 19 (1), pp.146–163.

Uygur, S. (2009) The Islamic Work Ethic and the Emergence of Turkish SME Owner-Managers. *Journal of Business Ethics*. 88 (1), pp.211–225.

Veleva, V. and Ellenbecker, M. (2001) *Indicators of sustainable production: framework and methodology Journal of Cleaner Production*. 9 (6).

Venkatesh, V., Brown, S.A. and Sullivan, Y.W. (2016) Guidelines for conducting mixed-methods research: An extension and illustration. *Journal of the Association of Information Systems*. 17 (7), pp.435–495.

Verma, P., Sharma, R.R.K. and Kumar, V. (2017) *The sustainability issues of diversified firms in emerging economies context: A theoretical model and propositions International Journal of Process Management and Benchmarking*. 7 (2), 224–248.

de Villiers, C., Rouse, P. and Kerr, J. (2016) A new conceptual model of influences driving sustainability based on case evidence of the integration of corporate sustainability management control and reporting. *Journal of Cleaner Production*. 136, Elsevier Ltd, pp.78–85.

Virginia, D. and Suzanne, B. (2001) Challenges in the development and use of ecological indicators. *Ecological Indicators*. 1, pp.3–10.

Voeten, J. and Tilburg University (2013) Internal Regulation of Innovation Externalities for Development: Lessons from Vietnam. *International Workshop on 'New Models of Innovation for Development' at the University of Manchester*. (July), pp.1–18.

Volberda, H.W., Foss, N.J. and Lyles, M.A. (2010) Absorbing the concept of absorptive capacity: How to realize its potential in the organization field. *Organization Science*. 21 (4),

pp.931–951.

Vu et al. (2019) Determinants of Vietnamese Listed Firm Performance: Competition, Wage, CEO, Firm Size, Age, and International Trade. *Journal of Risk and Financial Management*. 12 (2), p.62.

Wadongo, B. and Abdel-Kader, M. (2014) Contingency theory, performance management and organisational effectiveness in the third sector: A theoretical framework. *International Journal of Productivity and Performance Management*. 63 (6), pp.680–703.

Wahga, A.I., Blundel, R. and Schaefer, A. (2018) Understanding the drivers of sustainable entrepreneurial practices in Pakistan's leather industry: A multi-level approach. *International Journal of Entrepreneurial Behaviour and Research*. 24 (2), pp.382–407.

Wahyuni, D. (2012) The research design maze: Understanding paradigms, cases, methods and methodologies. *Journal of applied management accounting research*. 10 (1), pp.69–80.

Wang, S. and Noe, R.A. (2009) Knowledge sharing: A review and directions for future research.

Warhurst, A. (2002) Sustainability Indicators and Sustainability Performance Management. *World Business Council for Sustainable Development*. 43 (43), p.129.

Wass, V. J., & Wells, P. E. (Eds.). (1994). *Principles and practice in business and management research*. Dartmouth.

Wattanapinyo, A. and Mol, A.P.J. (2013) Ecological modernization and environmental policy reform in thailand: The case of food processing SMEs. *Sustainable Development*. 21 (5), pp.309–323.

Weideman, M. (2018) The Influence of Flexible Work Arrangements on Employee Engagement: An Explorative Study. *Gordon Institute of Business Science*. (1), p.133.

Wesarat, P., Sharif, M.Y. and Abdul Majid, A.H. (2017) Role of Organizational Ethics in Sustainable Development: A Conceptual Framework. *International Journal of Sustainable Future for Human Security*. 5 (1), pp.67–76.

Wickert, C. (2014) "Political" Corporate Social Responsibility in Small- and Medium-Sized Enterprises: A Conceptual Framework. *Business & Society*. pp.1–33.

Wiengarten, F. et al. (2017) Complexity and the triple bottom line: an information-processing perspective. *International Journal of Operations & Production Management*. 37 (9), pp.1142–1163.

Wiesner, R., Chadee, D. and Best, P. (2017) Managing Change Toward Environmental Sustainability: A Conceptual Model in Small and Medium Enterprises. *Organization & Environment*. p.108602661668929.

Wiesner, R., Chadee, D. and Best, P. (2018) Managing Change Toward Environmental Sustainability: A Conceptual Model in Small and Medium Enterprises. *Organization and Environment*. 31 (2), pp.152–177.

Williams, P., Ashill, N. and Naumann, E. (2017) Toward a contingency theory of CRM adoption. *Journal of Strategic Marketing*. 25 (5–6), Routledge, pp.454–474.

Williams, T.A. and Shepherd, D.A. (2017) Mixed Method Social Network Analysis: Combining Inductive Concept Development, Content Analysis, and Secondary Data for Quantitative Analysis. *Organizational Research Methods*. 20 (2), pp.268–298.

Wilson, J., Tyedmers, P. and Pelot, R. (2007) Contrasting and comparing sustainable development indicator metrics. *Ecological Indicators*. 7 (2), pp.299–314.

Woods, M. (2011) Interviewing for research and analysing qualitative data : An overview. *School of Humanities and Social Sciences, Massey University*. pp.1–8.

World Commission on Economic Development (1987). *Our common future*. Oxford: Oxford University Press.

Wrana, J., Xuan, T. and Nguyen, T. (2019) ' Strategic coupling ' and regional development in a transition economy : what can we learn from Vietnam ? ' Strategic coupling ' and regional development in a Vietnam ? *Area Development and Policy*. 0 (0), Routledge, pp.1–12.

Wu, J.Z., Roan, J. and Santoso, C.H. (2017) Key factors for truly sustainable supply chain management: An investigation of the coal industry in Indonesia. *International Journal of Logistics Management*. 28 (4), pp.1196–1217.

Wu, K.J. et al. (2019) Sustainable development performance for small and medium enterprises using a fuzzy synthetic method-DEMATEL. *Sustainability (Switzerland)*. 11 (15).

Xin, L. et al. (2020) Social capital and sustainable innovation in small businesses: Investigating the role of absorptive capacity, marketing capability and organizational learning. *Sustainability (Switzerland)*. 12 (9).

