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**MEDIATION AND MODERATION EFFECTS ON STRATEGIC
MANAGEMENT ACCOUNTING USAGE AND PERFORMANCE
OF AUSTRALIA MANUFACTURING COMPANIES**

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**DOCTOR OF PHILOSOPHY
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MANAGEMENT ACCOUNTING USAGE AND PERFORMANCE
OF AUSTRALIA MANUFACTURING COMPANIES**



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**A thesis submitted to the Ghazalie Shafie Graduate School of Government in
fulfilment of the requirement for the Doctor of Philosophy in International
Business Universiti Utara Malaysia**



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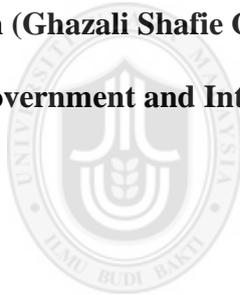
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ABSTRACT

This research investigates the role of Strategic Management Accounting (SMA) in enhancing the performance of Australian manufacturing firms. SMA is defined as an approach that focuses on analysing the external environment to guide corrections and adjustments to internal control systems, organizational structures, and decision-support systems vital for organizational survival. Despite its recognized potential, the application of SMA in Australia's manufacturing sector remains underexplored, particularly considering the sector's declining contribution to Gross Domestic Product (GDP) since 2012. This study addresses this gap by evaluating the impact of SMA on firm performance, alongside the mediating roles of technology, information, and people, as well as the moderating role of government policies. A structured questionnaire was distributed to 5,000 senior managers across Australian manufacturing firms, yielding 400 valid responses, surpassing the minimum sample size required for robust statistical analysis. The findings demonstrate that SMA significantly enhances firm performance, with information and human resources serving as essential mediators in this relationship. However, technology was not found to be a significant mediator, and government policies did not moderate the relationship between SMA usage and performance. These findings highlight the pivotal roles of internal information and human resources in driving the effectiveness of SMA, regardless of external factors such as government policy support or technological adoption. By providing empirical evidence of SMA's utility within the manufacturing context, this research contributes to the broader strategic management literature and offers practical strategies for firms to address sectoral challenges. Enhancing SMA practices could support the sector in improving performance and potentially reversing its declining economic contribution to Australia's GDP. The study concludes with actionable recommendations for managers and policymakers, while also acknowledging its limitations and outlining directions for future research.

Keywords: Strategic Management Accounting, Australian Manufacturing, Firm Performance, Information, People, Government Policies

ABSTRAK

Kajian ini menyiasat peranan Perakaunan Pengurusan Strategik (SMA) dalam meningkatkan prestasi firma pembuatan di Australia. SMA ditakrifkan sebagai pendekatan yang menumpukan kepada penganalisan persekitaran luaran untuk membimbing pembetulan dan pelarasan terhadap sistem kawalan dalaman, struktur organisasi, dan sistem sokongan keputusan yang penting untuk kelangsungan organisasi. Walaupun potensinya telah diiktiraf, aplikasi SMA dalam sektor pembuatan di Australia masih kurang diterokai, terutamanya memandangkan kemerosotan sumbangan sektor ini kepada Keluaran Dalam Negara Kasar (KDNK) sejak tahun 2012. Kajian ini menangani jurang tersebut dengan menilai kesan SMA terhadap prestasi firma, di samping peranan pengantara teknologi, maklumat, dan sumber manusia, serta peranan dasar kerajaan sebagai faktor penyederhana. Satu soal selidik berstruktur telah diedarkan kepada 5,000 pengurus kanan di firma pembuatan Australia dan menghasilkan 400 maklum balas yang sah, melebihi saiz sampel minimum yang diperlukan bagi analisis statistik yang kukuh. Dapatan kajian menunjukkan bahawa SMA secara signifikan meningkatkan prestasi firma, dengan maklumat dan sumber manusia berperanan sebagai pengantara penting dalam hubungan ini. Walau bagaimanapun, teknologi didapati bukan pengantara yang signifikan, dan dasar kerajaan tidak memoderasi hubungan antara penggunaan SMA dan prestasi firma. Dapatan ini menekankan peranan penting maklumat dalaman dan sumber manusia dalam memacu keberkesanan SMA, tanpa mengira faktor luaran seperti sokongan dasar kerajaan atau penerimaan teknologi. Dengan menyediakan bukti empirikal tentang kegunaan SMA dalam konteks pembuatan, kajian ini menyumbang kepada literatur pengurusan strategik yang lebih luas dan menawarkan strategi praktikal kepada firma untuk menangani cabaran sektoral. Pengukuhan amalan SMA boleh menyokong sektor ini dalam meningkatkan prestasi dan berpotensi membalikkan kemerosotan sumbangan ekonominya kepada KDNK Australia. Kajian ini diakhiri dengan pengesyoran tindakan yang boleh diambil oleh pengurus dan penggubal dasar, sambil turut mengakui batasannya dan menggariskan hala tuju untuk penyelidikan masa depan.

Kata Kunci: Perakaunan Pengurusan Strategik, Pembuatan Australia, Prestasi Firma, Maklumat, Manusia, Dasar Kerajaan

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Simmonds (1981) first introduced the concept of "Strategic Management Accounting (SMA)." While various definitions of SMA have emerged, Simmonds described it as "the provision and analysis of management accounting data about a business and its competitors for use in developing and monitoring business strategy." Expanding on this, Bromwich (1990) defined SMA as "the provision and analysis of financial information on the firm's product markets, competitors' costs and cost structures, and the monitoring of the enterprise's strategies and those of its competitors in these markets over several periods." Unlike Simmonds, Bromwich's definition focuses exclusively on financial information as the basis for SMA.

Roslender and Hart (2003) defined SMA as, "a generic approach to accounting for strategic positioning, defined by an attempt to integrate insights from management accounting and marketing management within a strategic management framework". In this definition, SMA has been taken to the dimension of a generic approach to determine strategies to integrate accounting and marketing management. A much simpler definition is provided by Agasisti et al. (2008) as, "the identification of a set of information to support strategic decisions". It cannot be said that this definition is sufficient.

Langfield-Smith (2008) offers another definition of SMA, stating that "SMA entails taking a strategic orientation to the generation, interpretation, and analysis of

management accounting information, with competitors' activities serving as a key dimension for comparison." This definition provides a broader perspective on SMA's strategic orientation. Similarly, Tillmann and Goddard (2008) describe SMA as "the use of management accounting systems to support strategic decision-making." Ma and Tayles (2009) further define SMA as "the body of management accounting concerned with strategically oriented information for decision-making and control."

These definitions were compiled and analyzed by Pires et al. (2015). While none explicitly link SMA directly to enhancing performance, they imply that SMA approaches can contribute to improved performance through strategic insights and informed decision-making.

SMA is utilised in addition to other operations of the business to create or add value to the consumer (Hadid and Al-Sayed, 2021). It mainly functions as a cost audit across the business to ensure that the cost position relative to the competition, remains intact. The main techniques used in SMA include strategic budgeting and planning, customer accounting and target costing. However, SMA also includes integrated performance measurement, strategic pricing, and activity-based costing. Since the introduction of the concept by Simmonds in 1981, SMA has not been picked up by companies or researched to any large extent. However, it assumes importance as managing firms entirely based on financial accounting is a near impossibility. According to Petera and Šoljaková, (2020), to get more effective performance results, it is necessary to include non-financial measures, information systems that are externally oriented, and systems to support the implementation of strategies along with SMA.

The strategic framework of value chain accounting was discussed by Kirli and Gümüş, (2011) as a part of SMA. Porter's value chain framework was used in this

paper. The use of this method, as a part of SMA, is essential for assessing and enhancing the strategic position of firms. Shah et al. (2011) noted that management accounting failed to assist managers in decision-making. This paved the way for SMA. However, there is inadequate empirical evidence for the successful adoption of SMA to any significant extent. Therefore, it is difficult to state whether SMA is more advantageous than management accounting.

Cadez and Guilding (2012), in their analysis of survey data from 109 Slovenian manufacturing firms across various sectors, observed that similar performance levels could be achieved through different combinations of strategies and SMA practices. They categorized these patterns into six groups: "analytics," "blue chips," "first movers," "domestic protectors," "laggards," and "socialism relics." Common SMA components identified include customer accounting, competitive position monitoring, competitor performance appraisal using published financial statements, and quality costing.

Firms employing defender or cost-leader strategies were particularly inclined to practice SMA (Cinquini and Tenucci, 2010). In Bangladesh, Fowzia (2011) reported that SMA adoption levels in manufacturing firms were generally low to medium. Factors such as firm size, strategic mission, strategic positioning, and strategic patterns influenced the level of SMA adoption, while the type of industry did not. Only certain SMA techniques—strategic costing, target costing, and activity-based costing—were associated with SMA effectiveness. In contrast, many Italian firms demonstrated higher levels of SMA adoption. Overall, these studies highlight a significant gap between the conceptual treatment of SMA and its practical implementation, as well as a lack of comprehensive evaluation of its impact.

The study is driven by notable gaps in existing literature, including limited exploration of SMA's role in firms, its impact on manufacturing organizations, and the lack of research specifically addressing Australian manufacturing companies. These deficiencies highlight the importance and necessity of this study.

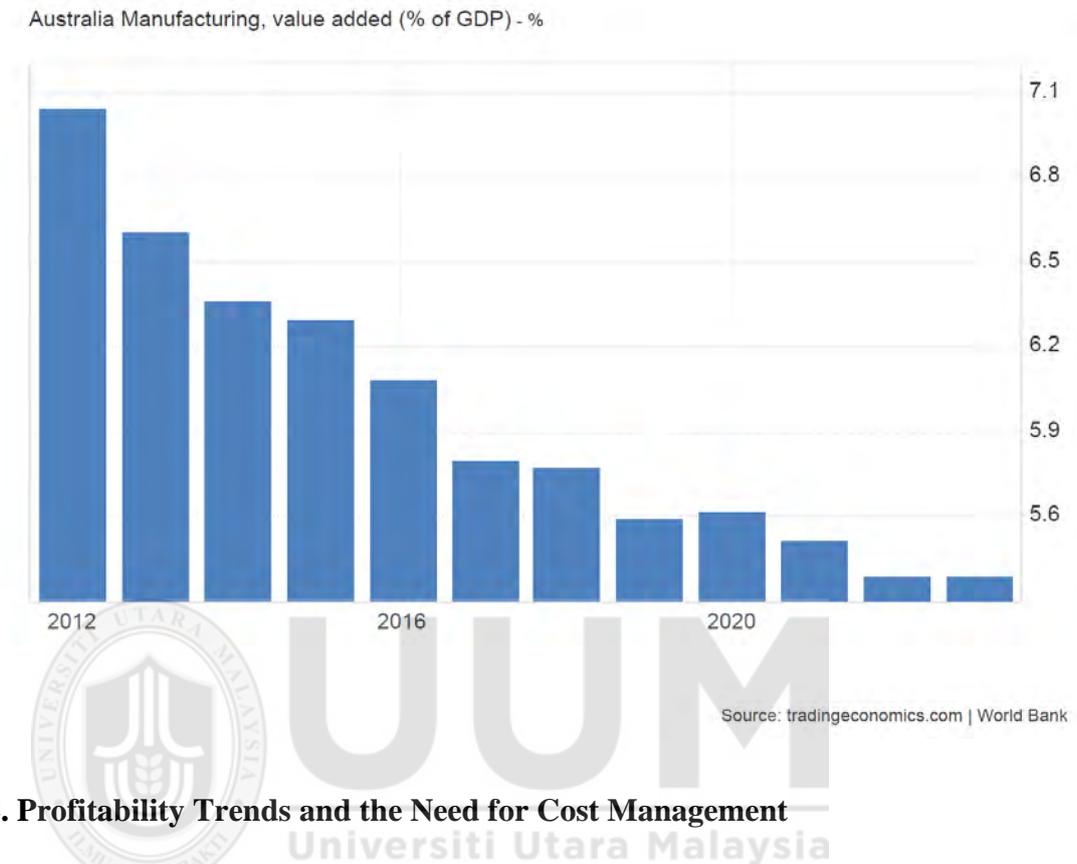
1.2 Problem Statement

1. Economic Contribution of the Manufacturing Sector

The manufacturing industry is a vital contributor to Australia's economy. According to the May 2020 data published by DISER, (2020), Australian manufacturing industry output was worth about \$325 billion in 2019. It contributes about \$100 billion to Australia's GDP and employs about 900000 people. According to the data provided by Australian Industries Group, (AI Group, 2019), the sector contributed about 5.7% of the country's total GDP in 2018. Manufacturing investment is about 8%, wage bill 9.6%, revenue 12.5%, profit 9.3%, and export earnings 26.9% of the total. However, the share of the manufacturing industry in terms of contribution to the national GDP has been declining since 2012 as is shown in Figure 1.

Figure 1

GDP of Australian Manufacturing



2. Profitability Trends and the Need for Cost Management

Manufacturing profits declined by 10.5% from 2008 to 2019, although they recovered to an increase of 26.4% from 2013 to 2019. The erratic behaviour of Australian manufacturing firms on performance metrics is due to increasing costs. So, an efficient cost management strategy is required. Since SMA has components of cost management, the adoption of SMA practices should help. Building capabilities to arrest the performance decline is also important (Courtenay, 2021).

3. Low Adoption of SMA Practices and Its Impact on Performance

A review by Rashid, Ali and Hussain (2020) showed low levels of SMA practice (below 5%) among Australian firms. The level of SMA adoption has been shown to impact the performance of firms (Rashid et al., 2020) and both direct and indirect

mediating effects of SMA were noted by Rashid et al. (2020). Hence, it is necessary to examine whether a higher level of SMA adoption can answer the problem of the declining performance of Australian manufacturing firms. There is a possibility of higher adoption levels of SMA by Australian manufacturing firms leading to improved performance and thus higher contribution to the national GDP.

4. External Pressures Facing the Manufacturing Sector

Increased competition from low-cost manufacturing markets, the strong Australian dollar, import penetration, domestic demand softening, input costs, shrinking profit margins, and growing social and environmental aspirations would continue to pressure Australian manufacturers (Langcake, 2016). The net effect of all these is on financial performance. Clever strategies are required to address these problems. SMA provided precise strategic direction as a solution.

5. Strategic Challenges in an Uncertain Business Environment

The uncertain business environment and rapid development of technology render even many recent business strategies obsolete in Australia. To keep pace with these two factors, a continuous review of the strategies and corrections may be required. The studies on perceived environmental uncertainties showed the need for organisations to adopt more complex methods of accounting information including non-financial and external factors to address the highly uncertain business environment. This will lead to greater use of SMA. The type of industry did not influence this relationship (Al-Mawali, 2015). More specifically, managers need to estimate the costs of products and services, use methods to control and measure performance, assess how competitors perform, and estimate profitability attributable to customers under uncertain business environments (Sumkaew and Intanon, 2020). All these are elements of SMA.

6. Global Megatrends and Their Impact on Australian Manufacturing

Tortorella et al. (2021) identified eight barriers/challenges and eight opportunities for Australian manufacturing companies based on eight global megatrends. The eight global megatrends were customized products and services, supply chain transformation towards greater collaboration, vertical integration through specialisation and technological progress, sustainable operations, smart and connected systems of the manufacturing value chain, and service bundling with the products. Of these, customisation, supply chain advancements, service bundling of products, and sustainable operations can be ensured using some of the SMA components related to costing and resource optimisation.

7. SMA, Technology, and Government Policies as Strategic Tools

These are the steps to address some of the barriers and challenges like rising costs (SMA costing), geographical distance (Technology as a mediator for online business, global sourcing, etc), labour shortages (Technology as a mediator to reduce labour costs), regulatory requirements and tax policies (government policies as moderator). The corresponding opportunities also are in line with these SMA techniques. Thus, technology, information and government policies act as tools for SMA implementation and performance improvement.

8. Government Policies: Barriers, Moderators, and Paradigm Shift

However, government policies can be both positive and negative. Government policies and regulatory requirements on import/export taxation can be barriers rather than promoters. In this proposal, the possibility of government policies as moderating factors is examined. There are eight opportunities including the integration of advanced ICT (information), an increase in knowledge-intensiveness, and

improvement in partnerships and leadership development (people). These three factors can be considered as mediating the SMA-performance relationship. Instead of considering government policies as a barrier or challenge, an approach considering them as a moderating factor provides a basis for substituting the industry vs government paradigm with the industry and government paradigm. This paradigm shift is a novel approach in this study.

9. Strategic Priorities and the Role of Mediators and Moderators

Tortorella et al. (2021) conducted a scoping study focused on Australian manufacturing firms, highlighting the importance of understanding the factors influencing strategic management practices. Building on this, the present study explores how technology, information, and people act as mediating factors, while government policies serve as moderating factors impacting the effectiveness of SMA. Furthermore, a CSIRO study by Foley and McLean (2020) identified strategic priorities for Australian manufacturing, including customized high-margin products, collaborative approaches, global supply chain integration, and increased emphasis on research.

The use of SMA is crucial for enhancing organizational performance and fostering future growth. This argument is particularly relevant for Australian manufacturing companies, where SMA can serve as a powerful tool for driving performance improvements. Therefore, the selection of SMA as the focus of this research, aimed at improving the performance of Australian manufacturing firms, is both logical and well-justified.

1.3 Mediating and moderating variables

Prior studies have emphasized the potential of Strategic Management Accounting (SMA) to enhance organizational performance (Cadez and Guilding, 2012). Nevertheless, in today's unpredictable and rapidly changing business environment, relying exclusively on SMA is inadequate. To achieve further performance improvements, it is essential to integrate additional strategic factors. This study incorporates technology, information, and people as mediating variables, aiming to strengthen the link between SMA usage and performance in Australian manufacturing firms.

Moreover, government policies significantly influence firm performance, shaping their positive or negative outcomes and their role in national economic growth and development. Shehab (2008) identified government policy as a key determinant of organizational success. Consequently, this research introduces government policy as a moderating variable affecting the relationship between SMA and performance.

Although there is substantial research on the relationship between SMA usage and performance, few studies have explored the combined role of technology, information, and people as mediators, alongside government policy as a moderator, within a single research framework. This gap is particularly evident in studies focused on Australian manufacturing firms, which this research seeks to address.

1.4 Justification for this study and selecting Australian manufacturing firms for this study

The selection of Australian manufacturing firms for this study is driven by several significant research gaps and practical challenges. Firstly, there is a noticeable scarcity of studies on Strategic Management Accounting (SMA) in the Australian

context, particularly within the manufacturing sector. The limited research available suggests a low level of SMA adoption among these firms, highlighting the need for deeper investigation.

Secondly, while SMA has been studied in relation to performance in other contexts, the specific link between SMA and performance within Australian manufacturing firms has received minimal attention. This gap is particularly concerning given the strategic importance of performance improvement for the sector's sustainability and growth.

Thirdly, although the potential influence of factors such as information, technology, people, and government policies on the SMA-performance relationship has been suggested, actual empirical evidence to substantiate these claims is lacking. For instance, Moran et al. (2018) present some data on the low level of SMA usage across Australian firms, including manufacturing.

However, their findings are limited to the association of SMA with labour productivity performance. While the study highlights that strategic management directly affects innovation and skill development—potential proxies for information and knowledge—it does not explore the mediating or moderating effects of these factors on the SMA-performance relationship. This underscores the inadequacy of existing research in addressing these critical gaps.

Furthermore, the low and declining contribution of the Australian manufacturing sector to the national GDP adds urgency to addressing these gaps. Understanding how SMA and related strategic factors can enhance performance is essential for reversing this trend and ensuring the sector's long-term viability.

These research gaps and practical challenges form the basis for selecting Australian manufacturing firms as the focus of this study, emphasizing the need for comprehensive exploration and actionable insights.

1.5 Theoretical gaps in research on the relationship between SMA adoption and firm performance

The relationship between Strategic Management Accounting (SMA) and firm performance has been examined through a variety of theoretical lenses, including contingency theory, institutional theory, agency theory, dynamic capabilities, and the resource-based view. Additionally, Porter's framework on competitive advantage through price differentiation and product quality has been cited in relevant studies.

While these theories offer valuable insights, this study narrows its focus to dynamic capabilities, contingency theory, and stakeholder theory to explore the SMA-performance relationship within the context of Australian manufacturing firms.

Despite the extensive research supporting SMA as a strategic tool, a significant theoretical gap persists regarding how SMA's impact varies across different industry contexts and business scales—particularly in manufacturing. There remains a lack of an integrated theoretical framework that comprehensively addresses the unique challenges and opportunities specific to industries such as Australian manufacturing. These challenges include competitive dynamics, regulatory pressures, and organizational capabilities, all of which influence the adoption and effectiveness of SMA practices.

This study aims to bridge this gap by developing tailored SMA frameworks that align more closely with the distinct strategic objectives and operational realities of Australian manufacturing firms. Such customized frameworks can enhance strategic decision-making processes and ultimately lead to improved firm performance in a practical, industry-specific manner.

The study's aim, research questions, and objectives are outlined below.

1.6 Practical gaps

The limited impact of SMA, as highlighted by Moran et al. (2018) for Australian manufacturing firms and Rashid et al. (2020) for Australian firms in general, underscores a significant practical gap. Widespread implementation of SMA could potentially address key issues such as performance improvement, strategic alignment, and competitive positioning. However, the process of SMA adoption is hindered by practical challenges, including gaps in the effective utilization of information, technology, and human resources, as well as the influence of government policies. These factors play a critical role in facilitating the successful integration of SMA to enhance firm performance. This research seeks to address these practical gaps by offering actionable insights and methods to overcome these barriers, providing a roadmap for firms aiming to adopt SMA more effectively.

1.7 The aim of this study

This study aimed to investigate the effect of SMA on the performance of Australian manufacturing firms and explore how enhancing its application could significantly boost the sector's contribution to the national GDP.

1.8 Research Questions

The identification of research gaps thus far leads to the following research questions:

RQ1: What is the effect of strategic management accounting usage on Australian manufacturing firms' performance?

RQ2: Do technology, information, and people mediate the relationship between strategic management accounting and the performance of Australian manufacturing firms?

RQ3: Does government policy moderate the relationship between strategic management accounting and the performance of Australian manufacturing firms?

1.9 Research Objectives

From the problem statement and research questions, the following research objectives were formulated.

RO1: To investigate the effect of strategic management accounting on Australian manufacturing firms' performance.

RO2: To investigate the mediating effects of technology, information, and people on the relationship between strategic management accounting and performance among Australian manufacturing firms.

RO3: To investigate the moderation effect of government policy on the relationship between strategic management accounting and performance among Australian manufacturing firms.

1.10 Scope of the Study

This study investigates the impact of Strategic Management Accounting (SMA) on the performance of Australian manufacturing firms, focusing exclusively on firms operating across the country. In particular, it explores how technology, information, and people mediate this relationship, and how government policy moderates the effect of SMA adoption on firm performance.

The background and problem statement underscore the critical importance of adopting SMA practices in response to three major concerns, the declining contribution of the manufacturing sector to Australia's GDP (DISER, 2020; AI Group, 2019), the increasing complexity and volatility of the business environment (Al-Mawali, 2015; Sumkaew & Intanon, 2020), and persistent barriers such as rising input costs, labour shortages, and regulatory constraints (Tortorella et al., 2021). Together, these factors highlight the strategic value of SMA as a performance-enhancing mechanism.

While SMA adoption in Australian manufacturing remains relatively low (Rashid, Ali, & Hussain, 2020), research indicates its significant potential to improve firm outcomes by enabling more informed, long-term decision-making. The theoretical foundation of this study is informed by contingency theory, stakeholder theory, and the dynamic capabilities framework (Langfield-Smith, 2008; Cadez & Guilding, 2008), which support the idea that organizational performance is shaped by both internal capabilities and external conditions.

Therefore, this study contributes to the literature by offering an industry-specific SMA framework adapted to the strategic realities of Australian manufacturing. By integrating both mediating and moderating variables, it provides a comprehensive model to understand how SMA adoption influences performance in this critical sector of the economy

1.11 Significance of the Study

1.11.1 Theoretical Significance

Numerous theories have been utilized in the literature to examine the relationship between Strategic Management Accounting (SMA) and organizational performance, including contingency theory (Ojra, 2014; Kalkhouran et al., 2015), institutional theory, agency theory, dynamic capabilities, and upper echelons theory (Peters and Šoljaková, 2020). Notably, upper echelons theory bridges the industrial organization (I/O) paradigm and the resource-based view (RBV) (Smirat & Shariff, 2014), offering insights into the interaction of SMA with technology, information, people, government policies, and organizational performance.

This research identifies a theoretical gap in understanding how SMA influences the performance of manufacturing firms in Australia. To address this, the study adopts a survey methodology aimed at Australian manufacturers, managers, and accountants who utilize SMA practices to enhance business outcomes. It also investigates the role of key mediating factors—technology, information, and people—and the moderating effect of government policies on the SMA-performance relationship within the Australian context.

By employing dynamic capabilities as the central theoretical framework, the study seeks to establish a comprehensive model linking SMA, technology, information, people (capabilities), and performance. While dynamic capabilities form the core theoretical lens, other theories, such as contingency theory, may also contribute valuable perspectives in interpreting the findings. This integrated approach advances theoretical understanding and provides actionable insights for improving SMA adoption and effectiveness in the Australian manufacturing industry.

1.11.2 Practical Significance

This research aims to deliver valuable insights for both external and internal stakeholders of Strategic Management Accounting (SMA). For external stakeholders, such as policymakers, the findings will provide the Australian government with a comprehensive understanding of how to assess and improve the efficiency of the manufacturing sector. This knowledge can support the formulation of policies and initiatives to enhance the sector's performance and competitiveness.

For internal stakeholders, including managers and decision-makers within manufacturing firms, the study offers practical guidance on leveraging SMA information to identify and implement effective methods for managing organizational data. Furthermore, it underscores the critical role of integrating technology, harnessing information, optimizing human capital, and aligning with government policies to boost efficiency and productivity within organizations.

1.12 Definition of Key Terms

- 1) Strategic Management Accounting (SMA) – The analysis of the external business environment which mandates corrections and adjustments to the internal control systems structures and decision support systems which are vital for the survival of organisations. SMA has an orientation toward the organisation’s environments such as suppliers, customers, and its competitive position relative to both existing and potential competitors (Simmonds,1981).
- 2) Technology is conceptualized as the application of any technology at any stage of the whole business process by the manufacturers (Shehab, 2008).
- 3) Information is any quantitative information of an entity based on observation and prepared following a set of rules or standards that is used for decision-making by the management. Contextually, it means the information provided by SMA for management decision-making (Almoawi, 2011).
- 4) People mean the operationalised people of this study as they are involved in implementing the strategic management policy in the organisation (Stajkovic et al. 2003).
- 5) Government Policy is any government policy that affects manufacturing firms in any manner (Shehab, 2008).
- 6) Performance is an indicator of companies’ relative performance like return on investment, development of new products, and market share (Mikalef and Gupta, (2021) and Kaplan and Norton (2001).

1.13 Organisation of this thesis

Chapter One introduces the study by outlining the research problem, key issues under investigation, research objectives, and identified gaps in the existing literature. The chapter concludes with a summary, offering an overview of its main content.

Chapter Two provides an in-depth literature review, drawing on secondary data to address the research questions. It examines key concepts central to the study, including Australian manufacturing firms, strategic management accounting (SMA), technology, information, people, and government policy.

Chapter Three outlines the research methodology, detailing the research design, theoretical framework, construct measurements, sampling procedures, data collection methods, data analysis techniques, and the development of research hypotheses.

Chapter Four presents the analysis of the collected data, featuring descriptive statistics, response frequencies, tests for precision and validity, normality assessments, correlation analysis, and regression analysis. This analysis serves as the foundation for interpreting the study's results.

Chapter Five interprets the findings in relation to the existing literature, drawing meaningful conclusions from the analysis. It also addresses the study's limitations and offers recommendations for future research, concluding the thesis with a comprehensive and reflective discussion.

1.14 Summary

This study investigates the effects of strategic management accounting on the performance of Australian manufacturing firms as well as the mediating effects of technology, information, and people and moderating effect of government policy. The background and a brief description of the study have been given in this introductory chapter. The study aim, questions, objectives and research priorities are listed. Finally, the nature of the analysis, theoretical and practical importance and research methods are highlighted.



CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter critically reviews existing literature on the Strategic Management Accounting (SMA) practices adopted by business organizations. The review includes establishing a working definition of SMA for this study, exploring SMA techniques and their applications, examining the relationship between SMA usage and performance, and analyzing the influence of technology, information, people, and government policies on SMA practices. Additionally, the chapter considers the potential mediating and moderating roles of these factors. Relevant literature for this review was identified using search terms related to SMA in the Scopus database and Google Scholar.

2.2 A working definition of SMA for this research

The term ‘strategic management accounting’ consists of three aspects: accounting, management accounting, and the purpose of strategies. Therefore, the term implies using accounting practices to determine the strategies for managing a firm. These strategies may be different in different contexts: competitive advantage, market share, attracting investments, or profits. In this research context, strategies for performance are focused on. Thus, a working definition of SMA, based on the definitions given in the previous chapter, for this research may be

“A focus on the analysis of the external environment which mandates corrections and adjustments to the internal control systems structures and decision support systems which are vital for the performance of Australian organisations. SMA has an

orientation towards the organisation's environments such as suppliers, customers, and its competitive position relative to both existing and potential competitors." adapted from Askarany (2015).

It was seen in the Introduction chapter that many definitions were proposed by different authors and none of them linked SMA directly to performance. Since this research is focused on performance, the above definition directly links SMA with performance and all the other factors mentioned in various definitions contribute to performance as moderating or mediating variables.

The above definition for this research also specifies what is SMA and what it is not. Only those accounting techniques used for strategies to enhance performance or its factors will be considered SMA by this definition. If for example, activity-based costing is used, but it is only used for pricing, it is not SMA in this study context unless pricing is shown to enhance performance, which will be dealt with in Section 5.

Such a tight definition may exclude many papers from this review. However, the inclusion of those papers not related to the above definition of SMA will lead to drifting away from the focus of this research.

2.3 SMA elements

As was said in the Introduction chapter, the credit for formalising the word 'Strategic management accounting' goes to Simmonds, (1981). Simmonds's SMA concept was more related to Porter's frameworks than the resource-based view. Simmonds' definition of SMA (see Introduction chapter) led to much research on cost management to support low price competition and not price premium based on product differentiation. There are different lists of SMA techniques given by different authors.

A description of 17 SMA techniques has been given by Aksoylu and Aykan, (2013). These are given in Figure 2.1.

Figure 2.1

SMA Techniques used in the study by Aksoylu and Aykan, 2013

SMAT Categories	SMAT
Strategic costing	<ol style="list-style-type: none"> 1. Attribute costing 2. Life-cycle costing 3. Quality costing 4. Target costing 5. Value chain costing
Strategic planning, control and performance management	<ol style="list-style-type: none"> 1. Benchmarking 2. Integrated performance measurement
Strategic decision-making	<ol style="list-style-type: none"> 1. Strategic cost management 2. Strategic pricing 3. Brand valuation
Competitor accounting	<ol style="list-style-type: none"> 1. Competitor cost assessment 2. Competitor position monitoring 3. Competitor performance appraisal 4. Balanced scorecard
Customer accounting	<ol style="list-style-type: none"> 1. Customer profitability analysis 2. Lifetime customer profitability analysis 3. Valuation of customers as assets

These techniques were listed concerning the performance of Turkish companies. In another work by Rogošić and Ramljak, (2012) 18 SMA techniques used by Croatian firms were examined. A few of the techniques are different from the above list. In the paper by Petera and Šoljaková, (2020) the SMA techniques listed/used by a few authors and their work were tabulated as shown in Figure 2.2.

Figure 2.2

Comparison of SMA methods listed by six authors (Peters and Šoljaková, 2020).

Technique	Cadez and Guilding (2007)	Cescon et al. (2019)	Cinquin and	Dmitrovic-Saponja and	Guilding et al. (2000)	Peters and Šoljaková, (2020)
Activity-based costing	No	No	Yes	Yes	Yes	Yes
Attribute Costing	Yes	Yes	No	Yes	Yes	No
Balanced scorecard	No	Yes	No	No	No	No
Benchmarking	Yes	No	Yes	Yes	No	Yes
Brand valuation	Yes	Yes	No	No	No	No
Brand value budgeting	No	No	No	Yes	Yes	No
Brand value monitoring	No	No	No	Yes	Yes	No
Competitive position monitoring	Yes	Yes	Yes	Yes	Yes	No
Competitor accounting	No	No	No	No	No	Yes
Competitor appraisal based on FS	Yes	Yes	Yes	Yes	Yes	No
Competitor cost assessment	Yes	Yes	Yes	Yes	Yes	No
Customer accounting	No	No	Yes	No	No	Yes
Customer profitability analysis	Yes	No	No	Yes	No	No
Environmental management accounting	No	No	No	Yes	No	No
Integrated performance measurement (PMS)	Yes	No	Yes	Yes	No	Yes
Life-cycle costing	Yes	Yes	Yes	Yes	Yes	Yes
Lifetime customer profitability analysis	Yes	No	No	No	No	No
Quality costing	Yes	Yes	Yes	Yes	Yes	Yes
Risk analysis	No	Yes	No	No	No	No
Strategic costing (strategic cost management)	Yes	No	No	Yes	Yes	Yes
Strategic management accounting	No	No	No	No	Yes	No
Strategic planning and budgeting	No	No	No	No	No	Yes
Strategic pricing	Yes	Yes	No	Yes	Yes	Yes
Target costing	Yes	Yes	Yes	Yes	Yes	Yes
Valuation of customers as assets	Yes	No	No	No	No	No
Value chain costing	Yes	Yes	Yes	Yes	No	No

In a review, Langfield-Smith, (2008) noted that SMA techniques have neither been understood well nor adopted widely. As a follow-up to the review by Langfield

Smith (2008), Rashid et al. (2020) published another review recently. One important point discussed in their review was what SMA is and what it is not. The earlier criteria of Guilding et al. (2000) were based on topics of focus: marketing and external environmental factors including competitors, long-term orientation, and progressive approach. Most researchers have been using these criteria. The points on which traditional management accounting and SMA differ were tabulated in another review by Juras, (2014) as given in Table 2.1.

Table 2.1

Differences between traditional management accounting and strategic management accounting Wilson and Chua, (1993)- as cited by Juras, (2014).

Traditional management accounting	Strategic management accounting
Historical	Prospective
Single entity	Relative
Introspective	Out-ward looking
Manufacturing focus	Competitive focus
Existing activities	Possibilities
Reactive	Proactive
Programmed	Un-programmed
Data orientation	Information oriented
Based on existing systems	Unconstrained by existing systems
Built on conventions	Ignores conventions

2.4 Extent of use of SMA

Rashid et al. (2020) defined Strategic Management Accounting (SMA) as an approach focusing on a company's external environment with a long-term, forward-looking perspective, incorporating information beyond the fiscal year and emphasizing both financial and non-financial aspects. Based on this definition, the following 17

SMA criteria were identified: general SMA (SCM, ABC/M), attribute costing, life-cycle costing (LCC), quality costing, strategic costing, target costing (TC), value-chain costing, competitor cost assessment, competitor performance measurement (CPM), competitor performance appraisal, customer profitability analysis (CPA), lifetime CPA, customer asset valuation, benchmarking, brand valuation, strategic performance measurement (SPM/IPM/BSC), and strategic pricing.

Sixteen of these 17 approaches align with those outlined by Cadez and Guilding (2007, 2008). The additional approach, activity-based costing/management (ABC/M), was excluded by Cadez and Guilding as they considered it focused solely on costing accuracy. Some additional methods were omitted from the list due to insufficient support for their inclusion by the authors.

Čadež (2006) surveyed to evaluate the application of 17 Strategic Management Accounting (SMA) approaches, aiming to identify which accounting procedures align with the SMA framework. Responses from 193 prominent Slovenian companies revealed numerous potential applications for these methodologies. The most commonly used strategies included capital budgeting and competitor-focused approaches, while customer-centric strategies were employed less frequently. Industry comparisons showed a generally consistent level of SMA adoption, with the manufacturing sector exhibiting the highest usage. In contrast, SMA adoption was minimal in public services and utilities.

The study examined 17 SMA strategies, which slightly differed from those identified by Ramljak and Rogošić (2012). These strategies included capital budgeting, strategic costing, pricing strategy, quality costing, target costing, attribute costing, value-chain costing, life-cycle costing, customer profitability analysis, lifetime customer profitability analysis, customer asset valuation, brand valuation,

benchmarking, integrated performance evaluation, competitor position monitoring, competitor cost analysis, and competitor performance evaluation.

Pavlatos and Paggios, (2009) found from the results of a survey based on 85 leading hotels in Greece, that most of these hotels chose to practise traditional management accounting methods including budgeting, profitability evaluation, product profitability assessment, customer profitability evaluation, absorption costing, and nonfinancial measures to evaluate performance. However, there has been some recent interest in activity-based methods also. The authors justify the small sample size based on selecting only leading hotels. So, they do not claim generalisability. It can be seen that the accounting items for the survey were a mix of traditional and SMA items and certain overlap seemed inevitable. This could have confused the participants leading to arbitrary responses.

To provide an overview of SMA practices in German hospitals, responses from 116 hospitals from a nationwide survey were analysed by Lachmann et al. (2013). The results showed SMA not being widely used in these hospitals and where it was used, the techniques varied widely between hospitals. The small sample size of 116 from a nationwide survey is strange and limits the generalisability of findings.

Accounting practices used by the fast-food industry in Konya, Turkey were still traditional while trying to integrate SMA into their administration systems. Data for this purpose were gathered using direct surveys with 37 fast-food business managers (Akmeşe and Bayrakçı, 2016).

In an empirical study on manufacturing firms, Khan, (2018) found that top-level management relied on traditional MAP techniques rather than on contemporary MAPs in their daily activities. On the other hand, some third-generation businesses

were starting to use new techniques slowly. For this study, 26 public manufacturing firms from different sectors listed in the Dhaka exchange were sampled for the survey.

The study by Boučková and Šiška (2017) aimed to develop a theoretical classification of Strategic Management Accounting (SMA) and validate it empirically. Using principal component analysis on a sample of 99 profit-driven enterprises in the Czech and Slovak Republics, the researchers identified three broad categories of SMA: internally-oriented, competitor-oriented, and stakeholder-oriented. This classification differed from the five categories commonly described in the literature: product accounting, process accounting, customer accounting, competitor accounting, and performance measurement. A comparison of the two classifications revealed that corporations viewed internally-focused groups as equivalent, without distinguishing between them. Additionally, control variables such as industry type, firm size, and ownership structure influenced these classifications.

2.4.1 Mediating and Moderating Factors on SMA and Performance Link

The relationship between Strategic Management Accounting (SMA) practices and firm performance is influenced by various mediating and moderating factors, as evidenced by multiple studies across different industries and countries. IT competencies have been found to enhance SMA's effectiveness by improving service quality, staff responsiveness, and overall efficiency. In the case of Malaysian local government authorities (LGAs), Said et al. (2012) highlighted that IT competencies enabled better information storage, retrieval, and processing, leading to improved revenue collection and operational efficiencies. Moreover, SMA helped LGAs eliminate non-value-adding activities, positioning technology as a key mediator in the SMA-performance link.

In the manufacturing sector, industry competition and advanced manufacturing technology significantly influenced the adoption of SMA, whereas the firm's life cycle stage had no notable effect (Kariuki & Kamau, 2016). Ahmad (2012) found that while Malaysian SMEs relied more on traditional accounting methods than SMA, certain contingent factors such as firm size, market competition intensity, and management participation played a role in determining the extent of SMA adoption. However, there was no direct link between SMA practices and SME performance. Similarly, Isa and Foong (2005) observed that despite adopting advanced manufacturing technologies, firms still used traditional costing methods like standard costing and variance analysis alongside modern tools such as ABC analysis and benchmarking.

Research in British food and drink firms by Abdel-Kader and Luther (2006) further indicated a gap between textbook theories and actual SMA implementation. While direct costing and conventional budgeting were widely practised, advanced SMA techniques such as balanced scorecards were under-utilized. This highlights the persistence of traditional management accounting methods despite the increasing recognition of SMA's potential benefits. Zainun Tuanmat and Smith (2011) also observed an evolution in management accounting practices in Malaysian manufacturing firms between 2003 and 2007, demonstrating that changes in SMA practices contributed to enhanced firm performance.

The strategic alignment of management accounting practices with business objectives is another critical factor influencing performance. A study of 215 manufacturing firms by Abdel Al and McLellan (2013) found that the greater the alignment between SMA practices and organizational strategies, the higher the firm's performance. Similarly, Hadid and Al-Sayed (2021) proposed a more comprehensive SMA adoption model, incorporating management accountant networking, the quality

of information systems, and organizational culture. Their findings indicated that management accountant networking positively influenced SMA adoption, mediated by information system quality. Furthermore, an innovation-oriented culture had an indirect positive effect on SMA adoption, whereas an outcome-driven culture directly encouraged its implementation outside of the accounting function.

Other studies have examined regional variations in SMA adoption. A survey of 77 Vietnamese firms by Dung and Ha (2019) found that most companies were still in the early stages of SMA adoption based on the IFAC model. Meanwhile, in Malaysia's declining logistics industry, Doktoralina and Apollo (2019) demonstrated that SMA practices positively influenced supply chain performance, which in turn improved firm profitability. Their study also identified technology, information, and government policies as key external factors influencing SMA adoption, aligning closely with this study's conceptual framework.

The strategic application of SMA has also been studied through different theoretical lenses. Song, Di Benedetto, and Nason (2007) examined how technology, information, and marketing capabilities influence performance, moderated by Miles-Snow strategic types (prospector, defender, analyzer, and reactor). Similarly, Hariyati, Tjahjadi, and Soewarno (2019) explored the mediating roles of intellectual capital, management accounting information systems, and internal process performance in the relationship between SMA and firm outcomes, finding that while internal process improvements boosted financial performance, management accounting information systems had no direct effect.