Xu, X.Y. et al. (2021) The Migration of Viewers in Gaming Streaming: The Perspective of a Push-Pull-Mooring Model. *International Journal of Human-Computer Interaction*. 00 (00), Taylor & Francis, pp.1–17.

Yacob, P., Wong, L.S. and Khor, S.C. (2019) An empirical investigation of green initiatives and environmental sustainability for manufacturing SMEs. *Journal of Manufacturing Technology Management*. 30 (1), pp.2–25.

Yadav, N. et al. (2018) Drivers of Sustainability Practices and SMEs: A Systematic Literature Review. *European Journal of Sustainable Development*. 7 (4), pp.531–544.

Ye, J. and Kulathunga, K.M.M.C.B. (2019) How does financial literacy promote sustainability in SMEs? A developing country perspective. *Sustainability (Switzerland)*. 11 (10), pp.1–21.

Yin, R.K., (2018). *Case study research and applications*. Sage.

Young, H.R. et al. (2018) Who are the most engaged at work? A meta-analysis of personality and employee engagement. *Journal of Organizational Behavior*. 39 (10), pp.1330–1346.

Yu, W. et al. (2018) Operations capability, productivity and business performance the moderating effect of environmental dynamism. *Industrial Management and Data Systems*. 118

(1), pp.126–143.

Yu, W. and Ramanathan, R. (2015) An empirical examination of stakeholder pressures, green operations practices and environmental performance. *International Journal of Production Research*. 53 (21), Taylor & Francis, pp.6390–6407.

Yu, W. and Ramanathan, R. (2016) Environmental management practices and environmental performance the roles of operations and marketing capabilities. *Industrial Management and Data Systems*. 116 (6), pp.1201–1222.

Yu, W., Ramanathan, R. and Nath, P. (2017) Environmental pressures and performance: An analysis of the roles of environmental innovation strategy and marketing capability. *Technological Forecasting and Social Change*. 117, Elsevier Inc., pp.160–169.

Yusof, S.M. and Aspinwall, E. (2000) Total quality management implementation frameworks: Comparison and review. *Total Quality Management*. 11 (3), pp.281–294.

Yusoff, H., Jamal, A.D.A. and Darus, F. (2016) Corporate governance and corporate social responsibility disclosure: An Emphasis on the CSR key dimensions. *Journal of Accounting and Auditing: Research & Practice*. 2016 (1), pp.1–14.

Yusoff, R.B.M. et al. (2016) Investigating the relationship of employee empowerment and sustainable manufacturing performance. *International Review of Management and Marketing*. 6 (4), pp.284–290.

Zahra, S.A. and George, G. (2002) Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review*. 27 (2), pp.185–203.

Zarrinabadi, N., Rezazadeh, M. and Chehrazi, A. (2021) The links between grammar learning strategies and language mindsets among L2 and L3 learners: examining the role of and gender. *International Journal of Multilingualism*. 0 (0), Taylor & Francis, pp.1–18.

Zhang, A. et al. (2019a) Barriers to smart waste management for a circular economy in China. *Journal of Cleaner Production*. Elsevier Ltd, p.118198.

Zhang, B., Bi, J. and Liu, B. (2009) Drivers and barriers to engage enterprises in environmental management initiatives in Suzhou Industrial Park, China. *Frontiers of Environmental Science and Engineering in China*. 3 (2), pp.210–220.

Zhang, D. and Morse, S. (2014) Evolving corporate social responsibility in China. *Sustainability*. 6 (11), pp.7646–7665.

Zhang, Q. et al. (2019b) Drivers , motivations , and barriers to the implementation of corporate social responsibility practices by construction enterprises : A review. *Journal of Cleaner Production*. 210, Elsevier Ltd, pp.563–584.

Zhu, L., Kara, O. and Zhu, X. (2019) A comparative study of women entrepreneurship in transitional economies: The case of China and Vietnam. *Journal of Entrepreneurship in Emerging Economies*. 11 (1), pp.66–80.

Zhu, Q. et al. (2008) Firm-level correlates of emergent green supply chain management practices in the Chinese context. *Omega*. 36 (4), pp.577–591.

Zorpas, A. (2010) Environmental management systems as sustainable tools in the way of life for the SMEs and VSMEs. *Bioresource Technology*. 101 (6), Elsevier Ltd, pp.1544–1557.

Zulu-Chisanga, S., Chabala, M. and Mandawa-Bray, B. (2020) The differential effects of government support, inter-firm collaboration and firm resources on SME performance in a developing economy. *Journal of Entrepreneurship in Emerging Economies*. 13 (2), pp.175–195.

APPENDIX

Appendix A.1 Final Questionnaire

Thank you for participating in my research. I am a doctoral researcher at the Faculty of Business and Law, University of the West of England, Bristol, United Kingdom. The purpose of this study is to investigate the most appropriate metrics for SMEs in the southern region of Vietnam, along with the key enablers and inhibitors in order to better help SMEs to manage their sustainability performance.

This study has been approved by the University of the West of England's Research Ethics Committee. If you have any concerns or questions, the committee can be contacted by email at: researchethics@uwe.ac.uk

I believe there are no known risks associated with this study. All individual responses will remain confidential. To help protect your confidentiality all data is stored on the university drive and in a password protected electronic format. Your participation in this study is voluntary and you have the right to refuse to participate or leave the study at any time without any penalty.

If you agree to participate in this study, you will be asked to complete the questionnaire concerning your opinion and experiences with the above topic. It will take approximately 20 minutes to complete the questionnaire. The information you share in the questionnaire will be used only for academic purposes, which can be the PhD. thesis, journal articles, and relevant presentations in academic seminars and lectures.

Should you require further information, you can contact me:

Mr. Huy Phan (Email: huy2.phan@live.uwe.ac.uk or Mobile phone: 0084 - 92734621)

You can also contact my research supervisors:
1. Professor Mohammed Saad (Email: Mohammed.Saad@uwe.ac.uk)
2. Professor Vikas Kumar (Email: vikas.kumar@uwe.ac.uk)

If you would like to have a copy of the research findings, please provide your email address in the last section of this questionnaire.