A growing body of research supports the use of the balanced scorecard as part of SMA. Martinsons, Davison, and Tse (1999) developed a balanced scorecard framework to assess information systems' role in business strategy, while Fiat's World

Class Manufacturing (WCM) strategy exemplified high-level SMA adoption, integrating strategic cost deployment, daily performance monitoring, and formal auditing systems (Chiarini & Vagnoni, 2015). However, despite these advances, traditional management accounting practices continue to dominate in several regions. Szychta (2018) found that less than 10% of medium and large firms in Poland used SMA techniques, largely due to economic and institutional constraints.

Upper Echelons Theory and Role Theory have also been applied to examine how leadership characteristics influence SMA adoption. Pavlatos and Kostakis (2018) found that top management's educational background, tenure, and creativity were key drivers of SMA implementation in Greek firms. Similarly, Cescon, Costantini, and Grassetti (2016) highlighted those competitive strategies influenced strategic costing and competitor analysis in Italian companies. In Tunisia, Amara and Benelifa (2017) validated a contingency model, showing that internal factors played a more significant role than external factors in SMA adoption.

The role of perceived environmental uncertainty (PEU) has also been studied. Costantini and Zanin (2017) found that PEU positively correlated with strategic pricing decisions and balanced scorecard use in Italian firms, while Apak and Duman (2020) demonstrated that traditional management accounting methods remained prevalent in Turkish industrial enterprises, despite some SMA tool adoption. In Vietnam, Nagirikandalage et al. (2021) explored how political ideology influenced SMA and MAP adoption, particularly in the manufacturing versus service sectors.

Several studies emphasize the importance of the firm lifecycle stage in SMA adoption. Pasch (2019) observed that SMA adoption increased from birth to revival stages but declined during later stages, indicating that excessive SMA adoption can be counterproductive. Similarly, Alamri (2019) analyzed 435 Saudi firms and found that

SMA positively impacted both financial and non-financial organizational performance.

The role of CEO education and networking in driving SMA implementation was also validated by Kalkhouran, Nedaei, and Rasid (2017) in a study of Malaysian service SMEs. Despite SMA's growing importance, many firms still rely on traditional management accounting techniques. Al-Mawali (2015) found that PEU moderated the SMA-performance link in Jordanian firms, while Dixon and Smith (1993) emphasized SMA's role in improving information flows for strategic decision-making. Aziz (2012) highlighted that information, people, and government policies significantly influenced SME performance in Iraq, though technology had a lesser effect.

Studies on the impact of enterprise resource planning systems (ERP) on SMA have yielded mixed results. Granlund and Malmi (2002) found that ERP implementation had little effect on management accounting practices, as firms maintained separate traditional and advanced MAP systems. However, Scapens and Jazayeri (2003) observed that SAP implementation transformed managerial roles, shifting accounting tasks to line managers with broader strategic responsibilities.

Finally, the influence of organizational culture on SMA adoption was explored by Järvenpää (2007), who noted that cultural change interventions and new accounting systems led to shifts in managerial roles and decision-making. Meanwhile, Puspitawati and Susanto (2018) found that while business strategy had no impact on the effectiveness of management accounting information systems (MAIS), MAIS significantly improved the quality of SMA-related information.

SMA adoption is influenced by a complex interplay of internal and external factors, including technology, information, competition intensity, organizational

culture, strategic alignment, and leadership characteristics. While some firms have successfully integrated SMA practices to enhance performance, many continue to rely on traditional methods, reflecting regional, industry-specific, and institutional constraints. The growing body of research underscores the need for context-specific strategies to enhance SMA adoption and maximize its impact on organizational performance. Table 2.1 shows the summary of mediation and moderation factors on SMA and performance links.

Table 2.1

Mediation and moderation factors on SMA and performance link

Study	Country/Region	Mediating Factor(s)	Moderating Factor(s)	Key Findings
Said et al. (2012)	Malaysia	Technology	None	Technology improved SMA's impact on quality & efficiency in LGAs.
Kariuki & Kamau (2016)	Kenya	None	Competition Intensity	Competition intensity influenced SMA adoption; firm lifecycle stage had no effect.
Ahmad (2012)	Malaysia	None	Firm Size, Market Competition	SMA adoption influenced by firm size, market competition, and management involvement.
Hadid & Al-Sayed (2021)	UK	Information System Quality	Innovation-Oriented & Outcome-Oriented Culture	Information system quality mediated SMA adoption; culture influenced usage.

Study	Country/Region	Mediating Factor(s)	Moderating Factor(s)	Key Findings
Doktoralina & Apollo (2019)	Malaysia	Supply Chain Performance	Government Policies	SMA positively related to supply chain outcomes, improving profitability.
Song et al. (2007)	Java	Technology & IT Capabilities	Miles-Snow Strategic Types	Technology & IT capabilities influenced firm performance based on strategic type.
Hariyati et al. (2019)	Indonesia	Intellectual Capital, Internal Processes, Customer Performance	None	Intellectual capital and internal processes mediated SMA-performance relationship.
Costantini & Zanin (2017)	Italy	None	Perceived Environmental Uncertainty	Perceived environmental uncertainty influenced SMA adoption and usefulness.
Pasch (2019)	Germany	Firm Lifecycle Stage	Lifecycle Stage	SMA adoption varied across firm lifecycle stages; excessive SMA was counterproductive.
Aziz (2012)	Iraq	None	Government Policies	Information, people, and government policies significantly affected SME performance.

2.5 Underpinning theories

Rashid et al. (2020) reviewed the literature and identified a diverse array of theoretical frameworks used to examine Strategic Management Accounting (SMA) and its related practices. The review highlighted 12 key theories: general diffusion theory, diffusion of innovation theory, grounded theory, corporate governance theory, person-organization fit theory, actor-network theory, configurational theory, self-determination theory, fuzzy set theory, inequity theory, dynamic capabilities theory, and inscription theory. These theories have played a significant role in advancing the understanding of SMA techniques and practices, as extensively documented in various studies.

2.5.1 Contingency Theory

Cadez and Guilding (2008), in their survey of 193 Slovenian firms, found that SMA mediated the relationship between business strategy types (prospector/defender) and performance. Their findings, grounded in contingency theory, highlighted that no single SMA system is universally applicable. Instead, the effectiveness of SMA is influenced by contextual factors such as firm size and strategy, reinforcing the core principle of contingency theory—that management practices must align with the specific needs and characteristics of an organization.

Similarly, Hadid and Al-Sayed (2021) analyzed 10 studies published between 2000 and 2019, which consistently employed contingency theory to explain the adoption and implementation of SMA practices. Namazi and Rezaei (2024) extended this approach by integrating contingency theory with agency theory and stewardship theory to investigate the mediating role of SMA in public health organizations. Their

findings emphasized the significance of both internal and external factors in determining the appropriateness of SMA systems.

2.5.2 Dynamic Capabilities Theory

Dynamic capabilities theory focuses on an organization's ability to adapt, integrate, and reconfigure internal and external resources to respond to changing environments. Tawse and Tabesh (2021) proposed a framework based on this theory, emphasizing how managerial capabilities—such as cognition, social capital, and human capital—drive effective strategy implementation. In the context of Strategic Management Accounting (SMA), this theory highlights the importance of dynamic resources like technology, information, and people in enhancing organizational performance. These mediating factors enable firms to harness SMA practices to gain a competitive edge.

Leiblein and Reuer (2020) examined the evolution of strategic management theories, emphasizing the relevance of dynamic capabilities in addressing challenges related to resource allocation, competitive advantage, and organizational learning. This theoretical perspective provides valuable insights into how SMA aligns with broader strategic objectives.

2.5.3 Stakeholder Theory

Stakeholder theory underscores the importance of aligning organizational practices with the needs and expectations of key stakeholders, including regulators, employees, and customers. Seyitoğlu and Ivanov (2020) applied this theory to evaluate value creation frameworks in hospitality firms, while Shamil et al. (2022) used it to explain how external pressures influence corporate sustainability strategies. Langrafe et al. (2020) further demonstrated that fostering stakeholder relationships enhances organizational value through trust, knowledge sharing, and aligned strategic planning.

In the context of SMA, stakeholder theory highlights the moderating role of government policies. Regulatory requirements and external stakeholder expectations shape the adoption and implementation of SMA practices, thereby influencing organizational performance. For instance, compliance with government policies can either support or hinder the effective use of SMA techniques.

2.5.4 Other Supporting Theories

Upper echelons theory and role theory offer additional insights into the adoption of Strategic Management Accounting (SMA). Pavlatos and Kostakis (2018) demonstrated that top management characteristics, such as educational background, tenure, and creativity, significantly influence the use of SMA tools. Similarly, institutional theory, as explored by Mufid (2019), emphasizes how organizational traits and external pressures drive the adoption of advanced management accounting practices.

Theoretical frameworks such as dynamic capabilities, the resource-based view, and contingency theory have become central to SMA research. Wolf et al. (2020) highlighted how these theories collectively explain the evolving role of management accountants, the scope of SMA, and the contextual factors shaping its implementation.

The conceptual framework of this study is grounded in Contingency Theory, Dynamic Capabilities Theory, and Stakeholder Theory, providing a comprehensive foundation for analyzing the relationships between SMA, mediating variables (technology, information, and people), organizational performance, and the moderating influence of government policy. These theories were chosen for their relevance to the research objectives and their capacity to explain the relationships within the framework.

2.5.5 Independent and Dependent Variables

Contingency theory is essential for understanding the contextual nature of SMA. It explains how factors such as organizational size, structure, strategy, and external environmental conditions influence the effectiveness of SMA systems. SMA is not a "one-size-fits-all" approach; its success depends on aligning it with the unique needs and characteristics of each organization. For instance, Cadez and Guilding (2008) found that SMA's effectiveness is contingent upon the alignment of business strategy with organizational capabilities. Within this study, contingency theory supports the inclusion of SMA as an independent variable and emphasizes the importance of contextual factors in shaping its outcomes.

2.5.6 Mediating Variables

Dynamic capabilities theory explains the role of mediating variables—technology, information, and people—in linking SMA practices to enhanced performance. Organizations that can effectively adapt, integrate, and reconfigure their resources (e.g., advanced technologies, actionable information, and skilled human capital) are better equipped to achieve superior performance.

This theory is particularly relevant in the modern business environment, where agility and technological innovation are critical. Tawse and Tabesh (2021) emphasized that managerial cognition, social capital, and human capital are vital for strategic implementation. Incorporating this theory into the framework highlights how SMA practices drive improved organizational performance through dynamic resources.

2.5.7 Moderating Variable

Stakeholder theory addresses the moderating role of government policy, highlighting how external pressures from stakeholders, such as regulators and policymakers, shape the adoption and implementation of SMA practices. This theory

underscores the importance of aligning organizational practices with regulatory compliance and stakeholder expectations to achieve desired outcomes.

Shamil et al. (2022) demonstrated that external pressures, such as government regulations, significantly influence corporate sustainability strategies. By extending this concept to SMA, the framework captures the broader institutional and stakeholder environment that affects its effectiveness.

2.5.8 Integrated Theoretical Approach

The integration of these three theories—Contingency Theory, Dynamic Capabilities Theory, and Stakeholder Theory—provides a holistic lens for understanding the relationships within the conceptual framework. Contingency theory emphasizes the role of contextual factors in shaping SMA practices, ensuring the independent variable is well-grounded.

Dynamic capabilities theory highlights the importance of leveraging mediating factors (technology, information, and people) to link SMA to performance outcomes. Stakeholder theory brings in the moderating influence of government policies and other external pressures, framing the broader environmental context.

This integrated approach addresses both internal mechanisms (through dynamic capabilities) and external influences (through stakeholder theory) that impact the adoption and effectiveness of SMA practices. Contingency theory ties these elements together within an organizational context, ensuring adaptability and alignment with real-world complexities.

The combined use of these three theories allows for a nuanced understanding of how SMA practices influence organizational performance. This influence is mediated by dynamic resources and moderated by external regulatory pressures. The

theoretical foundation not only aligns with the study's objectives but also offers a practical and academically robust framework for analyzing the relationships among the variables.

2.6 SMA Implementation in Manufacturing Firms and its impact on performance

This section reviews various research studies on Strategic Management Accounting (SMA) implementation across firms in different sectors, categorized by country for ease of comparison. The focus is on evaluating how SMA has been adopted and linked to firm performance in different geographical and cultural contexts.

Argentina

A survey of 149 Argentinian hotel SMEs by Alvarez et al. (2021) found a positive relationship between most management accounting practices (MAPs) and business performance. Firms utilizing MAPs performed significantly better than non-users. While traditional techniques like cost accounting and budgeting were prevalent among non-MAP users, SMA techniques were also identified, demonstrating an increasing interest among firms already familiar with MAPs. Budgeting remained a fundamental technique, highlighting a blend of traditional and strategic approaches.

Benin

In financial institutions in Benin, SMA techniques were found to negatively impact corporate financial performance. However, the involvement of accountants in decision-making positively influenced outcomes (Odia, 2019). Surveying 156 top managers from 13 deposit banks, the study highlighted the lack of integration between SMA and accountants' contributions to strategic decisions. The author recommended greater involvement of accountants in SMA to enhance firm performance.

Bangladesh

A study by Deb, Rahman, and Rahman (2022) of 323 Bangladeshi manufacturing firms showed that Environmental Management Accounting (EMA) positively influenced environmental and financial performance. Stakeholder and institutional pressures significantly drove EMA implementation, emphasizing the growing importance of environmental considerations in strategic decision-making.

China

Wu and Drury (2007) surveyed state-owned enterprises (SOEs) and joint ventures (JVs) in China, finding higher SMA adoption in JVs due to collaborative operations with foreign partners. SOEs adhered more to traditional practices, influenced by organizational culture and political ideology. Similarly, Ma et al. (2022) identified a limited understanding of SMA among Chinese SME managers, hindering its integration into strategic decisions. A case study of Huawei by Su et al. (2024) revealed the firm's use of SMA for risk management, performance evaluation, and profitability analysis, despite challenges like outdated systems and inadequate management knowledge.

Croatia

Ramljak and Rogošić (2012) studied 400 Croatian firms, finding that only 43 used at least one SMA technique. However, the impact of SMA on firm performance was not assessed, leaving questions about its effectiveness.

Czechoslovakia

Petera and Šoljaková (2020) observed that strategic planning, budgeting, customer accounting, and target costing were the most utilized SMA techniques in

Czech medium and large firms. Implementation trends indicated a growing reliance on SMA to support differentiation strategies over cost leadership approaches.

Germany

Pasch (2019) surveyed 377 German firms, revealing that SMA adoption rates varied across lifecycle stages. Firms with an optimal level of SMA practices achieved higher performance, while deviations led to reduced outcomes, emphasizing the need for lifecycle-aligned SMA implementation.

Greece

Studies by Pavlatos (2015) and Pavlatos and Kostakis (2018) revealed that environmental uncertainties and financial crises spurred Greek firms to adopt innovative SMA tools. SMA was instrumental in aiding firms to navigate the economic challenges of the 2008–2009 global crisis.

Iraq

Suhail (2018) surveyed 127 Iraqi service companies, confirming that SMA improved performance and underscoring its value in strategic decision-making processes.

Italy

Cinquini and Tenucci (2007) surveyed 92 Italian firms, finding inconsistent SMA adoption rates. A follow-up study (Cinquini et al., 2008) revealed a shift from trend-driven adoption to more rational practices. Cescon et al. (2019) highlighted that SMA usage was not significantly influenced by firm strategy or geographical orientation, though its adoption increased over time.

Malaysia

Malaysia showcased significant SMA adoption in electrical and electronics firms, with studies by Noordin et al. (2009, 2015) and Abdullah et al. (2020) emphasizing its positive impact on organizational performance. Conversely, SMEs faced challenges in adopting SMA due to resource constraints (Ahmad & Leftesi 2014).

Nigeria

Ojua (2016) and Emiaso and Egbunike (2018) identified limited SMA adoption among Nigerian firms, driven by inadequate knowledge and scepticism about its benefits. However, intense SMA usage improved competitive advantage, particularly in customer and competitor analysis (Oyewo, 2022).

Vietnam

Vietnamese firms demonstrated growing SMA adoption influenced by size, organizational structure, and technological advancement (Vu et al., 2022). EMA adoption was driven by institutional pressures and management perceptions (Nguyen, 2022).

New Zealand, UK and US

Guilding et al. (2000) compared SMA implementation in New Zealand, the UK, and the USA, noting similar adoption levels across countries. Turner et al. (2017) found that SMA facilitated competitive advantage and improved performance in a multi-country hotel study.

This review highlights diverse SMA adoption patterns across countries, shaped by institutional, cultural, and strategic factors. While many studies confirm its positive impact on performance, challenges like limited knowledge, resource constraints, and cultural resistance remain prevalent. These insights provide a foundation for further

exploration of SMA's role in global business contexts. Below is a structured Table 2.2 summarizing the SMA adoption, challenges, and performance insights across different countries.

Table 2.2

SMA adoption, challenges, and performance insights across different countries

Country	Adoption Level	Key Insights	Challenges/Barriers
Argentina	Moderate	Positive relationship between MAPs (including SMA components) and performance. Budgeting remained a core practice.	Hesitation to fully adopt SMA despite familiarity with MAPs.
Benin	Low	Accountants' involvement in decision-making positively influenced outcomes.	Lack of integration between SMA practices and strategic decision-making.
Bangladesh	High (EMA-focused)	EMA positively impacts environmental and financial performance, driven by stakeholder and institutional pressures.	Resource constraints for widespread SMA adoption.
China	Mixed	Higher SMA adoption in JVs due to foreign collaborations. Huawei uses SMA for risk management and performance evaluation.	Outdated systems and limited managerial knowledge about SMA.

Country	Adoption Level	Key Insights	Challenges/Barriers
Croatia	Low	Few firms adopt SMA techniques; impact on performance not assessed.	Limited adoption and lack of studies on effectiveness.
Czechoslovakia	Moderate	Medium and large firms prioritize strategic planning, budgeting, customer accounting, and target costing for differentiation strategies.	Preference for differentiation strategies over cost leadership.
Germany	High (Lifecycle-dependent)	Firms aligning SMA practices with lifecycle stages show better performance.	Performance declines when SMA is misaligned with lifecycle stages.
Greece	High	SMA helped navigate economic challenges during the 2008–2009 global crisis.	Adoption driven by environmental uncertainties rather than proactive strategies.
Iraq	Moderate	SMA improved performance and enhanced strategic decision-making processes.	Cultural resistance and inadequate understanding of SMA's strategic value.
Italy	Moderate	Adoption of SMA increased over time, shifting from trend-driven to rational practices.	No significant influence of strategy or geographical orientation on SMA use.

Country	Adoption Level	Key Insights	Challenges/Barriers
Malaysia	High (Sector-specific)	Significant adoption in electrical and electronics firms; improved performance.	SMEs face resource and knowledge constraints for adopting SMA.
Nigeria	Low	Firms using SMA reported enhanced competitive advantage in customer and competitor analysis.	Limited knowledge and skepticism about SMA benefits.
Vietnam	High	EMA adoption driven by institutional pressures and management perceptions.	Organizational structure and size impact SMA implementation.
New Zealand, UK, USA	High	Similar adoption levels across countries; SMA facilitated competitive advantage and improved performance in multi-country hotel study.	No major barriers identified.

2.7 SMA-performance relationships in Australian firms

Since this study is concerned with Australian manufacturing firms, the papers in this focus area are discussed below. In all the reviews of the papers below, management accounting is treated as a synonym of SMA, though it may not be strictly so. Two types of main contexts are reviewed: SMA and SM. Accounting methods used for strategic management are assumed to be SMA though it is not always so.

The use of information derived from management accounting systems mediated the relationship between market competition intensity and the performance of Australian business units. Organizations that effectively utilized management accounting information were better equipped to withstand competitive pressures and enhance their performance (Mia and Clarke, 1999).

Forsaith et al. (2003) studied the elements of SMA being used by 158 Australian firms in which performance variables were also included. Operating budget (90.1%), cash-flow budgets (86.3%), strategic planning (81.4%) and capital budgeting (78.3%) were the most frequently used SMA techniques. Non-financial measures (65.8%), divisional profits (61.5%), customer satisfaction (54.7%) and return on investment (46.6%) were the most frequent performance variables measured.

The survey response results of this study do not match the textual descriptions. This study did not measure the relationship between SMA and performance, although it was possible.

From the results of a survey of 165 Australian hotels, McManus, (2013) observed a positive association of customer-focused accounting (market orientation and prospector-type strategy) with both financial and non-financial performances. SMA and customer performance mediated the relationship between market-orientation business strategies and the financial performance of 80 Australian hotels surveyed by Turner et al. (2017).

Samson et al. (1991) argued that traditional cost-based management accounting systems may be unsuitable for managing the performance of manufacturing organisations when non-cost-related factors are also important in their competitive strategy. To enhance competitiveness, Australian manufacturing

organisations should elevate the manufacturing function to a strategic level within the organisation. Additionally, the management accounting system should be designed to align with these strategies by measuring operational performance, managing investments, and reporting in terms of the factors that determine the organisation's competitive advantage like high product quality, manufacturing flexibility, low cost, or other factors.

Armitage et al. (2016) conducted semi-structured, in-depth interviews with 11 senior managers from Australian SMEs and 11 from Canadian SMEs, revealing that out of 19 Strategic Management Accounting (SMA) techniques, only a few were moderately or highly utilized. Manufacturing firms were more likely to adopt a broader range of techniques, such as costing systems, operating budgets, and variance analysis, whereas smaller, early-stage SMEs were the least likely to use SMA tools. The adoption of these techniques was influenced by factors such as perceived usefulness, the complexity of the SME's operating environment, and the organization's age.