Thank you.

Electronic Consent

Thank you for taking part, your help is greatly appreciated.

Before we begin, please read the following points:

- I have had the opportunity to read the information on the previous page
- I am over the age of 18.
- I understand that:
    - My participation is voluntary.
    - I am free to withdraw at any time without giving a reason.
    - I will never be personally identified in any report or write up those stems from this research.
    - All information I provide will be treated as confidential and used for research purposes only.
    - The data collected will be held and processed by the researcher for the purposes of research.

Please click the button below to begin

Clicking "I agree" button means you understand and agree with the above points.

	I agree, begin the study
	I disagree, I do not wish to participate

SECTION A. GENERAL INFORMATION

1. The items below will provide us with useful information about you. Please answer by ticking the appropriate response.

- Gender : □ Male □ Female

- Your Age (years)

□ 18-25 □ 26-30 □ 31-40

□ 41-45 □ 46-50 □ More than 50

- Your highest educational qualification

□ No formal education □ Primary □ High School

□ Undergraduate bachelor's degree □ Postgraduate qualification

- How many <u>years</u> of industrial experience do you have?

□ Less than 1 □ 1-5 □ 6-10 □ 11-15 □ More than 15

Your position within your company

□ Owner & Manager □ Owner □ Managing Director

□ Senior Manager □ Middle Manager (i.e., Team Leaders/ Supervisor)

□ Employee (operations, technical, accountant, sale, general, etc.)

2. In which category does your firm primarily operate? Please tick one category only.

□ Manufacturing □ Construction

□ Service □ Wholesale and retail trade

□ Agriculture, Forestry & Fishing □ Rental, Hiring & Real Estate Services

□ Accommodation & Food Services □ Other (Please specify): …….

- Age of your business (years)

□ Less than 5 □ 5-9 □ 10-15 □ More 15

- The average number of employees working in your company

□ Less than 10 □ Between 11 and 49

□ Between 50 and 250 □ Between 251 and 300

- Company's location: □ Ho Chi Minh city □ Other Province/City (Please specify...)

Q3. Is your company accredited or addressing any of the following management frameworks related to sustainability development?

Accredited:

□ ISO14001 □ ISO 9001 □ EMAS □ 5S; Kaizen □ None

Others *(please specify)*:

Addressing:

□ ISO14001 □ ISO 9001 □ EMAS □ 5S; Kaizen □ None

Others *(please specify):*

SECTION B. SUSTAINABILITY PERFORMANCE MEASUREMENT

The section consists of aspects relating to the adoption of sustainability performance measurement system (SPMS)

Q4. The sub-section consists of items relating to the economic metrics that are currently used in measuring sustainability performance in your company. *For each of the items below, please indicate your level of agreement by ticking the most appropriate response.*

Economic metrics	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	*Sources*
My company considers **ROI** (return on investment) as a metric in measuring economic performance						Tan et al. (2015); Hsu, Chang and Luo (2017); Neri et al. (2021); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)
My company considers **operating profit** as a metric in measuring economic performance						Feil, de Quevedo and Schreiber (2015); Borga et al. (2009); Neri et al. (2021); Global Reporting Initiative (2015)
My company considers **net profit** as a metric in measuring economic performance						Li et al. (2012); Feil, de Quevedo and Schreiber (2015); Borga et al. (2009); Hsu, Chang and Luo (2017); Neri et al. (2021); Global Reporting Initiative (2015)
My company considers **tax payments** as a metric in measuring economic performance						Feil, de Quevedo and Schreiber (2015); Borga et al. (2009); Global Reporting Initiative (2015)

My company considers **operational costs** as a metric in measuring economic performance						Singh, Olugu and Fallahpour (2014); Feil, de Quevedo and Schreiber (2015); Tan et al. (2015);Borga et al. (2009); Neri et al. (2021); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)
My company considers **R&D expenditure** as a metric in measuring economic performance						Li et al. (2012); Tan et al. (2015); Borga et al. (2009); Hsu, Chang and Luo (2017); Neri et al. (2021); Global Reporting Initiative (2015)

Q5. This sub-section consists of items relating to the social metrics that are currently used in measuring sustainability performance in your company. *For each of the items below, please indicate your level of agreement by ticking the most appropriate response.*

Social metrics	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	*Sources*
My company considers **employee job satisfaction** as a metric in measuring social performance						Kocmanova and Docekalova (2011); Li et al. (2012); Feil, de Quevedo and Schreiber (2015); Hsu, Chang and Luo (2017); Neri et al. (2021); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)
My company considers **employee training** as a metric in measuring social performance						Kocmanova and Docekalova, 2011; Singh, Olugu and Fallahpour (2014); Feil, de Quevedo and Schreiber (2015); Tan et al. (2015); Arena and Azzone, 2012; Borga et al. (2009); Hsu, Chang and Luo (2017); Neri et al. (2021); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)

My company considers **employee turnover** as a metric in measuring social performance						Kocmanova and Docekalova (2011); Li et al. (2012); Feil, de Quevedo and Schreiber (2015); Tan et al. (2015); Arena and Azzone, (2012); Borga et al. (2009); Hsu, Chang and Luo (2017); Neri et al. (2021); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)
My company considers **health and safety in the workplace** as a metric in measuring social performance						Kocmanova and Docekalova (2011); Li et al. (2012); Feil, de Quevedo and Schreiber (2015); Tan et al. (2015); Arena and Azzone, 2012; Borga et al. (2009); Hsu, Chang and Luo (2017); Neri et al. (2021); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)
My company considers **customer satisfaction** as a metric in measuring social performance						Kocmanova and Docekalova (2011); Li et al. (2012); Singh, Olugu and Fallahpour (2014) Feil, de Quevedo and Schreiber (2015); Tan et al. (2015); Borga et al. (2009); Hsu, Chang and Luo (2017); Neri et al. (2021); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)
My company considers **customer complaints** as a metric in measuring social performance						Tan et al. (2015); Hsu, Chang and Luo (2017); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)

My company considers **charitable donation** as a metric in measuring social performance						Kocmanova and Docekalova (2011); Li et al. (2012); Singh, Olugu and Fallahpour (2014) Feil, de Quevedo and Schreiber (2015); Arena and Azzone (2012); Borga et al. (2009); Neri et al. (2021); Global Reporting Initiative (2015)
My company considers **community involvement** as a metric in measuring social performance						Kocmanova and Docekalova (2011); Li et al. (2012); Singh, Olugu and Fallahpour (2014) Feil, de Quevedo and Schreiber (2015); Arena and Azzone (2012); Borga et al. (2009); Neri et al. (2021); Global Reporting Initiative (2015)

Q.6 This sub-section consists of items relating to the environment metrics that are currently used in measuring sustainability performance in your company. *For each of the items below, please indicate your level of agreement by ticking the most appropriate response.*

Environment metrics	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	*Sources*
My company considers **material consumption** as a metric in measuring environment performance						Tan et al. (2015); Borga et al. (2009); Neri et al. (2021); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)

My company considers **raw material efficiency** as a metric in measuring environment performance						Kocmanova and Docekalova (2011); Li et al. (2012); Singh, Olugu and Fallahpour (2014); Feil, de Quevedo and Schreiber (2015); Tan et al. (2015); Arena and Azzone, 2012; Borga et al. (2009); Neri et al. (2021); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)
My company considers **recyclable raw materials** as a metric in measuring environment performance						Kocmanova and Docekalova (2011); Li et al. (2012); Feil, de Quevedo and Schreiber (2015); Tan et al. (2015); Borga et al. (2009); Hsu, Chang and Luo (2017); Neri et al. (2021); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)
My company considers **energy consumption** as a metric in measuring environment performance						Kocmanova and Docekalova, 2011; Li et al. (2012); Singh, Olugu and Fallahpour (2014); Feil, de Quevedo and Schreiber (2015); Tan et al. (2015); Arena and Azzone, 2012; Borga et al. (2009); Neri et al. (2021); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)
My company considers **energy cost** as a metric in measuring environment performance						Tan et al. (2015); Neri et al. (2021); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)

My company considers **renewable energy** as a metric in measuring environment performance						Kocmanova and Docekalova (2011); Li et al. (2012); Singh, Olugu and Fallahpour (2014); Feil, de Quevedo and Schreiber (2015); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)
My company considers **wastewater** as a metric in measuring environment performance						Li et al. (2012); Singh, Olugu and Fallahpour (2014); Tan et al. (2015); Arena and Azzone, 2012; Hsu, Chang and Luo (2017); Neri et al. (2021); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)
My company considers **water consumption** as a metric in measuring environment performance						Kocmanova and Docekalova (2011); Li et al. (2012); Singh, Olugu and Fallahpour (2014); Feil, de Quevedo and Schreiber (2015); Arena and Azzone (2012); Borga et al. (2009); Neri et al. (2021); Hsu, Chang and Luo (2017); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)
My company considers **waste disposal** as a metric in measuring environment performance						Kocmanova and Docekalova (2011); Singh, Olugu and Fallahpour (2014); Feil, de Quevedo and Schreiber (2015); Tan et al. (2015); Borga et al. (2009); Neri et al. (2021); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)

My company considers **recycling of waste** as a metric in measuring environment performance						Feil, de Quevedo and Schreiber (2015); Borga et al. (2009); Neri et al. (2021); Mengistu and Panizzolo (2021); Global Reporting Initiative (2015)
My company considers **hazardous waste** as a metric in measuring environment performance						Li et al. (2012); Feil, de Quevedo and Schreiber (2015); Arena and Azzone, 2012; Neri et al. (2021); Global Reporting Initiative (2015)
My company considers **total waste** as a metric in measuring environment performance						Kocmanova and Docekalova (2011); Li et al. (2012); Singh, Olugu and Fallahpour (2014); Borga et al. (2009); Neri et al. (2021); Global Reporting Initiative (2015)

Q7. This sub-section consists of items relating to the motivations driving the adoption of SPMS (sustainability performance measurement system, including economic, social, environment metrics) in your company. *For each of the items below, please indicate your level of agreement by ticking the most appropriate response.*

Motivations to adopt SPMS to measure sustainability performance	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	*Sources*
My company considers cost reduction as a driver in measuring sustainability performance						McKeiver and Gadenne (2005)
My company considers resource efficiency as a driver in measuring sustainability performance						McKeiver and Gadenne (2005)
My company considers a better image among employees as a driver in measuring sustainability performance						McKeiver and Gadenne (2005)
My company considers a better image among customers as a driver in measuring sustainability performance						McKeiver and Gadenne (2005)

Q8. This sub-section consists of items relating to inhibitors hindering the adoption of SPMS (sustainability performance measurement system, including economic, social, environment aspects) in your company. *For each of the items below, please indicate your level of agreement by ticking the most appropriate response.*

Inhibitors hindering SPMS adoption are:	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	*Sources*
In my company, the lack of the owner's interest in measuring sustainability performance has prevented SPMS adoption						Hwang, Shan and Lye (2018)
Slow recovery of investment has demotivated my company to adopt SPMS						Hwang, Shan and Lye (2018)
Perceived potential risks and uncertainties have demotivated my company to adopt SPMS						Hwang, Shan and Lye (2018)
Extra investment requirements (additional cost involved: implementing, monitoring, labour cost) has impeded my company to adopt SPMS						Hwang, Shan and Lye (2018)

Limited sustainability knowledge and expertise has impeded my company to adopt SPMS						Hwang, Shan and Lye (2018)
Lack of sustainability measurement tool/framework can delay or hinder my company to adopt SPMS						Hwang, Shan and Lye (2018)

Q9. This sub-section consists of items relating to enablers facilitating the adoption of SPMS (sustainability performance measurement system, including economic, social, environment aspects) in your firm. *For each of the items below, please indicate your level of agreement by ticking the most appropriate response.*

Enablers facilitating SPMS adoption are:	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	*Sources*
In my company, top management team should communicate a clear and positive vision of measuring sustainability performance						Eikelenboom and de Jong (2019)
In my company, top management team needs to be actively committed and involved during the process of SPMS adoption						Nguyen and Tran (2020)