Zaman (2009) surveyed 82 Australian organizations and found that implementing activity-based costing (ABC) helped identify the major cost drivers for each product. This facilitated strategies to reduce production costs and lower customer costs. Additionally, ABC implementation improved managerial efficiency, effectiveness, and revenue generation.

Su et al. (2023) conducted an online survey of 408 accountants from Australian business organizations, demonstrating a positive correlation between SMA implementation and the achievement of competitive advantage. This relationship was moderated by the organization's teamwork orientation. Companies that prioritized teamwork exhibited a stronger link between SMA practices and competitive

advantage, highlighting the importance of aligning SMA practices with organizational culture.

Guiding and McManus, (2002) described Client Profitability Analysis (CPA), a component of SMA, as "the process of estimating the profit earned from a single customer." Profitability is determined using costs and sale prices that may be tracked to a specific customer. This strategy is occasionally termed "Profitability of Customer Accounts." A consumer is viewed as an asset in this idea. Additionally, "Customer accounting encompasses all accounting techniques aimed at valuing the profit, sales, or present value of earnings associated with a single customer or group of customers". The survey findings indicated that 251 of the top 300 Australian companies agreed on the positive side of client segment profitability. Thus, some novel ideas have emerged from Australian studies. Although sales to a specific customer may be traceable, the cost to the customer may not be exactly possible. The total cost of the product divided by the number of customers who bought the product can be used as an average cost only, This limitation needs to be understood when using phrases like profit per single customer, etc. However, there is no doubt that customer accounting has prime importance in SMA related to performance.

A survey of firms belonging to many Australian sectors by James & Elmezughi, (2010) showed that the combined use of activity-based costing (ABC) and balanced scorecard (BSC) led to higher customer, innovation and organisational performances than other SMA techniques. These effects were more prominent in the case of cost-leader firms.

The beneficial effects of voluntary disclosure of strategic performance management systems (SPMS) are explainable using contingency and economic theories. Firms disclose their strategies voluntarily only if they add value to them.

Elijido-Ten, (2013) analysed the contents of publicly available data on Top100 publicly listed Australian firms. The results showed that firm profitability, age, size and industry prominence were significantly related to SPMS disclosures. However, business uncertainty did not affect SPMS disclosures.

Chenhall & Langfield-Smith (1998b) surveyed 78 manufacturing companies in Australia, which were classified as product differentiation, low-cost strategies, or a combination of both. Their management approaches encompassed enhancements to current processes, quality systems, innovations in manufacturing systems, system integration, team-oriented structures, and human resource management policies. Key management accounting practices that supported managers in applying these techniques included traditional management accounting methods, activity-based techniques, balanced performance measures, employee-focused measures, benchmarking, and strategic planning.

A review of the literature by Tuan, Cuong, & Anh (2022) showed that out of 15 papers, five were from Australia. Three of these studies used surveys with lower sample sizes (78 to 127) and contingency theory, which showed positive relationships between SMA, and performance measured in different ways. On the other hand, two studies using sample sizes of 109 manufacturing firms and 3776 SMEs, and no specific theories showed any relationship between the two. In the case of other countries, (contingency theory and institutional theory) the results showed a positive relationship between SMA and performance. Resource-based view produced either positive or no relationship. One paper from the USA (140 financial firms) showed a negative relationship despite using contingency theory.

A survey of 42 managers from Australian manufacturing firms by Chong (1996) showed that in situations with high task uncertainty, utilising broad-scope

management accounting system (MAS) information resulted in better managerial decisions and enhanced performance. Conversely, when task uncertainty was low, relying on broad-scope MAS information caused information overload and diminished managerial performance.

Based on a survey of 66 Australian manufacturing firms, Hoque & James (2000) noted that large firms readily adopt BSC. Firms having a higher range of new products tended to measure new product variables. Though BSC improved performance, there was no effect of organisational size, market position or product life cycle on this relationship.

An analysis of 1672 firm years participating in Carbon Disclosure Projects (CDP) for 2014-2015 by Bui, Houque, & Zahir-ul-Hassan (2022) showed that the quality of the Carbon Accounting System (CAS) is influenced by strategic choices. A proactive carbon strategy was associated with a higher-quality CAS. Proactive strategies and CASs were associated with carbon savings and emissions reduction. There was a moderating role of CASs in the strategy-performance relationship. Thus, the carbon strategy enabled higher carbon savings and lower emissions intensity with a high-quality CAS. The multi-country sample contained 60 firms from Australia.

Chenhall and Langfield-Smith (1998a) examined the role of management accounting in developing performance measurement systems within five organizations undergoing change initiatives. The primary case study focused on a large manufacturing company implementing several changes, including team-based structures, a customer-focused strategy, and new performance measurement systems. In this organization, the misalignment between operational performance metrics and strategic goals posed challenges to integrating team activities with the overall strategy. The authors identified five interrelated factors that influence this relationship: a shared

understanding of the accounting function's role in supporting change initiatives, senior management's commitment to management accounting innovations, the presence of a dedicated advocate for management accounting, the technical and interpersonal competencies of management accountants, and the positioning of the management accounting function within the organizational hierarchy. These factors help explain how management accountants contribute to the development of cohesive performance measurement systems and support change initiatives.

Based on a survey of the managers of 63 Australian manufacturing firm observed that the use of broad-scope MAS information interacted with tolerance for ambiguity to affect managerial performance (Chong, 1998). An appropriate fit between the manager's personality variable of tolerance for ambiguity and the extent of use of broad-scope MAS information for managerial decisions might improve managerial performance.

A review of 231 papers on Australian accounting research published during 1980-2009 was conducted by Chenhall (2011). Out of 231 papers, 32 were published during 1980-1989, 70 were published during 1990-1999 and 121 were published during 2000-2009. Before 1980, traditional accounting methods were practised in Australia as in other European countries and the USA. Cost accounting including marginal costing, contribution analysis, cost-volume-profit relationships, process costing, inventory valuation, and accounting for divisional structures (including transfer pricing) was the focus. Since 1980, research focused on behavioural and social issues using empirical methods backed by transaction cost theory and agency theory. Most papers (65) dealt with management control systems, followed by budgeting (49) and performance measurement (38). Thus, there was lower importance to performance and the relationship of management accounting with performance. The manufacturing

sector dominated with 69 papers. There was a gradual shift to psychology, contingency, organisational behaviour, sociological/institutional/critical and cultural theories during the review period. Surveys (93) dominated followed by interviews/case studies (56), literature review (32) and experiments (24).

In the relationship between strategic performance measurement systems (SPMS) and 13 consequences, the most significant factors were national culture (in terms of individualism and power distance), the presence or absence of links to the reward system, and industry differences. A meta-analytical systematic review of the literature by Endrikat, Guenther, & Titus, (2020) provided these findings.

A survey of 156 Australian manufacturing firms by Omran, Khallaf, Gleason, and Tahat (2021) found that firms implementing a quality strategy through quality accounting practices disclosed more information about non-financial performance measures in their annual reports, which had a positive impact on their operating financial performance. This study applied contingency theory to frame its analysis.

Chenhall (1997) conducted a survey of 39 Australian manufacturing firms to explore the relationship between total quality management (TQM), reliance on manufacturing performance measures, and organizational performance. The findings revealed a significant positive relationship between performance improvement and a well-developed TQM system that relied on manufacturing performance measures. Firms combining TQM with manufacturing performance measures achieved higher performance compared to those relying solely on TQM.

Graham and Sathye (2020) examined the relationship between national culture, capital budgeting systems (CBS), and financial performance through a survey of 100 Indonesian and Australian non-financial firms. The study found that firms employing

sophisticated capital budgeting procedures outperformed those using less advanced methods. In contrast, firms relying heavily on non-financial information (a less sophisticated form of CBS) exhibited lower performance compared to those using less non-financial information. The results also indicated that Indonesian firms adopted more sophisticated capital budgeting systems than their Australian counterparts, attributed to cultural differences between the two countries.

Using a case study of a major Australian mixed economy company and a few other case studies, Zhong (2022) observed that in recent decades, the Balanced Scorecard (BSC) model has assisted businesses in aligning activities with a strategy focused on value creation. Initially introduced as a framework for evaluating performance crucial for strategy implementation, it has since evolved into a comprehensive strategic management tool. Furthermore, the BSC aims to meet the expectations of shareholders, employees, and customers while improving services, internal processes, training, and innovation.

The above results are summarised and tabulated in Table 2.3.

Table 2.3

Summary of the literature review on the use of SMA techniques in Australian studies

Reference	Key Findings
Samson et al. (1991)	Identified the need to replace traditional accounting methods with SMA techniques in Australian manufacturing firms.
Chong (1996)	Surveyed 42 Australian firms. Found that broad-scope MAS information improved decision-making and performance under high task uncertainty but led to information overload under low task uncertainty.

Reference	Key Findings
Chong (1998)	Surveyed 63 Australian manufacturing firms. Highlighted that tolerance for ambiguity influenced managerial performance when using broad-scope MAS information.
Chenhall & Langfield-Smith (1998b)	Surveyed 78 manufacturing companies. Found widespread use of traditional management accounting methods, ABC, BSC, and benchmarking. Identified lack of alignment between operational metrics and strategic goals as a barrier to integration.
Mia & Clarke (1999)	Organizations using management accounting information were better able to withstand competition and improve performance.
Hoque & James (2000)	Surveyed 66 Australian manufacturing firms. Found that large firms readily adopted BSC, which improved performance, especially in measuring new product variables.
Guilding & McManus (2002)	Survey of 400 Australian firms showed 251 agreed on the positive impact of client profitability analysis.
Forsyth et al. (2003)	Surveyed 158 Australian firms. Frequently used SMA techniques included operating budgets, cash-flow budgets, strategic planning, and capital budgeting. Performance metrics included non-financial measures, divisional profits, and ROI.
Zaman (2009)	Surveyed 82 Australian firms. Found that ABC identified major costs, reduced production costs, and enhanced managerial efficiency, effectiveness, and revenue.
James & Elmezughi (2010)	Survey of Australian firms demonstrated that combining ABC and BSC improved customer, innovation, and organizational performance.
McManus (2013)	Survey of 165 Australian hotels revealed a positive association between customer-focused accounting (market orientation and

Reference	Key Findings
	prospector-type strategy) and financial and non-financial performance.
Elijido-Ten (2013)	Content analysis of the top 100 Australian firms revealed that SPMS disclosures were influenced by firm profitability, age, size, and industry prominence.
Armitage et al. (2016)	Interviews with senior managers from Australian and Canadian SMEs showed that manufacturing firms used a broader range of SMA techniques, while early-stage SMEs had lower adoption rates. Adoption was influenced by perceived usefulness and SME age.
Turner et al. (2017)	Surveyed 80 Australian hotels. Found SMA and customer performance mediated the relationship between market-orientation business strategies and financial performance.
Graham & Sathye (2020)	Surveyed 100 Indonesian and Australian non-financial firms. Found that Australian firms using sophisticated capital budgeting systems performed better, though Indonesian firms used these systems more extensively due to cultural differences.
Endrikat et al. (2020)	Meta-analysis revealed factors for SPMS included national culture, reward system links, and industry differences.
Zhong (2022)	Case studies showed that the balanced scorecard (BSC) model aligns activities with value creation-focused strategies.
Bui et al. (2022)	Analyzed 1,672 firm-years in Carbon Disclosure Projects. Found proactive carbon strategies and high-quality CAS improved emissions reduction and moderated the strategy-performance relationship.
Tuan, Cuong, & Anh (2022)	Reviewed 15 papers, including five from Australia. Found mixed results regarding the relationship between SMA and performance, depending on methodology and theoretical frameworks like the resource-based view.

Reference	Key Findings
Su et al. (2023)	Survey of 408 accountants from Australian firms showed a positive relationship between SMA implementation and competitive advantage, mediated by teamwork.
Chenhall (1997)	Surveyed 39 Australian manufacturing firms. Found that higher performance was associated with integrating TQM with manufacturing performance measures compared to using TQM alone.
Zhong (2022)	In recent decades, the Balanced Scorecard (BSC) model has assisted businesses in aligning activities with a strategy focused on value creation. Initially introduced as a framework for evaluating performance crucial for strategy implementation, it has since evolved into a comprehensive strategic management tool. Furthermore, the BSC aims to meet the expectations of shareholders, employees, and customers while improving services, internal processes, training, and innovation.

The summary provides a detailed overview of the current state of Strategic Management Accounting (SMA) research in Australian firms, highlighting the significant progress in this field. Of the 22 studies reviewed, 13 relied on surveys as their primary research method; however, 11 of these were constrained by small sample sizes. The remaining nine studies employed alternative methodologies, offering additional insights into the impact of SMA on performance.

The findings emphasize the importance of transitioning from traditional management accounting practices to SMA techniques due to their numerous benefits across various contexts. SMA has been shown to enhance firm performance and competitiveness, particularly through its focus on non-financial performance

measures. However, most organizations adopt only a limited range of SMA techniques, with adoption influenced by factors such as perceived usefulness, ease of implementation, and organizational readiness. Manufacturing firms, in particular, are more inclined to adopt SMA due to the operational complexity of the sector.

Among the 19 SMA techniques identified, activity-based costing (ABC) and the balanced scorecard (BSC) are the most widely used, with competitor costing also being prominent in highly competitive industries like the mobile phone sector. These techniques enable firms to align their cost structures, innovation strategies, and competitive positioning with market demands.

SMA is closely linked to innovation, which is critical for survival in today's dynamic global business environment. Firms that effectively leverage SMA can drive innovation, achieve strategic alignment, and maintain a competitive edge. However, misalignment between SMA practices and organizational goals may limit these benefits.

Sophistication in capital budgeting practices further determines performance outcomes. Capital budgeting, when combined with non-financial measures, exhibits a synergistic effect on overall performance. In environments marked by market uncertainty, broad-scope SMA techniques prove particularly effective in mitigating risks and driving performance improvements.

Environmental accounting, particularly through Carbon Accounting Systems (CAS), represents a growing area of SMA application. CAS contributes to achieving environmentally related Sustainable Development Goals (SDGs) while moderating the relationship between SMA and performance. This highlights the importance of integrating environmental considerations into SMA practices.

Strategic Performance Management Systems (SPMS) are closely aligned with SMA, offering a framework for linking SMA techniques to strategic growth. By integrating SPMS into organizational strategies, firms can enhance market orientation, improve customer performance, and achieve sustainable competitive advantages.

The body of research demonstrates the critical role of SMA in enhancing firm performance, fostering innovation, and achieving strategic alignment. While challenges such as limited adoption and resistance to change persist, the integration of SMA with organizational strategies, culture, and environmental goals provides a pathway for firms to thrive in competitive and uncertain markets. This rationale underscores the importance of further research and practical applications of SMA in driving performance and long-term growth.

2.8 Hypotheses Development

The role of Strategic Management Accounting (SMA) in improving organizational performance has been widely examined in academic literature. SMA combines financial and non-financial information to create a strategic decision-making framework, enabling organizations to align their operational activities with long-term objectives (Bromwich, 1990; Langfield-Smith, 2008). By offering an integrated approach to resource management, performance monitoring, and strategic decision-making, SMA serves as a key tool for achieving a competitive edge.

SMA extends beyond traditional accounting practices by emphasizing value creation, resource optimization, and responsiveness to market changes. This forward-looking approach allows firms to navigate dynamic business environments and seize emerging opportunities. Research has shown that SMA tools, including Activity-Based Costing (ABC), the Balanced Scorecard (BSC), and strategic pricing,

significantly enhance performance indicators such as profitability, customer satisfaction, and innovation (Kaplan & Norton, 2001a,b; Zaman, 2009).

The adoption of SMA practices has been closely linked to improvements in both financial and operational efficiency. For instance, Turner et al. (2017) found that SMA practices positively influence customer performance and market orientation, ultimately leading to better financial outcomes. Similarly, Abdel-Kader and Luther (2006) highlighted that SMA's ability to analyze competitors' strengths and weaknesses helps organizations refine their strategies and sustain competitiveness. These studies underscore SMA's role in driving superior results through strategic alignment and performance measurement.

A key advantage of SMA is its capacity to support strategic decision-making by providing timely, relevant, and accurate information. This enables organizations to make decisions that align with their overarching goals. For example, Chenhall and Langfield-Smith (1998b) demonstrated that organizations utilizing SMA tools were more effective in implementing strategies that improved both short-term and long-term performance. This dual focus on immediate operational needs and future growth underscores the strategic importance of SMA.

Additionally, SMA practices encourage firms to adopt a more proactive approach to managing risks and uncertainties. Techniques such as competitor accounting and environmental management accounting enable organizations to anticipate market changes and respond effectively. These strategic capabilities contribute to better decision-making, improved resource allocation, and sustained performance.

SMA also addresses non-financial dimensions of performance, such as employee engagement, customer satisfaction, and sustainability. These aspects are increasingly recognized as critical drivers of organizational success. For instance, Kaplan and Norton's (2001a,b) Balanced Scorecard emphasizes the importance of integrating financial and non-financial metrics to achieve a holistic view of performance. Similarly, studies by Doktoralina and Apollo (2019) highlighted how SMA practices enhance supply chain outcomes and sustainability, demonstrating their broader impact on organizational objectives.

The ability of SMA to integrate these diverse performance indicators into a cohesive strategy underscores its significance in modern business environments. By aligning non-financial goals with financial targets, SMA ensures that organizations maintain a balanced approach to achieving their strategic objectives.

Based on the extensive evidence linking SMA to improvements in both financial and non-financial performance, it is evident that SMA plays a crucial role in driving organizational success. The ability of SMA to provide actionable insights, foster innovation, and align strategic objectives with operational execution forms the foundation for the following hypothesis:

H1: Strategic Management Accounting has a significant impact on performance.

The adoption and integration of technology have become indispensable in implementing SMA practices effectively. Technological advancements enhance the ability of organizations to collect, process, and analyze vast amounts of data, enabling SMA to deliver on its promise of strategic relevance. SMA tools such as activity-based costing (ABC), balanced scorecards (BSC), and environmental management

accounting increasingly rely on data processing capabilities provided by digital technologies.

The study by Suriyanti et al. (2024) highlights the transformative role of Strategic Management Accounting Techniques (SMAT) as a form of accounting technology in improving business performance. Drawing on Contingency and Resource-Based View (RBV) approaches, the study demonstrates that SMAT adapts to dynamic organizational contingencies, enabling better alignment of strategic goals with operational performance. From an RBV perspective, SMAT becomes a critical organizational resource, fostering sustainable competitive advantage and improved outcomes. Research by Said et al. (2012) underscores the role of technology in improving the effectiveness of SMA by facilitating the seamless flow of financial and non-financial information.

Similarly, Puspitawati and Susanto (2018) highlighted how technological infrastructure, such as enterprise resource planning (ERP) systems, supports SMA's ability to align strategic goals with operational performance. Technologies like blockchain enhance transparency in cost management and decision-making (Han et al., 2023), while Industry 4.0 innovations, including IoT and AI, empower SMA to adapt to dynamic market conditions (Bhimani, 2020). These findings demonstrate that SMA not only benefits from technological integration but also drives its adoption by identifying areas where technology can create strategic value. Hence, the hypothesis:

H2: Strategic Management Accounting has a significant impact on Technology.

Strategic Management Accounting (SMA) practices significantly enhance the quality, integration, and utility of information within organizations, which is critical

for informed decision-making. Nuhu, Baird, and Su (2024) highlight that SMA facets such as competitor accounting, customer accounting, and strategic decision-making accounting improve organizational performance through their impact on information quality. SMA enables the generation of detailed and relevant data by integrating financial and non-financial metrics, allowing for a comprehensive view of organizational operations.

The study underscores that the adoption of SMA practices mediates the relationship between SMA facets and organizational performance by enhancing the information environment. SMA provides managers with timely, precise, and actionable data, empowering them to align strategic goals with operational execution effectively. This enriched informational framework supports improved decision-making, especially in dynamic and competitive business environments. Furthermore, SMA promotes the seamless integration of external and internal information. Techniques such as activity-based costing (ABC) and balanced scorecards (BSC) are pivotal in capturing multidimensional data that connects strategic objectives to operational metrics. The article also emphasizes that SMA practices enhance the capacity to analyze competitor behaviour, customer profitability, and market trends, making the information more strategic and forward-looking.

These findings align with previous literature that highlights the pivotal role of SMA in creating a robust informational infrastructure. By adopting SMA practices, firms can enhance their strategic alignment and responsiveness to market conditions. Information is the lifeblood of SMA, driving its ability to enable informed strategic decisions. Guilding et al. (2000) emphasized the centrality of market and competitor analysis in SMA, which depends on high-quality information for actionable insights.

The literature highlights SMA's role in synthesizing internal financial data with external market intelligence, allowing firms to assess their competitive positioning and strategic opportunities effectively.