In my company, top management team needs to provide adequate resources and fully supports SPMS adoption						Nguyen and Tran (2020)
My company needs to provide formal education and training to employees in order to facilitate SPMS adoption						Aboelmaged and Hashem (2019)
My company has established reward and recognition systems encouraging employees to obtain working skills and experience, which can facilitate SPMS adoption						Kim and Lee (2018)
My company has experience with ISO and/or has obtained sustainability certificates/ conducted programmes that have facilitated knowledge acquisition and assimilation, which can facilitate SPMS adoption						Johnson (2017)
In my company, people are encouraged to present new ideas and contribute opinions, which can facilitate SPMS adoption						Lara and Salas-Vallina (2017)
In my company, people feel involved in company decisions, which can facilitate SPMS adoption						Lara and Salas-Vallina (2017)

In my company, free and open communication is encouraged, which can facilitate SPMS adoption						Lara and Salas-Vallina (2017)

SECTION 4. EXTERNAL FACTORS INFLUENCING THE ADOPTION OF SUSTAINABILITY PERFORMANCE MEASUREMENT

The section consists of external factors influencing the adoption of SPMS (sustainability performance measurement system)

10. The sub-section consists of items relating to external barriers preventing the adoption of SPMS (sustainability performance measurement system, including economic, social, environment metrics) in your company. *For each of the items below, please indicate your level of agreement by ticking the most appropriate response.*

Particulars	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	*Sources*
Lack of government support in terms of information or seminars/workshops related to sustainable development has demotivated my company to adopt SPMS						Hwang, Shan and Lye (2018)
Lack of government laws and regulations sustainable development has prevented my company to adopt SPMS						Pham, Yong and Truong (2019)

Lack of economic incentives and rewards from the government for corporate sustainability engagement have demotivated my company to adopt SPMS						Hwang, Shan and Lye (2018)
Lack of local consumer demand for sustainable products/services has demotivated my company to adopt SPMS.						Hwang, Shan and Lye (2018)

Thank you very much for answering this questionnaire.

Appendix A.2 Measurement Model (SEM)

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
PSM	<---	TOP	.111	.036	3.064	.002	par_26
PSM	<---	ACA	.196	.030	6.521	***	par_27
PSM	<---	OLC	.234	.037	6.251	***	par_28
PSM	<---	EXB	-.080	.022	-3.597	***	par_29
PSM	<---	INH	-.085	.023	-3.680	***	par_30
PSM	<---	MOT	.285	.034	8.402	***	par_31
SOM	<---	PSM	1.000				
ENM	<---	PSM	1.000				
ECM	<---	PSM	1.000				
ENM9	<---	ENM	1.000				
ENM8	<---	ENM	.961	.033	29.134	***	par_1
ENM11	<---	ENM	1.055	.045	23.695	***	par_2
ENM12	<---	ENM	1.058	.044	23.930	***	par_3
ENM10	<---	ENM	1.131	.056	20.223	***	par_4
LMP3	<---	INH	1.000				
INS3	<---	INH	1.396	.075	18.596	***	par_5
INS2	<---	INH	1.280	.070	18.273	***	par_6
LMP2	<---	INH	1.090	.062	17.675	***	par_7
INS1	<---	INH	1.105	.067	16.537	***	par_8
MOT4	<---	MOT	1.000				
MOT2	<---	MOT	.993	.064	15.597	***	par_9
MOT1	<---	MOT	1.051	.068	15.458	***	par_10
MOT3	<---	MOT	.964	.064	14.960	***	par_11
ECM3	<---	ECM	1.000				
ECM2	<---	ECM	1.036	.070	14.702	***	par_12
ECM1	<---	ECM	1.090	.074	14.640	***	par_13
ECM5	<---	ECM	.922	.071	13.061	***	par_14
EXB1	<---	EXB	1.000				
EXB3	<---	EXB	1.008	.078	12.921	***	par_15
EXB2	<---	EXB	.824	.067	12.368	***	par_16
SOM5	<---	SOM	1.000				
SOM6	<---	SOM	1.057	.069	15.314	***	par_17
SOM2	<---	SOM	.868	.062	13.966	***	par_18
TOP2	<---	TOP	1.000				
TOP1	<---	TOP	.911	.071	12.801	***	par_19
TOP3	<---	TOP	.845	.068	12.444	***	par_20
ACA2	<---	ACA	1.000				
ACA3	<---	ACA	.917	.068	13.492	***	par_21
ACA1	<---	ACA	.835	.064	12.963	***	par_22
OLC2	<---	OLC	1.000				

			Estimate	S.E.	C.R.	P	Label
OLC3	<---	OLC	1.043	.081	12.859	***	par_23
OLC1	<---	OLC	.946	.076	12.429	***	par_24

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
PSM	<---	TOP	.216
PSM	<---	ACA	.480
PSM	<---	OLC	.465
PSM	<---	EXB	-.255
PSM	<---	INH	-.245
PSM	<---	MOT	.618
SOM	<---	PSM	.460
ENM	<---	PSM	.331
ECM	<---	PSM	.448
ENM9	<---	ENM	.820
ENM8	<---	ENM	.787
ENM11	<---	ENM	.854
ENM12	<---	ENM	.860
ENM10	<---	ENM	.758
LMP3	<---	INH	.720
INS3	<---	INH	.848
INS2	<---	INH	.827
LMP2	<---	INH	.664
INS1	<---	INH	.740
MOT4	<---	MOT	.756
MOT2	<---	MOT	.729
MOT1	<---	MOT	.721
MOT3	<---	MOT	.694
ECM3	<---	ECM	.728
ECM2	<---	ECM	.716
ECM1	<---	ECM	.712
ECM5	<---	ECM	.622
EXB1	<---	EXB	.788
EXB3	<---	EXB	.745
EXB2	<---	EXB	.631
SOM5	<---	SOM	.772
SOM6	<---	SOM	.789
SOM2	<---	SOM	.654
TOP2	<---	TOP	.797
TOP1	<---	TOP	.718
TOP3	<---	TOP	.649
ACA2	<---	ACA	.783

			Estimate
ACA3	<---	ACA	.737
ACA1	<---	ACA	.656
OLC2	<---	OLC	.742
OLC3	<---	OLC	.752
OLC1	<---	OLC	.649

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.922	.781	.826
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

Appendix A.3 Structural Equation Modelling

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
SOM	<---	PMS	1.000				
ECM	<---	PMS	1.000				
ENM	<---	PMS	1.000				
ENM9	<---	ENM	1.000				
ENM8	<---	ENM	.961	.033	29.554	***	par_1
ENM11	<---	ENM	1.064	.044	24.396	***	par_2
ENM12	<---	ENM	1.060	.043	24.460	***	par_3
ENM10	<---	ENM	1.128	.055	20.479	***	par_4
LMP3	<---	INH	1.000				
INS3	<---	INH	1.292	.065	19.803	***	par_5
INS2	<---	INH	1.200	.061	19.579	***	par_6
LMP2	<---	INH	1.100	.066	16.739	***	par_7
INS1	<---	INH	1.062	.059	17.855	***	par_8
MOT4	<---	MOT	1.000				
MOT2	<---	MOT	1.006	.063	15.908	***	par_9
MOT1	<---	MOT	1.040	.067	15.441	***	par_10
MOT3	<---	MOT	.991	.064	15.426	***	par_11
ECM3	<---	ECM	1.000				
ECM2	<---	ECM	1.050	.068	15.537	***	par_12
ECM1	<---	ECM	1.126	.072	15.710	***	par_13
ECM5	<---	ECM	.953	.068	13.935	***	par_14
EXB1	<---	EXB	1.000				
EXB3	<---	EXB	1.002	.070	14.222	***	par_15

			Estimate	S.E.	C.R.	P	Label
EXB2	<---	EXB	.820	.063	12.988	***	par_16
SOM5	<---	SOM	1.000				
SOM6	<---	SOM	1.047	.063	16.668	***	par_17
SOM2	<---	SOM	.867	.059	14.746	***	par_18
TOP2	<---	TOP	1.000				
TOP1	<---	TOP	.937	.067	13.933	***	par_19
TOP3	<---	TOP	.856	.065	13.130	***	par_20
ACA2	<---	ACA	1.000				
ACA3	<---	ACA	.919	.064	14.320	***	par_21
ACA1	<---	ACA	.909	.065	14.060	***	par_22
OLC2	<---	OLC	1.000				
OLC3	<---	OLC	1.082	.080	13.534	***	par_23
OLC1	<---	OLC	.954	.075	12.720	***	par_24

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
SOM	<---	PMS	1.000				
ECM	<---	PMS	1.000				
ENM	<---	PMS	1.000				
ENM9	<---	ENM	1.000				
ENM8	<---	ENM	.961	.033	29.554	***	par_1
ENM11	<---	ENM	1.064	.044	24.396	***	par_2
ENM12	<---	ENM	1.060	.043	24.460	***	par_3
ENM10	<---	ENM	1.128	.055	20.479	***	par_4
LMP3	<---	INH	1.000				
INS3	<---	INH	1.292	.065	19.803	***	par_5
INS2	<---	INH	1.200	.061	19.579	***	par_6
LMP2	<---	INH	1.100	.066	16.739	***	par_7
INS1	<---	INH	1.062	.059	17.855	***	par_8
MOT4	<---	MOT	1.000				
MOT2	<---	MOT	1.006	.063	15.908	***	par_9
MOT1	<---	MOT	1.040	.067	15.441	***	par_10
MOT3	<---	MOT	.991	.064	15.426	***	par_11
ECM3	<---	ECM	1.000				
ECM2	<---	ECM	1.050	.068	15.537	***	par_12
ECM1	<---	ECM	1.126	.072	15.710	***	par_13
ECM5	<---	ECM	.953	.068	13.935	***	par_14
EXB1	<---	EXB	1.000				
EXB3	<---	EXB	1.002	.070	14.222	***	par_15
EXB2	<---	EXB	.820	.063	12.988	***	par_16
SOM5	<---	SOM	1.000				

			Estimate	S.E.	C.R.	P	Label
SOM6	<---	SOM	1.047	.063	16.668	***	par_17
SOM2	<---	SOM	.867	.059	14.746	***	par_18
TOP2	<---	TOP	1.000				
TOP1	<---	TOP	.937	.067	13.933	***	par_19
TOP3	<---	TOP	.856	.065	13.130	***	par_20
ACA2	<---	ACA	1.000				
ACA3	<---	ACA	.919	.064	14.320	***	par_21
ACA1	<---	ACA	.909	.065	14.060	***	par_22
OLC2	<---	OLC	1.000				
OLC3	<---	OLC	1.082	.080	13.534	***	par_23
OLC1	<---	OLC	.954	.075	12.720	***	par_24

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	122	926.794	472	.000	1.964
Saturated model	594	.000	0		
Independence model	66	8811.857	528	.000	16.689

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.895	.882	.945	.939	.945
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.894	.800	.845
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	454.794	372.191	545.180
Saturated model	.000	.000	.000
Independence model	8283.857	7982.923	8591.201

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.603	.787	.644	.943
Saturated model	.000	.000	.000	.000
Independence model	15.245	14.332	13.811	14.864

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.041	.037	.045	1.000
Independence model	.165	.162	.168	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	1170.794	1186.044		
Saturated model	1188.000	1262.250		
Independence model	8943.857	8952.107		

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	2.026	1.883	2.182	2.052
Saturated model	2.055	2.055	2.055	2.184
Independence model	15.474	14.953	16.006	15.488

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	327	341
Independence model	39	40

Appendix B1. Interview guide (For interviews with SMEs' owners/managers and employees)

Welcome (5 minutes)

Thank you for agreeing to take part in the interview and coming today.

Your opinions and experiences are very important to my study, and I genuinely appreciate your time today. This interview will last about 30-40 minutes.