SMA enhances organizational learning by providing a framework for analysing customer profitability, evaluating competitor strengths, and assessing environmental factors (Al-Mawali, 2015; Abdel-Kader & Luther, 2006). Said et al. (2011) demonstrated how SMA practices improve organizational responsiveness through better information flow, ensuring that strategic initiatives are grounded in reality. These observations affirm that SMA strengthens an organization's informational foundation, making it a key driver of strategic decision-making. This leads to the hypothesis:

H3: Strategic Management Accounting has a significant effect on Information.

Strategic Management Accounting (SMA) practices significantly impact people within organizations by shaping roles, responsibilities, and interactions. Dello Sbarba (2024) highlights that achieving configurational fit—aligning environmental, strategic, and structural elements with SMA practices—requires active human involvement at all organizational levels. This alignment process is not merely structural but deeply human-centric, relying on collaboration, communication, and shared understanding among employees to effectively integrate SMA into the organization's strategic framework.

The longitudinal case study also emphasizes that SMA's success is heavily dependent on human capital. Employees' skills, competencies, and proactive engagement are essential for adapting SMA practices to the evolving strategic needs of organizations. Continuous alignment and realignment of SMA with organizational

configurations are facilitated by individuals' participation, showcasing their role as active contributors to strategic management rather than passive recipients of accounting outputs.

Similarly, Pedroso and Gomes (2020) underscore the importance of human elements in the effective utilization of Management Accounting Systems (MAS), which are closely related to SMA. Three critical factors mediate the relationship between MAS and managerial performance: (1) accountants' involvement in strategy, which ensures alignment between MAS outputs and organizational goals; (2) user satisfaction with MAS information, which fosters effective decision-making; and (3) decentralization of decision-making, which empowers managers at various levels to utilize MAS information effectively.

These findings demonstrate that SMA significantly influences people by requiring their active participation, enhancing their satisfaction with accounting systems, and empowering them to make informed decisions. Employees are not only users of SMA tools but also enablers of strategic alignment and performance improvement. This highlights the symbiotic relationship between SMA practices and the organization's human resources.

People are pivotal to the successful implementation of SMA, as human resources, leadership, and organizational culture directly influence the effectiveness of strategic accounting practices. The alignment between SMA and people ensures that the tools and frameworks provided by SMA are translated into actionable insights and tangible results. Cinquini and Tenucci (2007) explored the role of human resources in enabling SMA, emphasizing the importance of employee training, collaboration, and alignment with organizational goals.

Hadid and Al-Sayed (2021) highlighted that leadership and a supportive organizational culture are critical for overcoming resistance to change and fostering the adoption of SMA practices. Moreover, effective SMA implementation often requires cultural shifts that promote innovation and strategic thinking. The literature also emphasizes the role of leadership in bridging the gap between strategic intent and operational execution. Leaders must communicate the value of SMA, align teams around its objectives, and ensure that employees are equipped to leverage its tools. Consequently, the hypothesis is:

H4: Strategic Management Accounting has a significant impact on People.

Technology has become a cornerstone in amplifying the impact of Strategic Management Accounting (SMA) on organizational performance. The ability of advanced technologies to process large datasets, perform real-time analysis, and support data-driven decision-making has redefined the effectiveness of SMA practices. According to Kalkhouran et al. (2015), the integration of IT systems with SMA frameworks enhances the strategic alignment of decision-making processes, ultimately leading to superior performance outcomes.

Recent studies, such as Marpaung et al. (2022), emphasize that firms leveraging robust technological infrastructure with SMA gain a sustainable competitive advantage. These IT-enabled SMA practices are particularly effective in industries characterized by high uncertainty, where real-time insights and dynamic adaptability are critical. For example, ERP systems streamline data flows and ensure alignment between operational metrics and strategic goals, as highlighted by Puspitawati and Susanto (2018).

Advanced technologies, including artificial intelligence (AI), the Internet of Things (IoT), and blockchain, further enhance the efficiency of SMA practices. AI provides predictive insights, enabling firms to anticipate market changes and adjust strategies proactively. Blockchain ensures transparency and accuracy in financial transactions, reducing errors and enhancing trust in cost management (Han et al., 2023). Similarly, IoT enables real-time monitoring of operations, providing data that aligns with strategic objectives (Bhimani, 2020).

Choe (2017) underscores the role of advanced manufacturing technologies (AMT) in aligning operational capabilities with strategic goals, facilitating the successful implementation of SMA. These technologies not only enhance operational efficiency but also build dynamic capabilities, enabling firms to respond effectively to market changes and uncertainties. This dynamic adaptability supports the hypothesis that technology mediates the relationship between SMA and performance.

While the direct impact of SMA on performance is well-documented, the mediation role of technology highlights its transformative potential. Technology bridges the gap between strategic goals and operational execution, ensuring that SMA practices are effectively implemented and leveraged. However, limitations such as the digital divide and resistance to technological adoption in some sectors must also be considered.

By integrating theoretical perspectives such as the Resource-Based View (RBV) and Dynamic Capabilities Framework, this hypothesis underscores the indispensable role of technology in enabling SMA to achieve its strategic objectives. Hence, the hypothesis is:

H5: Technology Mediates the Strategic Management Accounting and Performance.

Strategic Management Accounting's (SMA) ability to enhance performance is rooted in its reliance on high-quality information. SMA integrates financial and non-financial data, ensuring organizations have a comprehensive understanding of their strategic position. Guilding et al. (2000) highlighted that market-oriented SMA practices, such as customer and competitor analysis, are heavily dependent on the quality and availability of information. Accurate and relevant information enables firms to evaluate market dynamics, assess internal strengths and weaknesses, and make data-driven strategic decisions.

The integration of information within SMA practices goes beyond basic financial reporting. Said et al. (2011) emphasized that organizations leveraging SMA benefit from improved decision-making, resource optimization, and strategic alignment. For example, customer profitability analysis, a key SMA technique, requires detailed information on customer behaviours, preferences, and costs. Similarly, competitor benchmarking relies on precise data to evaluate industry standards and position the firm effectively. When this information is timely, relevant, and actionable, it strengthens the relationship between SMA and organizational performance.

The role of information as a mediator becomes even more apparent in complex business environments where decisions are time-sensitive and multifaceted. High-quality information supports scenario planning, risk management, and strategic forecasting, enhancing SMA's impact. Furthermore, technologies like big data analytics and business intelligence tools have amplified the importance of information in SMA. These technologies allow organizations to process vast datasets and generate

insights that would otherwise be inaccessible, thereby enhancing SMA's strategic relevance (Rodríguez-Espíndola et al., 2022).

Importantly, the mediating role of information is not limited to internal operations. It extends to external environments, where market intelligence and stakeholder feedback are critical for strategic decision-making. Information bridges the gap between strategy and execution, ensuring that SMA practices are not only implemented but also aligned with organizational goals.

The ability to synthesize and leverage this information determines the success of SMA in driving performance. Thus, the following hypothesis is proposed:

H6: Information Mediates the Strategic Management Accounting and Performance.

The mediation role of people in the relationship between Strategic Management Accounting (SMA) and performance underscores the critical contribution of human resources to the effective implementation and outcomes of SMA practices. Employees act as the bridge between SMA frameworks and strategic objectives, ensuring that tools, systems, and insights provided by SMA are translated into actionable strategies. The dynamic nature of SMA requires individuals across all organizational levels to actively engage in its processes, aligning strategic intent with operational execution.

Dello Sbarba (2024) emphasizes that achieving configurational fit—where environmental, structural, and strategic elements align with SMA practices—relies on active human involvement. This process is deeply human-centric, demanding collaboration, shared understanding, and proactive participation. Employees' ability to interpret, adapt, and utilize SMA outputs ensures that the organization responds

effectively to internal and external challenges. Without their mediation, SMA tools may remain underutilized or disconnected from the organization's broader strategic framework.

Pedroso and Gomes (2020) provide further evidence of the mediating role of people, identifying three critical factors: (1) accountants' involvement in strategy, which ensures SMA outputs align with strategic goals; (2) user satisfaction with SMA information, enhancing its utilization in decision-making; and (3) decentralized decision-making, which empowers managers to act on SMA insights. These human-centric processes enable SMA practices to integrate seamlessly into the organization, driving improved performance outcomes.

Additionally, leadership and organizational culture play a supporting role in this mediation. Hadid and Al-Sayed (2021) highlight that leaders are pivotal in overcoming resistance to change, fostering a culture of collaboration, and encouraging employees to embrace SMA practices. By facilitating employee training, promoting innovation, and ensuring alignment with strategic goals, leaders amplify the mediating role of people in the SMA-performance relationship.

The mediating role of people ensures that SMA tools are not just implemented but fully integrated into the organization's operations. This synergy between human resources and SMA enhances strategic alignment, decision-making, and ultimately, performance improvements. Thus, the following hypothesis is proposed:

H7: People Mediate the Strategic Management Accounting and Performance.

Government policies and regulations are key drivers in shaping the adoption and effectiveness of Strategic Management Accounting (SMA) practices, particularly

within the Australian manufacturing sector. As of 2024, the Australian manufacturing industry accounts for 5.7% of GDP and contributes 7.4% of exports (ABS, 2024). However, the sector faces declining GDP contributions, prompting a renewed focus on policy frameworks to enhance competitiveness and sustainability. Policies targeting taxation incentives, sustainability mandates, and innovation funding are central to driving the integration of SMA practices and aligning organizational strategies with regulatory priorities.

Odia (2019) and Aziz (2012) emphasized that regulatory frameworks significantly influence how organizations implement SMA. Within the Australian context, government policies such as the Modern Manufacturing Strategy (DISER, 2024) incentivize technology adoption, digital transformation, and sustainable practices. These incentives directly impact SMA's adoption by encouraging firms to integrate tools like environmental management accounting and activity-based costing to meet policy objectives. For example, tax credits for clean energy investments have spurred manufacturers to adopt SMA practices that track and reduce environmental costs, creating a dual benefit of compliance and improved operational efficiency.

The external regulatory environment moderates the relationship between SMA and performance by either enhancing or constraining its impact. For instance, the Australian Government's National Reconstruction Fund (2025) prioritizes advanced manufacturing and green technologies. These initiatives create a fertile ground for SMA practices to thrive, as organizations align their strategies to secure funding and remain competitive. Policies supporting carbon neutrality, such as Australia's National Climate Resilience Framework, encourage manufacturers to adopt SMA frameworks

that prioritize sustainability metrics, further embedding environmental considerations into strategic decision-making.

Moreover, international trade policies, such as Australia's free trade agreements (FTAs) with the UK and India, influence SMA adoption by requiring firms to adapt cost structures and pricing strategies to remain competitive in global markets. These agreements emphasize export competitiveness, driving the adoption of SMA tools like customer profitability analysis and competitor benchmarking.

While government policies enable the adoption of SMA in many instances, overregulation can pose challenges. The Australian manufacturing sector, particularly small and medium enterprises (SMEs), often struggles with the administrative burden of compliance. This underscores the need for scalable SMA frameworks that balance regulatory requirements with strategic flexibility.

Recent literature further highlights the moderating role of government policies. Suriyanti et al. (2024) demonstrated that policy-driven incentives for technological adoption amplify SMA's impact on performance. Similarly, Hadid and Al-Sayed (2021) noted that government intervention fosters a culture of accountability, encouraging firms to leverage SMA practices effectively. The interplay between regulatory frameworks and SMA underscores their mutual importance in driving performance improvements in the manufacturing sector. Hence, the hypothesis is:

H8: Government policy moderates the Strategic Management Accounting and Performance.

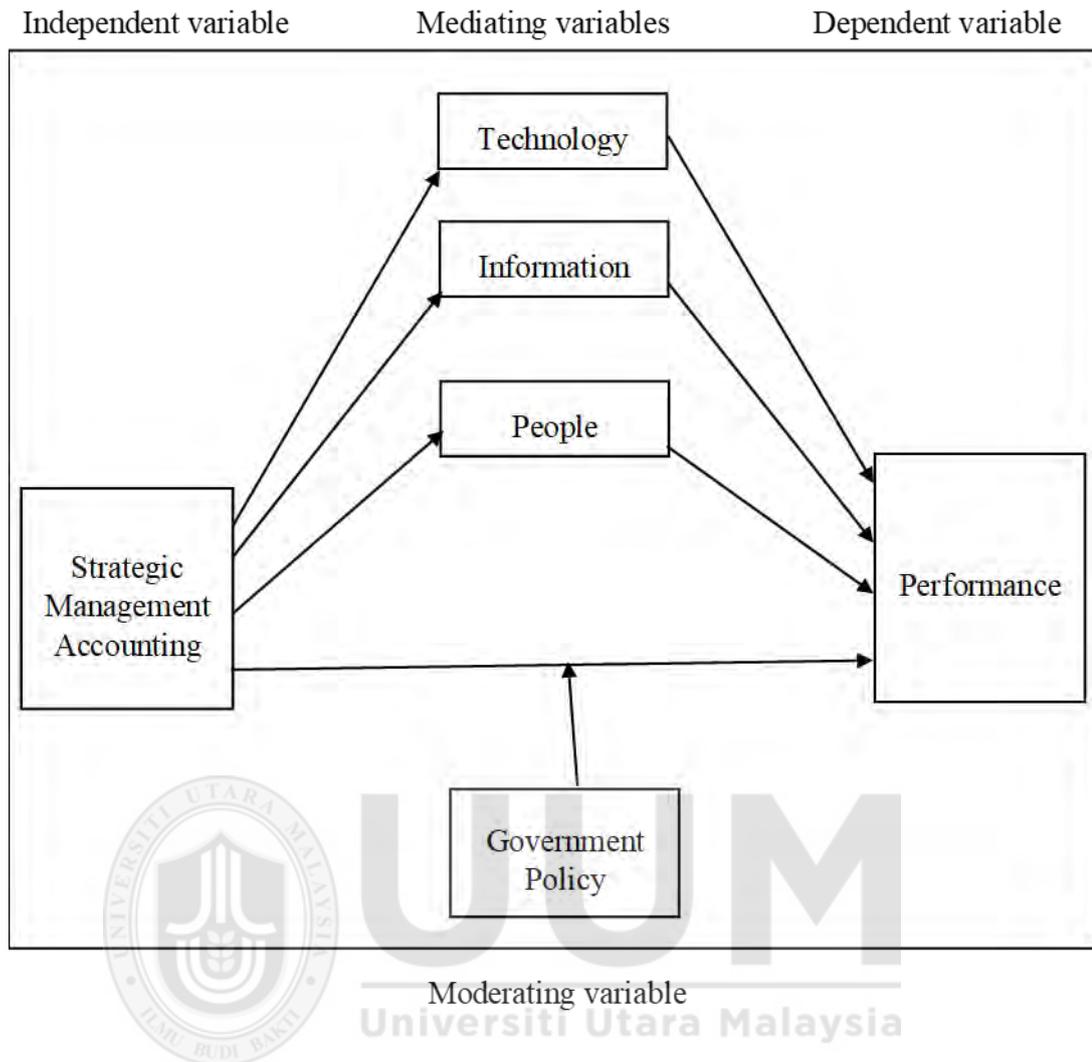
2.9 Research Framework

The literature review highlights the necessity of examining six key constructs within the context of Australian manufacturing firms. These constructs and their hypothesized relationships are illustrated in Figure 2.3, which aligns with the study's objectives outlined earlier. This research focuses on these six constructs, addressing the research gaps identified in the literature. Figure 2.3 presents the theoretical framework and the hypothesized relationships, providing a clear foundation for achieving the study's objectives.



Figure 2.3

Research Framework



The theoretical framework in Figure 2.3 examines how the relationship between Strategic Management Accounting (SMA) and organizational performance is shaped by mediating variables—technology, information, and people—and moderated by government policies. This framework draws from multiple theoretical perspectives to offer a comprehensive understanding of these dynamics.

Technology, information, and people are integral to SMA as critical resources that support strategic decision-making. These resources encompass both financial and non-financial elements and can be tangible or intangible. The Resource-Based View (RBV) underpins their importance, emphasizing organizational capabilities such as

technological innovation, IT capacity, and human resource expertise as sources of competitive advantage.

When these capabilities are utilized dynamically to address evolving challenges, they transform into dynamic capabilities. According to Dynamic Capabilities Theory, high-performing organizations excel by adapting, integrating, and reconfiguring their resources to sustain a competitive edge (Teece et al., 1997). For instance, Said et al. (2011) highlighted that SMA leverages dynamic capabilities by incorporating advanced manufacturing technologies (AMT), Just-in-Time (JIT) inventory management, and Total Quality Management (TQM), thereby enhancing decision-making and driving superior performance.

The management accounting department plays a pivotal role by using SMA to generate actionable insights. Skilled personnel implementing SMA produce high-quality information that informs strategic decisions. The interaction among technology, information, and people creates a feedback loop, where these resources work synergistically to amplify SMA's positive impact on performance. Enhancements in any of these areas significantly improve strategic alignment and execution.

Government policies represent an external factor influencing the efficacy of SMA practices. These policies, reflecting regulatory and institutional pressures, shape organizational behaviour. Stakeholder Theory underscores the importance of aligning practices with the expectations of key stakeholders, including regulators and policymakers. Shamil et al. (2022) demonstrated how compliance with external pressures, such as government regulations, influences corporate strategies, including the adoption of SMA practices.

The role of government policies as a moderator is context-specific. Supportive policies can facilitate the adoption of SMA, foster innovation, and enhance its impact on organizational performance by encouraging strategic alignment. Conversely, restrictive or overly complex regulations may hinder SMA's effectiveness. This aligns with Contingency Theory, which posits that the success of management practices depends on their alignment with contextual factors. Cadez and Guilding (2008) also found that SMA's effectiveness depends on its integration with organizational strategy and external conditions, further supporting the relevance of Contingency Theory in this framework.

By categorizing technology, information, and people as dynamic resources and incorporating government policies as a moderating factor, this framework offers a holistic perspective on how SMA drives performance. The integration of Resource-Based View, Dynamic Capabilities Theory, Stakeholder Theory, and Contingency Theory ensures a nuanced analysis of both internal mechanisms and external influences. This comprehensive approach provides valuable insights for academic research and practical applications, highlighting how SMA contributes to strategic alignment and enhanced organizational outcomes.

2.10 Summary of Chapter Two

This literature review explores extensive research on Strategic Management Accounting (SMA), focusing on two key aspects: SMA practices within organizations and the influence of SMA on technology, information, and people. The findings indicate that while SMA adoption as a replacement for traditional management accounting practices (MAPs) remains limited, many organizations have selectively integrated specific SMA components, such as costing systems, competitor monitoring,

and balanced scorecards, into their existing frameworks. The extent of SMA adoption varies significantly across firms, influenced by both internal organizational factors and external business environments.

One major barrier to widespread SMA adoption is scepticism about its cost-effectiveness. Organizations often hesitate to fully implement SMA due to concerns about the required investments in training, system integration, and advanced technologies. These apprehensions persist despite substantial evidence demonstrating that firms employing SMA often outperform those relying solely on traditional MAPs. This disconnect highlights a critical gap between the theoretical benefits of SMA and the practical challenges of implementation.

The literature underscores the importance of raising awareness and building capacity among managers and accountants to emphasize the strategic value of SMA. Top management plays a crucial role in driving adoption by fostering a supportive organizational culture, aligning strategic objectives, and addressing barriers such as resistance to change and limited technological infrastructure. Without strong leadership, organizations often fail to harness the full potential of SMA.

The interaction between SMA and key organizational resources—technology, information, and people—is a well-documented area of research. SMA facilitates technological integration, enables informed decision-making through actionable insights, and leverages human resources to achieve strategic alignment. These interactions are vital for developing the dynamic capabilities necessary to maintain a competitive advantage. However, the relationship between SMA and government policy is underexplored, representing a significant gap in the literature. While government policies can significantly influence SMA adoption and impact, research in this area remains scarce.

Most SMA studies rely on survey-based methodologies, often complemented by interviews, case studies, or secondary data analysis. However, the lack of a unified research paradigm and the frequent use of small sample sizes limit the generalizability and reliability of findings. This methodological fragmentation presents an opportunity for future research to adopt cohesive frameworks and larger sample sizes to enhance validity.