Before we start, I would like to review a few ground rules for today's discussion:

1. Honest opinions: very important for my study, there is no right or wrong answer. I want to know your honest opinions, feelings, and experiences.
2. Questions: If you do not understand any of my questions, feel free to ask me for clarification.
3. Information revealed: Please do not tell me the names of any people. Use other words or letters to replace their name, or just state he/she.
4. Emergency needs: If you feel unwell, please inform me. If you need to go to the restroom during the discussion, please feel free to ask me.

Is there anything you do not understand in the information sheet and consent form? Do you have any questions before we start the interview today?

Question	Additional – prompt questions	Note
1. Tell me about yourself	- Your position - Your company - Your experience with sustainability issues	
2. What is the current situation regarding your firm and sustainability issues?	- Do you think that your company has responsibility for sustainability issues (economic, social, environment)? If yes, please explain why - In your opinion, do you think your company gains any benefits from your sustainability activities? If yes, could you explain why?	

3. Does your company have certified management systems, such as ISO14001 or similar (yes or no)?	Yes – which? When was/were the system(s) implemented?	
4. Could you tell me about your firms' motivations for implementing sustainability performance measurement?	Could you explain why?	
5. In your opinion, what enablers within your firm impact your implementation of sustainability performance measurement?	Could you explain why?	
6. In your opinion, what inhibitors within your firm impact your implementation of sustainability performance measurement?	Could you explain why?	
7. In your opinion, what external factors impact your implementation of sustainability performance measurement?	Could you explain why?	
8. Do you think that other parties like government, employees, customers, supply chain partners, supplier etc., put pressure on your company's sustainability issues?	Yes - who are the company's key stakeholders that you need to consider when implementing sustainability performance measurement? - If you have no objections, could I contact any of them to be interviewed about this research topic?	I guarantee that both your and your stakeholders' interviews will not be shared.

9. In your opinion, do you think that the suggested sustainability metrics on the card are relevant to your company?	- Present three cards of suggested metrics (identified from the literature) relating to economic, social and environmental factors, respectively. - If any metric is not relevant, could you explain why?	
10. In your opinion, do you think there are any additional sustainability metrics not shown in the cards that are relevant to your company?	Yes - could you suggest these and explain why?	

Appendix B2. Interview guide (For interviews with SMEs' key stakeholders)

Question	Additional – prompt questions	Note
1. Have you heard about sustainable development? What does it mean to you?	No – use a short description of sustainable development to explain	
2. Do you think that sustainability issues need to be addressed in the context of SMEs? Why/why not?		
3. If you found that there have been breaches of sustainability issues by the company with whom you are doing business, what would you do?	- Would you continue doing business with them?	
4. Do you think that sustainability performance measurement is necessary for SMEs? Why/why not?		

5. In your opinion, do you think the suggested sustainability metrics on the card for SMEs are relevant to your concerns?	- Present three cards of suggested metrics (identified from the literature) relating to economic, social and environmental factors, respectively. If any metric is not relevant, could you explain why?	
6. In your opinion, do you feel there are any additional sustainability metrics SMEs should have?	- Could you explain why?	

Thank you very much for participating in this study.

Appendix B3. INTERVIEW SAMPLE (C15, Owner-manager)

1. **Interviewer:** *Please provide some general information about your company*

C15: My company was founded 6 years ago. It currently has around less than 50 employees, and we produce plastic packaging. Our target market is business customers, and we are their supplier. We follow a make to order model.

2. **Interviewer:** *Have you heard of the concept 'sustainable development' in business? What does this concept mean to you?*

C15: I have heard of it before. I began as a family business and built it up slowly with a starting capital of 200 million (VND). At first, we only had one set of production machinery and sold exclusively to one big customer. For me, to develop sustainably it would have to be from the ground up, identifying potential customers, expertise, and techniques. This concept is still vague, and I only understand that my company should produce good and durable products.

3. **Interviewer:** *In your business activities, do you think that businesses must be responsible for aspects of the economy, society, and environment?*

C15: Yes, I do. From the beginning when I started as a family business, I didn't consider those aspects. At that time, the most important thing was revenue and how to exist. When the business had become stable and profitable, I started to think about employees' benefits and how to build a methodical production line. At first, I only did as best as I could. But when the company entered the industrial zone, it had to fully comply with the regulations of the country and social insurance. As for the customer side, when we began to do business with foreign companies, the production process was their main focus. Talking about the SME business, I am only a miniature version of a foreign manufacturing company and I follow the same methodical process. I work with international customers; I have learned a lot from them and applied this to my company from the very beginning. Like the ISO process for instance, large companies need strong finance to recruit talent to work for them. Fortunately, we recruited a professional manager, who is qualified and experienced with ISO 14001 standards on the environment; he successfully trained our current employees to be more professional and skilful. Each department has a person who presides over that process, so they want to stay with the company. Our finance is not as plentiful so I am not sure they would be willing to work in my small company, so I make use of the readily available team. Therefore, when foreign business partners come to audit, the company does not lack anything.

Once the employees have learnt how to operate well, they do not quit to work elsewhere; this is because of my kind manner and ethical behaviours. Personal feelings and work are separate, but when employees have difficulties, I still support them in a personal capacity. For example, when employees need to buy a house, we can still support them by letting them pay in instalments and assist them with rent. The company was situated in Saigon. Now that it has moved to an industrial zone in Binh Duong, I provide accommodation if they agree to move with the company. And that's how I treat my employees in general. People who have worked for my company and then quit to work elsewhere could not adapt and came back. Whether employees stick with the company or not depends on how owners treat them. Just like you have to have business ethics when doing business. We not only do it to make a profit but also to help the workers. I have an employee who did not have a vehicle with which to commute and also did not have a decent place to live, but after working for me some time, they now have those things, and their life is a little more comfortable.

Those activities, which were initially just my ideas, are now company policies. Economic, social, and environmental activities in general are very important. I had also done them, but do not have the method and have only just started doing them. For the moment it only concerns

production in the company with customers, the environmental issues are not yet addressed. Of course, when I do it, I also have to take into consideration those elements because they are related to the expenditure as you have to pay for all waste produced. Nowadays I have started to measure them.