Despite SMA's potential to drive significant performance improvements, its adoption remains inconsistent and faces several challenges. Addressing these issues requires targeted strategies, such as raising awareness, providing specialized training, and fostering strategic leadership to overcome resistance and enhance organizational alignment. Future research should focus on developing a unified theoretical and methodological framework for SMA studies. By employing diverse research methods and larger datasets, researchers can generate actionable insights and bridge the gap between academic findings and practical applications. Addressing these challenges will enable organizations to unlock the full potential of SMA and achieve sustained performance improvements

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

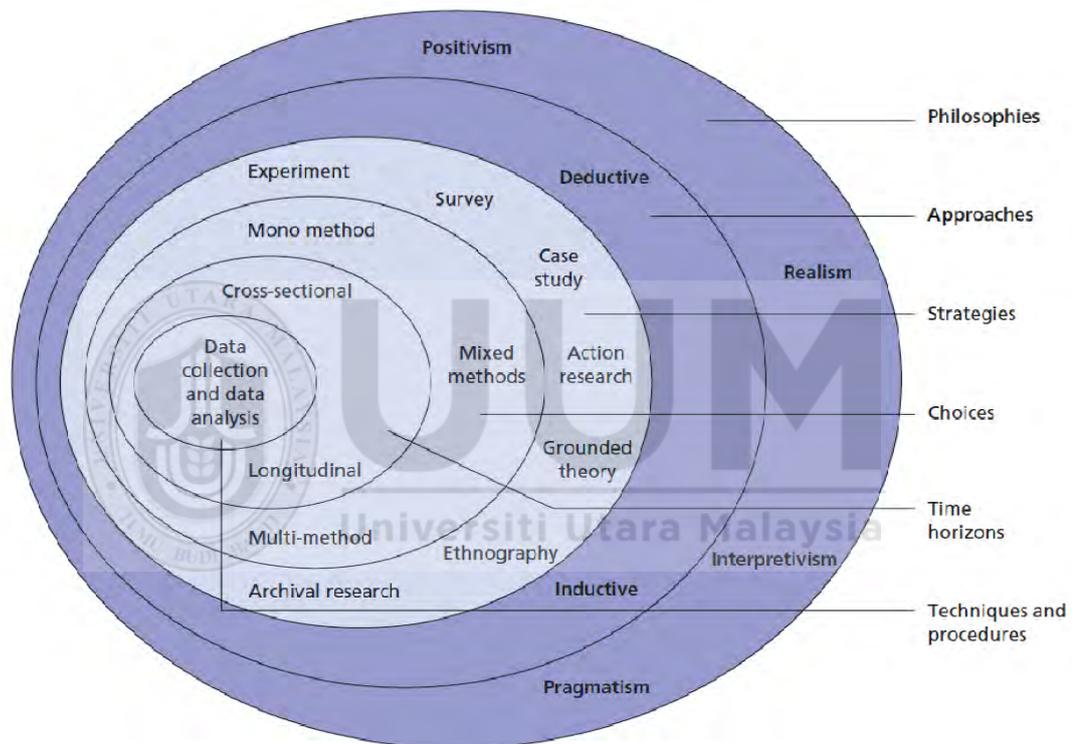
This chapter offers a detailed explanation of the research methodology, expanding on the preliminary overview provided in Chapter One. Research methodologies are typically categorized based on the approaches used to achieve research objectives, considering the study's philosophical, epistemological, and ontological foundations. A widely recognized framework for structuring and understanding these dimensions is the Research Onion model, developed by Saunders et al. (2009), and depicted in Figure



3.1. This model serves as a comprehensive tool for guiding and justifying methodological decisions throughout the research process.

Figure 3.1

Research Onion Describing Categorisation of Research Using Different Criteria (Saunders, Lewis, and Thornhill, 2009).



The outermost layer of the Research Onion model represents the research philosophy, which reflects the researcher's underlying assumptions about how knowledge is developed and understood. This study adopts a positivist philosophy, one of the four primary research paradigms. Positivism emphasizes that reliable and trustworthy knowledge is derived from observable and measurable phenomena, favouring "factual" evidence obtained through direct observation.

Within this paradigm, the researcher assumes a neutral role, focusing on objective data collection and analysis without introducing subjective bias. The structured nature of this study and its use of a large sample size align well with the positivist philosophy, ensuring that findings are based on empirical evidence and follow a systematic, replicable methodology. By adhering to this philosophical approach, the research maintains a clear and unbiased inquiry process.

The methodological approach is deductive, moving from the general to the specific. The research begins with established theories or hypotheses, which are tested through empirical investigation using specific data. The deductive process aligns with the positivist paradigm by emphasizing hypothesis-driven, methodical inquiry capable of generating generalizable knowledge.

To collect data, the study employs a cross-sectional survey design as a mono-method approach. This design captures data at a single point in time, enabling the analysis of relationships and patterns within the dataset. The cross-sectional method is particularly effective for large sample sizes, allowing for efficient data collection and robust statistical analysis. This approach enhances the reliability and validity of the results, ensuring the credibility of the study's conclusions.

In summary, the integration of a positivist philosophy, a deductive approach, and a cross-sectional survey design provides a structured and systematic methodology. This framework enables the researcher to produce objective, reliable, and generalizable findings, fully aligned with the study's research objectives.

3.2 Research Design

The research design provides a structured framework that outlines the steps required to achieve the study's objectives. It encompasses identifying the target population,

determining the sampling technique and sample size, selecting appropriate methods for data collection and analysis, and defining how the results will be utilized. The research design for this study is outlined below.

The significance of research design has been widely emphasized by scholars, including Creswell and Creswell (2017). Durrheim (2006) describes research design as a bridge connecting the research questions to the practical execution of the study. It serves as a comprehensive plan for organizing the conditions under which data are collected and analyzed, ensuring that the study's purpose is effectively aligned with procedural efficiency.

In this study, the research design systematically addresses all key processes, providing a clear and coherent path toward achieving the research objectives. These processes are elaborated upon in the sections that follow.

3.2.1 Aim, research questions and hypotheses

The primary objective of this research was to investigate the direct impact of Strategic Management Accounting (SMA) practices on organizational performance within Australian manufacturing firms. Additionally, the study aimed to examine the mediating roles of technology, information, and people in this relationship, as well as the moderating effect of government policies.

The research questions served as the foundation for the study, aiming to address critical gaps in understanding how Strategic Management Accounting (SMA) practices influence the performance of Australian manufacturing firms. The first research question sought to determine whether there is a direct relationship between the adoption of SMA practices and the overall performance of these firms.

This was important to establish a baseline understanding of the effectiveness of SMA in driving business outcomes. The second question delved deeper into the mechanisms underlying this relationship by exploring how key factors such as technology, information, and people act as mediators. These mediating factors are crucial as they provide insights into the processes through which SMA practices translate into improved performance, highlighting the importance of integrating advanced technological tools, leveraging information systems, and fostering human capital within organizational strategies. Finally, the third research question examined the role of external influences by assessing the moderating effect of government policies on the SMA-performance relationship.

This aspect was particularly significant as it accounted for the broader regulatory and policy environment, which can either enhance or constrain the effectiveness of SMA practices, offering a nuanced understanding of the contextual factors shaping organizational outcomes. Together, these research questions provided a comprehensive framework to investigate the multifaceted interactions between SMA practices, internal mediators, and external moderators.

To achieve the research objectives, quantitative data was necessary to determine whether, how, and to what extent the relationships existed and were influenced by specific factors. Consequently, a quantitative research approach was adopted, providing a structured and empirical framework for testing the proposed hypotheses.

As highlighted by Saunders et al. (2009), a questionnaire survey was selected as the primary data collection method. Surveys are particularly effective in quantitative research for gathering standardized data from a large sample, which is crucial for testing multiple hypotheses. The survey was designed to capture information on SMA

practices, performance metrics, the mediating variables (technology, information, and people), and the moderating variable (government policies).

The structured questionnaire facilitated the systematic collection of data required to rigorously test the eight hypotheses, allowing the study to generate statistically significant conclusions. This method ensured that the research objectives were met while providing valuable insights into the role of SMA within the Australian manufacturing sector.

In summary, the research questions, objectives, and hypotheses formed the foundation of the study's quantitative design. This approach enabled a thorough investigation of the complex relationships between SMA practices, performance, and the identified mediating and moderating factors.

3.2.2 Unit of Analysis and Respondents

The unit of analysis for this research was the organization, specifically Australian manufacturing firms. Given the vast number of manufacturing companies in Australia, it was impractical to study the entire population. Therefore, a representative sample of these companies was selected for the research, ensuring the findings could be generalized to the broader industry.

The survey respondents comprised members of the senior management team, including the Chief Executive Officer (CEO), Chief Financial Officer (CFO), General Manager, and Chief Accountant of the sampled manufacturing firms. These individuals were chosen deliberately due to their comprehensive understanding of the strategic and operational dynamics of their organizations. Senior-level managers are uniquely positioned to provide precise and authoritative information about Strategic

Management Accounting (SMA) practices, organizational performance, and the mediating or moderating variables under investigation.

This focus on high-ranking officials ensured that the data collected was both reliable and relevant. Senior managers are directly involved in decision-making processes and have access to critical information related to the firm's strategic objectives, operational efficiency, financial outcomes, and compliance with external policies.

Their insights were deemed essential for assessing SMA practices and understanding their impact on firm performance, as well as the roles of technology, information, people, and government policies in mediating or moderating these relationships.

To strengthen the research methodology, the selection criteria for respondents were clearly defined to ensure consistency and validity. By targeting senior managers with diverse but interconnected roles (e.g., strategic planning, financial management, and operational oversight), the research captured a holistic perspective on SMA practices and their implications for organizational success.

3.2.3 Population and Sample Size

The population for this study consisted of medium and large manufacturing firms in Australia, as recorded in the Australian Bureau of Statistics (ABS) Count of Australian Businesses, 2020. This directory served as the sampling frame, providing a comprehensive and reliable listing of manufacturing companies across the country. According to this directory, there were approximately 85,000 manufacturing companies in Australia in 2020. This figure was used as the population for the study,

as no updated data with a significantly higher or more accurate count was available closer to the time of the survey.

To determine the appropriate sample size, the study relied on the widely recognized Krejcie and Morgan's (1970) table. This method provides a statistical guideline for calculating the minimum sample size required to achieve the desired level of confidence and precision in the results. For a total population of 85,000, the table indicates that a minimum sample size of 384 respondents is sufficient to ensure reliable and generalizable findings.

The selected sample size not only met the statistical requirement but also accounted for potential non-response rates and other challenges associated with survey-based research, such as incomplete responses or disqualified entries. To ensure robustness, a larger sample was targeted during data collection to increase the likelihood of meeting or exceeding the minimum required sample size.

3.2.4 Sampling Technique

The sampling process for this study was conducted in two stages: selecting manufacturing firms and selecting respondents within those firms. In the first stage, manufacturing firms were sampled using predefined inclusion criteria. To qualify, firms needed to be classified as medium to large based on Australian standards, employ at least one senior officer capable of responding to the survey and have been practising at least one Strategic Management Accounting (SMA) technique for a minimum of three years.

To identify eligible firms, a screening question was included in the survey: *“How many years has your firm been practising any SMA technique?”* Respondents selecting "less than 3 years" were thanked and excluded from the study, while those

selecting "3 years or more" were allowed to proceed. This approach ensured that only firms with sufficient experience in SMA practices were included.

To achieve the required minimum sample size of 384 valid responses, as calculated using Krejcie and Morgan's (1970) table, the study initially contacted 8,500 firms. This figure accounted for an anticipated eligibility rate of 10% and an expected response rate of 28% for email surveys, as suggested by Manfreda et al. (2008). After filtering through the screening question, 5,000 eligible firms were identified and sent the survey questionnaire.

In the second stage, senior management officers within the eligible firms were targeted as respondents. These included Chief Executive Officers (CEOs), Chief Financial Officers (CFOs), General Managers, and Chief Accountants. These individuals were selected because of their strategic roles and their ability to provide reliable information on SMA practices, organizational performance, and the mediating and moderating factors under investigation.

From the 5,000 firms contacted, a total of 420 firms submitted survey responses, representing a response rate of 8.4%. After data cleaning and validation, which involved excluding incomplete, inconsistent, or ineligible responses, the final dataset comprised 400 valid responses. This final count met the required minimum sample size for statistical reliability.

To maximize participation, several strategies were employed. Reminder emails were sent to non-respondents to encourage survey completion, a practice shown to improve response rates (Baruch & Holtom, 2008). Additionally, the Australian Industry Group, a prominent organization representing Australian manufacturing

firms, was engaged to promote the study among its members. This collaboration added credibility to the research and encouraged firms to participate.

This two-stage purposive sampling technique ensured that the data collected was robust and relevant to the study’s objectives, capturing insights from firms and respondents with direct experience in SMA practices.

3.3 Development of Questionnaire Survey

This study utilized a quantitative questionnaire survey as the primary method for data collection. The survey instrument was carefully designed to align with the study's objectives and variables, using measurement methods and scales validated by prior research. The questionnaire comprised seven sections: demographics, strategic management accounting (SMA), technology, information, people, government policy, and company performance.

The survey targeted senior management officers (e.g., CEOs, CFOs, General Managers and Chief Accountants) from 5000 eligible medium and large manufacturing firms, identified using the sampling criteria described earlier. Out of the 420 survey responses received, 400 valid responses were retained after data cleaning, ensuring the dataset met the required statistical reliability.

Table 3.1

Overview of Data Collection and Sampling Process

Stage	Description
1. Population Definition	Total manufacturing firms in Australia (ABS, 2020): 85,000
2. Sampling Frame	Medium and large firms identified using ABS and inclusion criteria

3. Targeted Firms	Firms contacted: 8,500 (to account for eligibility and expected response rates)
4. Screening Question	“How many years has your firm been practising any SMA technique?”
5. Eligible Firms	Firms with ≥ 3 years of SMA practice: 5,000
6. Survey Distribution	Survey sent to senior officers (CEOs, CFOs, GMs, Chief Accountants) in eligible firms
7. Responses Received	Total responses: 420
8. Data Cleaning	Excluded incomplete/ineligible entries
9. Final Sample Size	Valid responses retained: 400 (meeting Krejcie & Morgan minimum)
10. Response Rate	$400 / 5,000 = \mathbf{8.4\%}$
11. Response Enhancement	- Reminder emails to non-respondents - Study promoted via Australian Industry Group

Survey Structure

The survey consisted of two main parts:

1. Demographic Information (Section A): Collected respondent and organizational characteristics. For the question “To what extent the company” (or business unit) use the following strategic management accounting techniques, on a scale of 1=Never, 2-Rarely, 3-Occasionally, 4-Frequently, 5- Always.
2. Construct-Specific Sections (Sections B-G): Focused on variables related to the study’s hypotheses, including SMA, technology, information, people, government policy, and company performance.

The demographic questions in Section A were measured using nominal and ordinal scales, while Sections B-G utilized a 5-point Likert scale (1 = " Strongly disagree " to

5 = " Strongly agree"). This consistent scale allowed for standardized responses, facilitating robust statistical analysis.

Section A: Demographics

The demographic section captured key information about the respondents and their organizations. These items, adapted from Singh and Power (2014), included:

- Gender: Male/Female.
- Age: <35 years, 35–50 years, >50 years.
- Professional qualifications: Open-ended.
- Experience in the current organization: Open-ended.
- Current position: Open-ended.
- Manufacturing sector: Open-ended.
- Size of the organization: Medium/Large.
- Ownership status: Private/Public.
- Australian state(s) of operation: Open-ended.

To ensure the eligibility of firms, a screening question was included: “*How many years has your firm been practising any SMA technique?*” Firms with less than three years of SMA practice were excluded from the study. This step aligned with the sampling technique, which required participants to have adequate experience in SMA practices.

Section B-G: Constructs and Items

The items for each construct were adapted from established sources, ensuring validity and alignment with the study's objectives. The detailed items are presented in the table below:

Table 3.2

Measurement Items

Variable	Source	Items
Strategic Management Accounting (SMA)	Simmonds (1981)	<ol style="list-style-type: none">1. We have been using strategic management accounting in our business for many years.2. We have experience in strategic management accounting discipline.3. We provide feedback to management and employees during SMA implementation.4. We understand the implementation of SMA.5. We solve most company problems through SMA information.
Technology	Shehab (2008)	<ol style="list-style-type: none">1. SMA information is generated by a software system.2. We upgrade the SMA information system regularly.3. Technology improves SMA information performance.4. Our business is fully computerized.

Variable	Source	Items
Information	Almoawi (2011)	<ul style="list-style-type: none"> 5. Employees have sufficient knowledge of SMA IT applications.
		<ul style="list-style-type: none"> 1. SMA information supports business decision-making. 2. Strategic decisions are coordinated with the accounting department. 3. Good SMA capital investment decisions reduce capital expenditure. 4. SMA information positively affects decision-making. 5. SMA information is easy to use.
People	Stajkovic et al. (2003)	<ul style="list-style-type: none"> 1. We support SMA policies. 2. We perform SMA functions. 3. SMA information is always available for decision-making. 4. Top management is involved in planning SMA policies. 5. We execute and implement SMA in the organization.
		<ul style="list-style-type: none"> 1. The Australian government addresses business needs. 2. The government provides accountancy training programs. 3. The government facilitates relationships with private agencies. 4. Business advisory services are provided when needed. 5. Procedures for expanding capital are simplified.
Government Policy	Shehab (2008)	

Variable	Source	Items
Company Performance	Shehab (2008), Mikalef & Gupta (2021)	<ol style="list-style-type: none"> 1. Compared to competitors, our company is more successful. 2. Our company has a greater market share. 3. Our company is growing faster. 4. Our company is more profitable. 5. Our company is more innovative.

To ensure high-quality data collection, several measures were incorporated into the study. A glossary, based on Cinquini and Tenucci (2007), was provided to clarify technical SMA terms, ensuring respondents unfamiliar with the terminology could accurately understand and answer the questions. The questionnaire was also pilot-tested with a small group of respondents to refine question clarity and ensure alignment with the research objectives. To improve response rates, reminder emails were sent to non-respondents, a strategy consistent with recommendations by Baruch and Holtom (2008). Finally, a thorough data cleaning process was conducted, resulting in 400 valid responses from the 420 received after excluding incomplete or inconsistent entries. These steps collectively enhanced the reliability and validity of the collected data.

3.4 Pilot study

The pilot study was conducted to evaluate the effectiveness and suitability of the survey questionnaire in meeting the research objectives. It aimed to ensure that the questions provided clear, relevant answers to the research questions, used language that was easily understood and inoffensive, and identified areas where items needed to be added, revised, or removed. Feedback from participants was instrumental in refining the questionnaire to align with the study's requirements.

A total of 20 participants from manufacturing sectors similar to those targeted for the main study were selected for the pilot survey. These participants, distinct from the main survey sample, completed the questionnaire and provided feedback on question appropriateness, clarity, potential improvements, objectionable content, and the time required to complete the survey. The feedback was analyzed, and adjustments were made accordingly.

Participants generally found the questions relevant and aligned with the study's objectives. However, certain terms, such as "strategic management accounting" (SMA), required additional clarification. To address this, a brief definition of SMA was included at the beginning of the questionnaire. Some questions were identified as ambiguous, such as those using terms like "feedback among management and employees" and "fully computerized business." For instance, the statement "We always provide feedback among management and employees during the strategic management accounting implementation" was rephrased as "We always communicate feedback between management and employees during the implementation of strategic management accounting" for improved clarity.

No objectionable content was reported, and all questions were deemed professional and ethically sound. Participants suggested including explanatory notes or examples for terms that might be unfamiliar, which were incorporated as footnotes. A "Not Applicable" option was added to certain questions, particularly in sections on IT capabilities and government policy, to accommodate diverse organizational contexts. The average time to complete the questionnaire was 10 to 15 minutes, which was considered reasonable and manageable.

The logical structure of the questionnaire, starting with demographic questions and progressing to specific constructs such as SMA, technology, information, people,

government policy, and organizational performance, was well-received. While some participants recommended adding open-ended questions for qualitative insights, these were excluded due to the study's quantitative focus.

The pilot study also assessed the reliability and validity of the questionnaire. Reliability was measured using Cronbach's alpha, with all constructs achieving values above 0.7, indicating strong internal consistency. This demonstrated that the questionnaire items within each construct reliably measured the same underlying concept. Validity was evaluated in terms of content validity and construct validity. Content validity was ensured by designing the questionnaire based on established literature and validated scales, covering key constructs such as SMA practices, technology, information, people, and government policy. Construct validity was confirmed by ensuring the questionnaire items accurately represented the theoretical constructs, with feedback from the pilot study validating their relevance to the research objectives.

The iterative refinement process, guided by participant feedback and supported by reliability and validity assessments, ensured that the final questionnaire was well-suited for collecting accurate and meaningful data in the main study. These enhancements improved the questionnaire's ability to capture reliable insights into the relationships among SMA practices, mediating factors, and organizational performance.

3.5 Data Collection Method

The finalized questionnaire was distributed via email to 5000 eligible firms, identified through the two-stage purposive sampling process. These firms were pre-

screened to ensure they met the inclusion criteria outlined in the sampling technique. Participants were informed about the survey through prior telephone communication to ensure awareness and encourage participation. To maximize the response rate, two reminders were sent at one-week intervals to non-respondents using their telephonic contact numbers.

This systematic process resulted in 400 valid responses, achieving a response rate of 8%, consistent with expectations for email surveys targeting senior management in organizations. The response rate aligns with the sampling strategy, which anticipated challenges in reaching senior-level executives and accounted for this in the initial sample size calculation.

The survey responses were rigorously examined for completeness. Responses with more than 30% of items left blank were planned for exclusion. However, all 400 responses were found to be complete and valid, ensuring the integrity of the dataset. Each response was then coded and uploaded into SPSS software for statistical analysis, setting the stage for robust data interpretation and hypothesis testing.

3.6 Data Analysis

The data collected from the finalized questionnaire was analyzed using a combination of SPSS version 26 and SmartPLS 4.0, ensuring robust statistical and structural equation modelling techniques. A systematic approach was adopted to analyze the data, beginning with an assessment of response rates and data screening to ensure completeness and accuracy. The 400 valid responses achieved from a response rate of 8% (as described in the data collection method) were subjected to rigorous preprocessing to verify the quality of the dataset.