4. **Interviewer:** *What are your motivations for adopting SPMS in your company?*

C15: Of course, when running a business, I always think about it. As an SME; firstly, we do it to help the company thrive and survive before considering society. I recycle all my own products in order to help reduce costs. “Because it relates to business cost reduction, every waste is a cost. Now I have just begun measuring it, based on the sets of indicators that I had from the implementation of ISO 14001 program.

5. **Interviewer:** *What are stakeholders’ evaluations of sustainable development activities?*

C15: There are customers who want a cheap alternative, so I use cheap materials. To be honest, in order to be affordable, we have to use recyclable materials. The staff also agree with this because it feels good to be more efficient. The company is aiming to save costs. Damaged products must be recalibrated and recycled, so being recyclable makes it easier. Also, there is also no waste. As for clean water, I use circulating water, running in and out. This industry is an environmentally conscious industry.

6. **Interviewer:** *In your opinion, what are the inhibitors hindering SPMS adoption?*

C15-FO: The difficulty lies in human problems. Foreign enterprises use talented people to start the process. My difficulty is that I have to make do with existing resources and it takes time to train people. The difficulty is that I use existing human resources and it really takes time to train. You [indicating the researcher] know that it took us about a year for our employees to begin to comprehend the process to effectively run ISO 14001. At first, it was very difficult, just like a revolution. Employees who were persistent until the end, they became very good, whereas those who couldn't follow it were eliminated and fired. There were people who often thought there was no benefit to the added work and decided to quit themselves. Those who stayed became better at their jobs as they grasped the process but that's only in theory. They came here, took time to learn our product and started to find out how to produce

them. However, the veteran employees already know this by heart, but they lack the theoretical understanding. Surely, there must be a clear and detailed process, so people know what to do, and it makes it easier to check.

Once employees understand the process, they feel more satisfied. For example, in the past, I did not assign any responsibility to any individual or department. When a product is wrong, the fault may lie in the sales department or a planning team before going to production. But now, after implementing the system, I can pinpoint the mistakes. This has made it easy for me, so if the employees do something wrong then all issues will be transparent. We have quality reports weekly and monthly. I have no doubt that rewards and recognitions are necessary to motivate and encourage people to achieve that performance goal.

When the company do well, both staff and customers are happy. I also get feedback from customers to make a report, but I have not done this with banks.

Measuring sustainable development is very useful. With the company's current ability, I can now confidently say that I am equal to the companies established 30-40 years ago in terms of our ability to make products. Companies that originated from family businesses still follow traditions, but we chose a different approach. I followed the model of a foreign company closely because I often went abroad to visit factories to learn from them and implement this in my own company. For big companies, they have plentiful finance, but I don't have enough. If I have a good quality management system. To be honest with you, sustainability performance outcome is the key thing that we are confident in welcoming customers, international buyers, to our company to audit.

Standard working procedures were my passion when I first started. With the current results, I consider this a worthwhile investment. When I first founded the company, I had wanted to do it properly but both human and financial resources were insufficient. In the past, one person had to do like 10 things, we could not easily identify errors or blame anyone, now it is much easier to control.

All the clients that I am currently selling to are also selling to big companies. I am very excited about introducing our products to them. I can prove that I can do as much as the big companies. The thing is that the market share people give me is not large. The reason for this is my business has not made much of a name for itself in the market. But people still buy from both, it's just that I am the second or third supplier. Customers who have been with me from the very beginning are still with me after a very long time. This is because before I started, I

was a sub-supplier. If I did well, there would be companies buying from her, at least I became a supplier. If there is an opportunity, I will increase production. Customers who buy from a small company such as mine buy at a fair price accompanied by good service. While big companies might have a lot of customers, their services might not be as good as mine.

7. **Interviewer:** *From your point of view, what enablers do SMEs have when adopt SPMS?*

C15: When I carried out the process, it didn't cost me much, just took time. Before when I had worked for big companies, I grasped the procedures. And I started small. Practical experience, knowledge, and leadership played an important role. If I had not grasped those concepts, I would not have had ideas to implement so I would not be able to judge whether employees were doing things right or not. Very few SMEs from my time were able to survive, only about 10-20%; the rest went bankrupt. My company might be small, but I have a lot of big customers, despite not having sold much. If I can sell to big customers, I can confidently sell to other customers.

8. **Interviewer:** *In your opinion, how do you think factors outside the business affect sustainable development?*

C15: In general, the law in Vietnam is lax. SMEs are also easily overlooked. For instance, in the old days, if the fire department visited, all I needed to do was bribe them. What matters is your conscience. Small and medium-sized enterprises have not experienced what policies on sustainable development can bring them. In my case, when I sell products, all records on revenue and expenses are very transparent. I complete your tax obligations fully and I have invoices for sales. For many other companies, they don't issue invoices during sales, so they have no revenue. That means the actual revenue is there, but not for the tax. Therefore, it is difficult for them to approach the bank. To prove to the bank their request is genuine, they need exact numbers. Well, there are people who do it for real and there are people who don't. There are also people who follow the revenue to shape their company's image but those numbers are not real. For businesses, big sales matters. For production, a turnover of 1 billion is more profitable than a trading company.

9. **Interviewer:** *could you tell me about external factors that influence SPMS adoption such as government supports, barriers?*

C15: SMEs such as mine are not entitled to any support policies, but foreign companies are exempt from corporate taxation by a lot. They have more preferential policies and pay less tax. They are given all kinds of incentives; we have to self-advocate. If I take loans from banks, I also have to deposit our assets. Most of it comes from real estate.

10. Interviewer: *Do you have any comments about the list of metrics?*

C15: It depends on how simple and easy it is for employees to understand for you and to collect data better, and some metrics, we don't actually need. Collecting data too frequently could be too burdensome, making it difficult to evaluate. A year is a bit long so measurements should be taken every 6 months. This might not be enough to collect data but the repetition counts. We repeat so we can carry out evaluations at the end of the year. This might be forgotten if left until the end.

Interviewer: Thank you very much taking time participating in this interview. And thank you very for your opinion.

C15: It's ok.