The initial data analysis involved calculating frequencies and percentages for each item and construct, which were tabulated for descriptive analysis. The reliability of the dataset was tested using Cronbach's Alpha, with all constructs achieving values above the recommended threshold of 0.7, indicating strong internal consistency. The validity of the instrument was assessed through content validity, construct validity, and discriminant validity, following the guidelines outlined by Taherdoost (2016). Scaling methods and survey tests, as described by Taherdoost, were also applied to ensure the robustness of the measurement framework.

A normality test was conducted to determine the appropriate methods for further analysis. Additional tests included screening for outliers, assessment of missing data (none identified due to the completeness of responses), and checks for multicollinearity using the correlation matrix and variance inflation factor (VIF). These preliminary analyses ensured that the data met the assumptions required for advanced statistical procedures.

The analysis of the hypothesized relationships was conducted using Partial Least Squares Structural Equation Modelling (PLS-SEM) through SmartPLS 4.0. This method is widely recognized for its ability to handle non-normal data and accommodate small-to-medium sample sizes (Hair et al., 2019a, b). PLS-SEM is particularly suitable for exploratory studies and complex models with latent variables, making it an ideal choice for this research.

The analysis began with the assessment of the measurement model to evaluate reliability and validity. Reliability was assessed using Cronbach's alpha, composite reliability, and average variance extracted (AVE). Discriminant validity was verified using the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio, as recommended by Hair et al. (2019a) and Henseler et al. (2013).

Following this, the structural model was analyzed to examine the relationships between variables. Direct effects, path coefficients, and p-values were calculated to test the hypotheses. The explanatory power of the independent variables was measured using R^2 values, while effect sizes (f^2) and predictive relevance (Q^2) provided additional insights into the strength and relevance of these relationships. The bootstrapping technique in SmartPLS, known for producing robust estimates of statistical significance, was used to validate the findings (Sarstedt et al., 2022).

In addition to SEM analysis, a detailed examination of respondent demographics, firm characteristics, and existing SMA practices was conducted. These contextual findings validated the survey constructs and enriched the interpretation of results. To complement the SEM results, multiple regression analyses were performed in SPSS, offering further evidence to support the hypotheses.

The integration of SPSS and SmartPLS allowed for a comprehensive approach to data analysis. SPSS was utilized for traditional statistical analyses, such as descriptive statistics and preliminary tests, while SmartPLS facilitated the examination of complex relationships within the PLS-SEM framework. Scholars such as Hair et al. (2019) and Sarstedt et al. (2022) have highlighted the value of SmartPLS in studies requiring simultaneous evaluation of measurement and structural models, particularly in areas like strategic management and accounting.

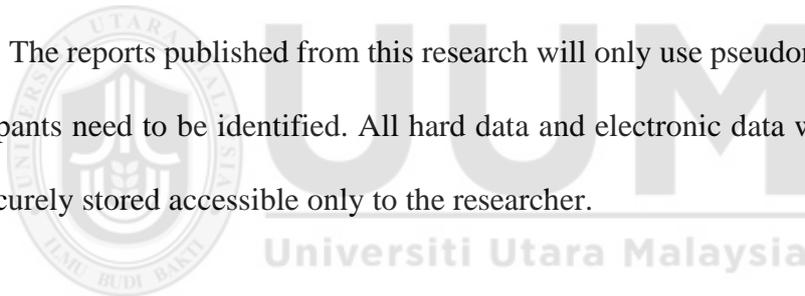
These analyses provided evidence to support the research hypotheses, revealing the relationships among SMA practices, mediating factors (technology, information, and people), the moderating variable (government policy), and organizational performance. The combined use of SPSS and SmartPLS strengthened the credibility and validity of the findings, ensuring robust conclusions with significant theoretical and practical implications.

3.7 Ethical compliance

All ethical requirements prescribed by the University for conducting research using human participants were fully complied with as per the procedure prescribed by the University and the government.

The survey participants were assured of the privacy of their personal information (nothing in the questionnaire provided the personal identity of the participant) and the confidentiality of responses given by them. Before the survey, the participants were provided with a project brief and questions on it were answered. Then they were asked to sign a written informed consent form. They were informed of their right to leave the survey at any time they wished without giving any explanation.

The reports published from this research will only use pseudonyms or codes if participants need to be identified. All hard data and electronic data will be protected and securely stored accessible only to the researcher.



3.8 Summary

The methodology adopted in this research included a preliminary assessment of the historical trends in Strategic Management Accounting (SMA) practices by Australian manufacturing firms, followed by a quantitative questionnaire survey targeting senior management officers responsible for management accounting practices. The survey components, sampling techniques, and procedures have been described in detail in Chapter 3, addressing potential issues and challenges at each stage of the research process. Strategies employed to mitigate these challenges, such as rigorous pilot testing, ethical considerations, and robust data validation, have also been outlined. Any unresolved issues are accounted for in the statistical analysis by incorporating an error term.

The findings from the data analysis are expected to provide actionable recommendations to encourage Australian manufacturing firms to adopt SMA techniques more widely. These recommendations aim to enhance organizational performance and contribute to the national economy. Furthermore, the insights gained may have broader applicability, extending to firms in other sectors that significantly contribute to the national GDP.

CHAPTER FOUR

ANALYSIS AND RESULTS

4.1 Introduction

In the previous chapter, the methods of data collection and analysis were described. In this chapter, the results obtained from the methodology are presented and analysed. The chapter is organised in the following manner.

Sections 4.2 and 4.3 deal with the response rates obtained in this research. Section 4.4 outlines data screening and analysis. Section 4.5 deals with the Normality Test. Section 4.6 describes the demographic profile of the survey respondents. In Section 4.7, the relationship assessments are done using the PLS-SEM. In Section 4.8, the assessment of the Structural Model is described. Section 4.9 provides an assessment of Predictive Relevance.

4.2 Response Rate

The target population for this study was Australian manufacturing companies, and a list of 5000 companies was obtained from a business register. This list was assumed to be a representative sample of the population since it included a diverse range of companies from different industries and sizes. The finalized questionnaire was distributed via email, with participants informed about the survey through prior telephone communication to ensure awareness and encourage participation. This method was chosen due to its cost-effectiveness and ease of administration.

The sampling process involved pre-screening firms to ensure they met the inclusion criteria, including classification as medium to large enterprises, employing at least one senior officer capable of responding to the survey, and practising at least

one Strategic Management Accounting (SMA) technique for a minimum of three years. Firms that did not meet these criteria were excluded using a screening question in the survey.

Once the survey invites were sent out, a deadline of two months or 400 responses was set. From the 5,000 firms contacted, a total of 420 firms submitted survey responses, representing a response rate of 8.4%. After data cleaning and validation, which involved excluding incomplete, inconsistent, or ineligible responses, the final dataset comprised 400 valid responses, representing an effective response rate of 8%. This final count met the required minimum sample size for statistical reliability and aligns with expectations for email surveys targeting senior management in organizations.

To achieve the response rate, several strategies were employed. Reminder emails were sent to non-respondents to encourage survey completion, and the Australian Industry Group, a prominent organization representing Australian manufacturing firms, was engaged to promote the study among its members. This collaboration added credibility to the research and encouraged firms to participate.

One factor that may have influenced the response rate could be the use of an electronic survey as the method. While this method has advantages such as convenience, speed, and cost-effectiveness, it could also lead to a lower response rate compared to other methods such as telephone or mail surveys. This is because individuals have a higher chance of ignoring or deleting an email invitation compared to a phone call or physical mail. However, the systematic follow-up with reminders and prior telephone communication helped mitigate this issue. Additionally, the electronic survey ensured that there were no missing values, as participants were

required to respond to all questions before submitting. This increased the accuracy and reliability of the responses.

4.3 Data Screening and Preliminary Analysis

In a multivariate analysis, it is necessary to screen the primary data. It helps to identify possible violations of the main assumptions related to the application of multivariate analysis (Hair et al. 2010). The screening of the primary data also facilitates the comprehension of the data better. Before screening the primary data, the 400 responses were coded into the SPSS software. The preliminary analysis consisting of missing values, assessment of outliers, normality and multicollinearity tests, were done.

4.3.1 Assessment of Outliers and Missing Data

Outliers are subsets of the data which are inconsistent with the majority of the data. It affects the estimation of coefficients in regression analysis. This will lead to imprecise and untrustworthy results (Croux & Verardi, 2008). Outliers were found in preliminary screening.

The outliers are regarded as subsets of observations that seem inconsistent with the rest of the data. The presence of outliers in the regression-based analysis in the dataset may severely disrupt the estimation of the regression coefficients hence leading to inaccurate and untrustworthy results (Verardi & Croux, 2008). In line with these observations, the possibility of outliers was examined in the SPSS preliminary screening. Values that were entered incorrectly at the extreme and the tabulation of the frequency were detected for all the variables employing the minimum and maximum values.

Frequency analysis did not show any outliers in this data. Tests for univariate outliers using unified values with a cut-off of ± 3.29 ($p < 0.001$) (Tabachnik et al., 2007) did not show any outlier. The multivariate mode of analysis to validate the univariate mode using Mahalanobis D^2 (Tabachnik et al., 2007) also showed no outliers.

4.3.2 Analysis of Missing Data

Missing data refers to instances where one or more variables in a questionnaire are incomplete, making valid analysis difficult (Hair et al., 2010). This can occur when respondents unintentionally or deliberately leave certain items unanswered, or when they fail to understand the information being requested (Sekharan & Bougies, 2013). Analyzing data with missing values can lead to inaccurate estimates and skewed findings. To mitigate this risk, Hair et al. (2010) suggest discarding cases with more than 50% of their data missing. However, it is important to note that no missing data was observed in this study.

4.4 Normality Test

When data are normally distributed, normal parametric analytical methods can be used. However, when data are not normally distributed, non-parametric methods need to be used. This is because one of the basic assumptions of parametric statistics is that the data are normally distributed. Examples of non-normal distribution, its identification, and its effects on analytical results have been discussed by Hair et al. (2010). Normality test on the data of this study was done using both graphical and statistical methods. Both tests showed that the data were normally distributed.

4.4.1 Multi-collinearity Test

When two or more exogenous latent constructs are correlated, multicollinearity occurs. Its existence vitiates the estimation of regression coefficients and tests of their statistical significance (Sousa et al., 2020) due to increased standard errors (Tabachnick et al., 2007). In this study, two methods were used to detect multicollinearity. An examination of correlation matrices of exogenous latent constructs (Table 4.1) showed all values below 0.9, the upper limit for non-collinearity recommended by Hair et al (2010).

Table 4.1

Correlation matrix

No	Latent variable	1	2	3	4	5
1	SMA	1				
2	TECH	0.801	1			
3	INFO	0.820	0.793	1		
4	PEOP	0.823	0.769	0.814	1	
5	GOV	0.698	0.677	0.719	0.699	1

In the second method, the Variance Inflation Factor (VIF) was calculated on the correlation matrix of exogenous latent constructs. No collinearity was detected by this method also since all VIF values were less than 5 (Table 4.2), all tolerance values were above 20 and the conditional indices were less than 30 (Hair et al., 2010). Therefore, multicollinearity was not found in the study data.

Table 4.2*Variance Inflation Factor (VIF)*

Variable	VIF
SMA	4.443
TECH	3.488
INFO	4.324
PEOP	4.021
GOV	2.351

4.5 Respondents' demographic profile**Table 4.3***Gender*

	Frequency	Percentage
Male	279	69.8
Female	121	30.3
Total	400	100

Out of 400 participants, 279 (69.8 %) were men and 121 (30.3%) were women.

Table 4.4*Age*

Age (Years)	No	Percentage
Below 35	213	53.3
35-50	178	44.5
Over 50	9	2.3
Total	400	100

The age of 213 (53.3%) was below 35 years. The age of 178 (44.5%) of them was in the range of 35 to 50 years. Only 9 (2.3%) of the participants were above 50 years old.

Table 4.5*Professional qualifications*

Qualification	No	Percentage
Graduate	108	27
Post-graduate	286	71.5
Other	6	1.5
Total	400	100

Among the participants, 108 (27%) were graduates (of any discipline), 286 (71.5%) were post-graduates, and 6 (1.5%) had other qualifications.

Table 4.6*Experience*

Experience (Years)	No	Percentage
Up to 10 years	121	30.35
11-15 Years	129	32.25
16-20 Years	104	26.00
21-26 Years	46	11.50
Total	400	100

Majority of the participants had 15 years or less (62.50%) experience. There were 33.5% (150) participants, who had more than 15 years of experience. The minimum experience was five years, and the maximum was 26 years.

Table 4.7*Current position in the organisation*

Current position	No	Percentage
Assistant/Deputy manager/assistants/Supervisor	34	8.50
Manager/PL/Engineer	174	43.50
Senor manager/engineer etc	74	18.50
General Manager/AGM	9	2.25
AVP/EVP	31	7.75

VP/SR VP	77	19.25
Board member	1	0.25
Total	400	100

Maximum number of participants (366, 91.5%) were in managerial positions or above. There were 77 (19.25%) of Vice-Presidents or Senior Vice-Presidents and 31 (7.75%) AVPs and EVPs. Senior manager-level positions were held by 74 (18.5%) of the participants. Only one board member participated in the survey.

Table 4.8

Manufacturing sector

Current position	No	Percentage
Food manufacturing	43	10.75
Beverages and tobacco products	14	3.50
Textile mills	10	2.50
Textile product mills	5	1.25
Apparel manufacturing	11	2.75
Leather and allied products	5	1.25
Wood products	13	3.25
Paper manufacturing	15	3.75
Printing and related supports	12	3.00
Petroleum and coal products	4	1.00
Chemicals (including pharma)	65	16.25
Plastics and rubber	16	4.00
Non-metallic mineral	10	2.50
Primary metal	8	2.00
Fabricated metal products	3	0.75
Machinery	17	4.25
Computer and electronic products	19	4.75
Transportation equipment	10	2.50

Furniture and related products	21	5.25
Construction	12	3.00
Dairy	6	1.50
Electricals	6	1.50
Consumer goods	23	5.75
Sports and entertainment	5	1.25
Others (unclassified)	47	11.75
Total	400	100

The categorisation of manufacturing sectors was done according to the list of the North American Industrial Classification System (NAICS) (NAICS, 2023). After chemicals, including pharma and some other miscellaneous, (65, 16.25%), food manufacturing with 43 (10.25%) dominated among the sectors of the participants. Consumer goods (23, 5.75%), furniture (21, 5.25%) and computer and electronic products (19, 4.75) also contributed participants substantially to the survey. A large number of 47 (11.75%) could not be classified into any distinct NAICS categories.

Table 4.9

Size of Organisations

Size of Organisations		Frequency	Percentage
Valid	Medium	284	71
	Large	116	29
	Total	400	100

Medium-sized organisations were represented more than double that of large-sized industries in the survey. Against 284 (71%) of the medium-sized firms, there were 116 (29%) large firms in the firm samples.

Table 4.10*Ownership Status*

		Frequency	Percentage
Valid	Private	387	96.8
	Public	13	3.3
	Total	400	100

Almost all (387, 96.8%) of the firms were privately owned, leaving only 13 (3.3%) of them publicly owned.

Table 4.11*Location of the firm*

Location	Number	Percentage
NSW	5	1.25
NSW/ Tasmania/Victoria	4	1.00
NSW/Tasmania/Victoria/WA	11	2.75
NSW/Tasmania/Victoria/WA/SA	21	5.25
NSW/Tasmania/WA/SA	24	6.00
QLD	1	0.25
NSW/QLD	2	0.50
NSW/QLD/SA/WA	6	1.50
NSW/QLD/Tasmania	5	1.25
NSW/QLD/Tasmania/SA	9	2.25
NSW/QLD/Victoria	22	5.50
NSW/QLD/Victoria/Tasmania	2	0.50
NSW/QLD/Victoria/WA	7	1.75
NSW/QLD/Victoria/SA	17	4.25
NSW/QLD/Victoria/WA/SA	4	1.00
NSW/QLD/Victoria/Tasmania	53	13.25
NSW/QLD/Victoria/Tasmania/SA	7	1.75
NSW/QLD/Tasmania/Victoria/WA	14	3.50
NSW/QLD/Tasmania/WA	7	1.75
NSW/QLD/Tasmania/SA	2	0.50
NSW/QLD/Tasmania/WA/SA	4	1.00

NSW/QLD/Victoria/SA/WA	5	1.25
NSW/QLD/Victoria/Tasmania/SA/WA	107	26.75
QLD/Victoria/Tasmania/SA	1	0.25
QLD/Tasmania/SA/WA	9	2.25
QLD/Victoria/SA/WA	1	0.25
QLD/Victoria/Tasmania/SA/WA	1	0.25
Tasmania/SA/WA	7	1.75
Victoria	1	0.25
Victoria/WA/SA	1	0.25
Victoria/Tasmania/WA/SA	40	10.00

The maximum number of firms (107, 26.75%) were located in NSW/QLD/Victoria/Tasmania/SA/WA regions. Another 53 (13.25%) of the firms were located in NSW/QLD/Victoria/Tasmania region. This region is a part of the above region with maximum numbers. The same could be said about 40 firms (10%) located in Victoria/Tasmania/WA/SA, but not in the NSW region. As the regions overlap, the specific locations of all the 400 firms are fairly widespread. The survey question should have been more specific like NSW, Victoria or Tasmania separately, rather than as a combined region.

Table 4.12

To what extent does your company (or business unit) use the following strategic management accounting techniques?

	N	Minimum	Maximum	Mean	Std. Deviation
Attribute costing	400	1	5	3.01	1.419
Life-cycle costing	400	1	5	2.89	1.386
Quality costing	400	1	5	3.00	1.415
Target costing	400	1	5	3.02	1.419
Value chain costing	400	1	5	2.99	1.351
Activity-based costing	400	1	5	2.93	1.422

Benchmarking	400	1	5	2.96	1.451
Balanced Scorecard	400	1	5	3.94	.916
Strategic cost management	400	1	5	3.06	1.414
Strategic pricing	400	1	5	3.92	.875
Brand valuation	400	1	5	3.13	1.434
Competitor cost assessment	400	1	5	3.46	1.145
Competitor position monitoring	400	1	5	2.91	1.421
Competitor performance appraisal	400	1	5	3.04	1.423
Customer profitability analysis	400	1	5	3.49	1.144
Lifetime customer profitability analysis	400	1	5	3.52	1.122
Valuation of customers as assets	400	1	5	2.99	1.423

Table 4.12 illustrates the extent to which companies or business units use various Strategic Management Accounting Techniques (SMAT) based on a 5-point Likert scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always). The highest mean values are observed for the Balanced Scorecard (3.94), Strategic Pricing (3.92), and Lifetime Customer Profitability Analysis (3.52), indicating that these techniques are frequently and consistently applied, reflecting their perceived importance in strategic decision-making. Conversely, techniques such as Value Chain Costing (2.99), Activity-Based Costing (2.93), Benchmarking (2.96), Competitor Position Monitoring (2.91), and Valuation of Customers as Assets (2.99) have mean values below 3, suggesting less frequent use, with responses leaning toward "Rarely" or "Sometimes." These findings suggest a higher adoption of techniques offering

comprehensive and actionable insights, while others may be less utilized due to their niche applicability or lower perceived relevance in certain industries.

4.6 Assessments using PLS-SEM

Co-variance-based and variance-based structural equation modelling (CB-SEM and PLS-SEM) are the two common methods of modelling the relationship among latent constructs (Chin, 1998). Both being equally useful, the choice of any one of these is determined by the research objectives (Hair et al., 2010). CB-SEM is a confirmatory approach to accept or reject theories or hypotheses.

PLS-SEM is more useful for predictions by developing theories or models to explain variance in endogenous variables (Hair et al., 2010). PLS-SEM is useful for estimating path model relationships, as it maximises the R^2 values of the target endogenous latent constructs (Hair et al., 2010).

As a variance-based model estimate, PLS-SEM uses the existing data in estimating the relationship between path models (coefficient) to reduce the error terms (i.e., residual variance) of the endogenous latent constructs in the structural model (Hair et al., 2010; Chin, 1998). PLS-SEM is a technique of statistical analysis which estimates the path coefficient (i.e., path model relationships) that maximizes the R^2 values of the (target) endogenous latent constructs (Hair et al., 2010). Hence, PLS-SEM was used in this study.

In the PLS-SEM process, the first stage is the construction of a measurement model (Outer model). It deals with interactions between the exogenous latent constructs and their item indicators. The second stage involves the structural model (inner model). This model describes the interaction between exogenous and endogenous latent constructs (Hair et al., 2010). In the present study, the significance

of both measurement and structural models was evaluated using Smart PLS 4.0 software (Ringle et al., 2012). This two-step process consists of an estimation of the psychometric properties of the measurement model and path estimation of the structural model (Henseler et al., 2009).

The first stage comprises the measurement model (outer models), which describes the interactions between the exogenous latent constructs and their measures (i.e., items or indicators) and secondly, the structural model (inner models) which describes the interactions between the exogenous and endogenous latent constructs (Hair et al., 2010). To fully assess the significance of the model in this present study, the researcher employed a Smart PLS 4.0, software application package (Ringle et al., 2012), to assess both the measurement and structural models of the constructs. This assessment process consists of a two-step procedure of estimation (Henseler et al., 2009), involving firstly, an estimation of the psychometric properties of the measurement model, and secondly, the path estimates of the structural model. The method of Henseler & Sarstedt, (2013) was used in this study.

4.6.1 Assessment of Measurement Model

The assessment of the measurement model was done by estimating reliability, internal consistency reliability (ICR) and content validity of individual survey items, including convergent validity and discriminant validity (Hair et al., 2010). To measure the reliability of individual items, the outer loadings of each construct were tested. An outer loading of 0.5 or above was accepted since in exploratory research of this type with new scales and dimensions, 0.5 or above can be accepted (Chin, 1998). Fig 4.2 and Table 4.12 show that all outer loadings were above 0.5.

Figure 4.2

Measurement model

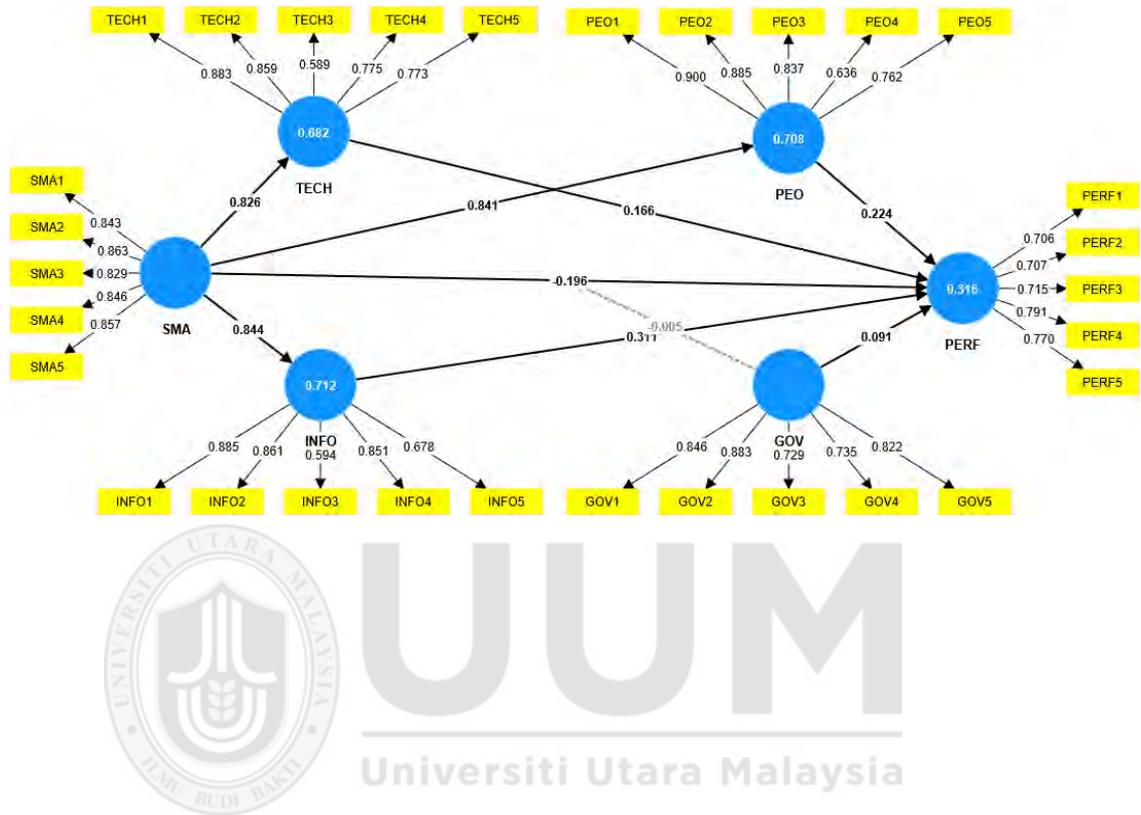


Table 4.13

Outer loadings

	GOV	INFO	PEO	PERF	SMA	TECH
GOV1	0.846					
GOV2	0.883					
GOV3	0.729					
GOV4	0.735					
GOV5	0.822					
INFO1		0.885				
INFO2		0.861				
INFO3		0.594				
INFO4		0.851				

INFO5	0.678	
PEO1	0.900	
PEO2	0.885	
PEO3	0.837	
PEO4	0.636	
PEO5	0.762	
PERF1	0.706	
PERF2	0.707	
PERF3	0.715	
PERF4	0.791	
PERF5	0.770	
SMA1	0.843	
SMA2	0.863	
SMA3	0.829	
SMA4	0.846	
SMA5	0.857	
TECH1	0.883	
TECH2	0.859	
TECH3	0.589	
TECH4	0.775	
TECH5	0.773	

4.6.2 Internal Consistency Reliability

Internal Consistency refers to the extent to which each item in a construct measures the same common variable. Generally, composite reliability and Cronbach's alpha are used to measure this. In this study, both were estimated. But composite reliability is given more importance because it is less biased than Cronbach's alpha and the latter assumes uniform contributions from all items. Also, the estimated reliability of the scale can be increased or decreased if Cronbach's alpha is used. Composite reliability considers the variability of loadings. Similar to Cronbach's

alpha, values above 0.7 are considered to be acceptable for composite reliability also (Hair et al., 2010).

Table 4.13 provides both Cronbach's alpha and composite reliability values. Apart from that convergent validity estimates have also been given in this table. Convergent validity shows the extent of the positive correlation of every item with other items of the construct (Hair et al., 2010).

It is given by the Average Variance Extracted (AVE), which is the mean value of the square of loading values of all items or indicators, related to the construct. It is the sum of squared loading divided by the number of indicators. An AVE value of 0.5 or higher establishes convergent validity (Chin, 1998). Table 4.13 shows that all values of Cronbach's alpha and composite validity are above 0.7 and convergent validity above 0.5. Thus, the internal consistency and reliability of the data are good.

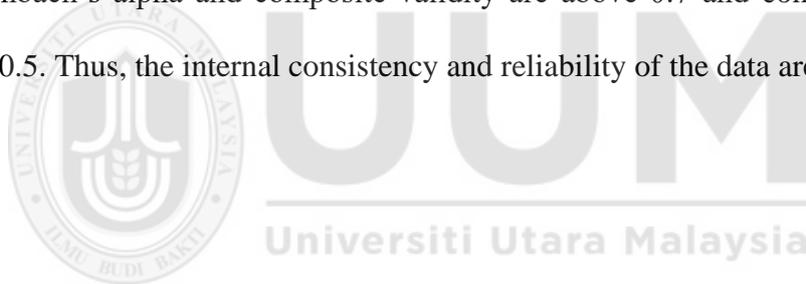


Table 4.14

Reliability

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
SMA	0.902	0.904	0.927	0.719
TECH	0.837	0.863	0.886	0.612
INFO	0.835	0.870	0.885	0.612
PEO	0.865	0.886	0.904	0.656
GOV	0.870	0.912	0.902	0.648
PERF	0.792	0.794	0.857	0.546

4.6.3 Discriminant Validity

Discriminant validity denotes the extent to which indicators of any construct differ from those of other constructs (Duarte & Raposo, 2010). Thus, the uniqueness of each construct is established. This means, that no phenomenon captured by a construct exists in any other construct. Discriminant validity is measured using the Fornell-Larcker criterion and the cross-loading of the indicators. In the case of the Fornell-Larcker (1981) criterion, the square root values of each latent construct's AVE are compared with the correlation of other latent constructs.

For discriminant validity, the AVE value of a construct should be higher than its correlation with other latent constructs (Hair et al., 2010). Thus, a construct shares more variance with its associated items than with other constructs. An AVE value of 0.5 or above is acceptable for this (Fornell-Larker, 1981).

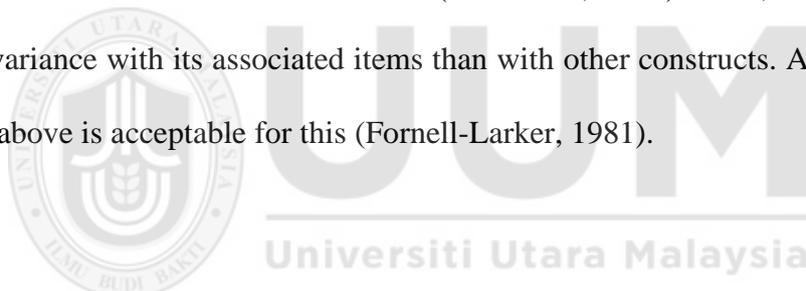


Table 4.13 above shows the AVE values ranging between 0.546 and 0.784. This is acceptable. Table 4.14 provides the comparison of the latent constructs' correlation with the square root of the average variance extracted. It shows that the average variances extracted (AVE) were higher than the correlation values among the latent constructs. Thus, the data has discriminant validity.

Table 4.15

Validity

	GOV	INFO	PEO	PERF	SMA	TECH
GOV	0.805					
INFO	0.729	0.782				
PEO	0.710	0.832	0.810			
PERF	0.453	0.534	0.514	0.739		

SMA	0.706	0.844	0.841	0.455	0.848	
TECH	0.702	0.824	0.799	0.502	0.826	0.782

Table 4.16

Model fit

	Saturated Model	Estimated Model
SRMR	0.077	0.088
d_ULS	2.786	3.627
d_G	1.106	1.212
Chi-square	2501.625	2637.481
NFI	0.737	0.723

Overall, various validity tests show good reliability, composite validity and discriminant validity for the data collected in this study. Next, the structural model is assessed to determine the significance of the correlation between and among the variables.

4.7 Assessment of Structural Model

The structural model estimates the relationships of dependent variables with exogenous and endogenous variables. In this study, the hypothesized relationships are considered. Besides testing the validity of hypotheses, the structural (inner model) functions as a predictive model (Hair et al., 2010).

The assessment of the structural model in this study was done by running 5000 bootstrap samples on 400 cases to assess the significance of the path coefficients (Hair et al., 2010; Henseler et al., 2009). The direct, indirect and moderation estimates of the structural model are shown in Fig 4.3. The direct relationships are presented in Table 4.16 with the description of the results below the table.

Figure 4.3

Structural model

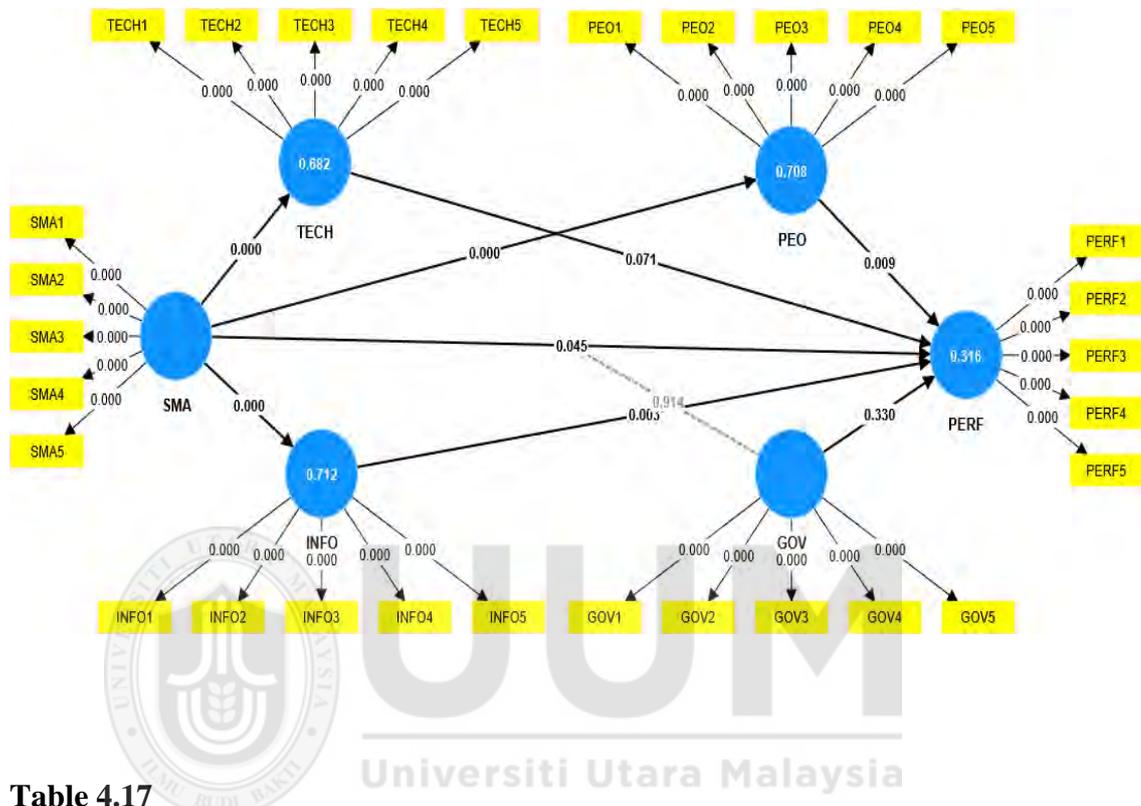


Table 4.17

Direct relationship

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ((O/STDEV))	P values
SMA -> PERF	-0.196	-0.197	0.098	2.003	0.045
SMA -> TECH	0.826	0.827	0.014	57.281	0.000
SMA -> INFO	0.844	0.845	0.012	69.297	0.000
SMA -> PEO	0.841	0.842	0.013	62.338	0.000
TECH -> PERF	0.166	0.166	0.092	1.803	0.071
INFO -> PERF	0.311	0.309	0.104	2.998	0.003
PEO -> PERF	0.224	0.224	0.086	2.61	0.009
GOV -> PERF	0.091	0.099	0.094	0.973	0.330

H1: Strategic Management Accounting has a significant impact on performance.

This study aimed to evaluate the impact of Strategic Management Accounting (SMA) on performance. The analysis of survey data revealed a significant positive relationship between SMA and performance, with a p-value < 0.045 , indicating statistical significance at the 5% level. This finding aligns with prior research that has emphasized the role of SMA in enhancing organizational outcomes by improving decision-making, cost management, and strategic alignment (Langfield-Smith, 2008; Cadez & Guilding, 2012).

Performance in this study was assessed using a comprehensive approach, incorporating both financial and non-financial dimensions. Financial performance was measured through items such as profitability and revenue growth, while non-financial performance focused on factors like customer satisfaction, employee engagement, and innovation. The significant relationship between SMA and performance, as supported by the p-value, suggests that organizations adopting SMA are likely to experience improvements across these dimensions, corroborating earlier studies on the effectiveness of SMA practices (Chenhall, 2003; Guilding et al., 2000). This highlights the critical need for firms to integrate SMA into their operations to achieve competitive advantage and sustained success.

H2: Strategic Management Accounting has a significant impact on technology.

The findings from this study confirm a significant positive relationship between Strategic Management Accounting (SMA) and technology, with a p-value of 0.000, indicating a highly significant impact. The adoption and integration of technology are essential for the effective implementation of SMA, as technological advancements enhance the ability of organizations to collect, process, and analyze

large volumes of data, ensuring SMA maintains its strategic relevance. Tools such as Activity-Based Costing (ABC), Balanced Scorecards (BSC), and Environmental Management Accounting heavily depend on digital technologies for data processing and analysis.

Supporting research by Said et al. (2012) highlights how technology enhances SMA effectiveness by facilitating the seamless flow of financial and non-financial information. Similarly, Puspitawati and Susanto (2018) emphasize the importance of technological infrastructure, such as Enterprise Resource Planning (ERP) systems, in aligning SMA practices with organizational strategic goals. Emerging technologies like blockchain improve transparency and accuracy in cost management and decision-making (Han et al., 2023), while Industry 4.0 innovations, including the Internet of Things (IoT) and Artificial Intelligence (AI), enable SMA to adapt to dynamic market conditions (Bhimani, 2020). This evidence robustly supports the hypothesis that SMA significantly impacts technology adoption and integration within organizations.

H3: Strategic Management Accounting has a significant effect on Information.

Information is a fundamental requirement for Strategic Management Accounting (SMA). Without reliable and accurate data, managerial decisions regarding business strategies risk becoming impulsive and arbitrary, potentially leading to organizational challenges. The results of this study reveal a highly significant positive relationship between SMA and information, as evidenced by a p-value of 0.000. This indicates a robust relationship, underscoring the critical role of information on factors such as the environment, competitors, customers, suppliers, and collaborators in crafting effective SMA strategies.

Information serves as the lifeblood of SMA, enabling informed strategic decisions. Guilding et al. (2000) highlighted the importance of market and competitor analysis in SMA, which heavily relies on high-quality information to generate actionable insights. The literature further emphasizes that SMA synthesizes internal financial data with external market intelligence, empowering organizations to evaluate their competitive positioning and identify strategic opportunities effectively.

SMA also enhances organizational learning by providing a framework for analyzing customer profitability, assessing competitor strengths, and understanding environmental dynamics (Al-Mawali, 2015; Abdel-Kader & Luther, 2006). Said et al. (2011) demonstrated that SMA practices improve organizational responsiveness through enhanced information flow, ensuring that strategic initiatives are grounded in reality. These findings reaffirm that SMA plays a pivotal role in strengthening an organization's informational foundation, making it a vital driver of strategic decision-making.

H4: Strategic Management Accounting has a significant impact on People.

The study highlights the significant relationship between Strategic Management Accounting (SMA) and people within the organization, including managers and functional directors, who are pivotal in determining and implementing business strategies. This relationship is underscored by a high significance level ($p = 0.000$), indicating that the positive engagement of these individuals with SMA practices directly contributes to the effectiveness of business strategies and overall organizational performance. Conversely, negative relationships with key personnel can lead to adverse outcomes, underscoring the critical need for alignment and collaboration.

People are instrumental to the successful implementation of SMA, as human resources, leadership, and organizational culture have a direct influence on the efficacy of strategic accounting practices. The alignment between SMA and people ensures that the tools and frameworks provided by SMA are translated into actionable insights and tangible results.

Cinquini and Tenucci (2007) emphasized the role of employee training, collaboration, and alignment with organizational goals in enabling SMA, highlighting the importance of investing in human resource development. Similarly, Hadid and Al-Sayed (2021) underscored the necessity of strong leadership and a supportive organizational culture for overcoming resistance to change and fostering the adoption of SMA practices. Effective SMA implementation often requires cultural shifts that encourage innovation and strategic thinking, which are driven by leaders who communicate the value of SMA, align teams with its objectives, and ensure employees are equipped to leverage its tools effectively.

Table 4.18

Mediating effects

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
SMA -> TECH -> PERF	0.137	0.137	0.076	1.8	0.072
SMA -> INFO -> PERF	0.263	0.261	0.088	2.989	0.003
SMA -> PEO -> PERF	0.188	0.189	0.072	2.602	0.009

H5: Technology Mediates the Strategic Management Accounting and Performance.

While existing literature suggests that technology often acts as a mediator between Strategic Management Accounting (SMA) and performance, the findings of this study indicate otherwise. The mediation effect of technology was found to be statistically non-significant, as demonstrated by a p-value of 0.072. This result challenges the widely held assumption that technology plays a critical intermediary role in linking SMA practices to enhanced organizational performance. A potential explanation for this discrepancy lies in the context-specific factors of the study. Organizations included in the sample may not have fully leveraged technology in their SMA processes or may have implemented technology in a manner that is disconnected from strategic accounting practices.

Additionally, the maturity of technological adoption or integration could vary, limiting its ability to mediate the relationship effectively. Another plausible explanation could be that other factors, such as leadership, organizational culture, or human expertise, play a more significant mediating role in connecting SMA to performance, overshadowing the contribution of technology in this context. Prior studies, such as Cinquini and Tenucci (2007), emphasize the importance of human resources and organizational alignment in SMA's effectiveness, which may explain the diminished role of technology observed here.

These findings suggest that while technology can enhance organizational processes, its role in mediating the SMA-performance link is not universal. Organizations should focus on complementary factors, such as employee training, leadership, and cultural alignment, to maximize the benefits of SMA.

H6: Information Mediates the Strategic Management Accounting and Performance.

The findings reveal that information significantly mediates the relationship between Strategic Management Accounting (SMA) and performance, as indicated by a p-value of 0.003. This result underscores the critical role of high-quality, timely, and relevant information in enhancing SMA's ability to drive organizational performance.

SMA relies on the comprehensive integration of financial and non-financial data to provide organizations with a clear understanding of their strategic position. Guilding et al. (2000) emphasized that market-oriented SMA practices, such as customer and competitor analysis, are heavily dependent on the availability and quality of information. By leveraging such information, organizations can improve decision-making, optimize resources, and align strategies effectively.

These findings highlight that information is not merely a component of SMA but a crucial enabler of its success, ensuring that strategic initiatives are well-informed and grounded in actionable insights. This reinforces the importance of investing in robust information systems and processes to maximize the performance benefits of SMA.

H7: People Mediate the Strategic Management Accounting and Performance.

The findings indicate that the human element significantly mediates the relationship between Strategic Management Accounting (SMA) and performance, as evidenced by a p-value of 0.009. This underscores the critical role of employees, organizational culture, and leadership in translating SMA practices into tangible performance improvements.

Petera and Šoljaková (2020) emphasized that the successful implementation of SMA relies on the skills, knowledge, and commitment of employees. An organizational culture that promotes collaboration, innovation, and alignment with strategic goals further amplifies the effectiveness of SMA. By fostering a culture of continuous improvement, SMA ensures that employee efforts are consistently directed toward achieving organizational objectives.

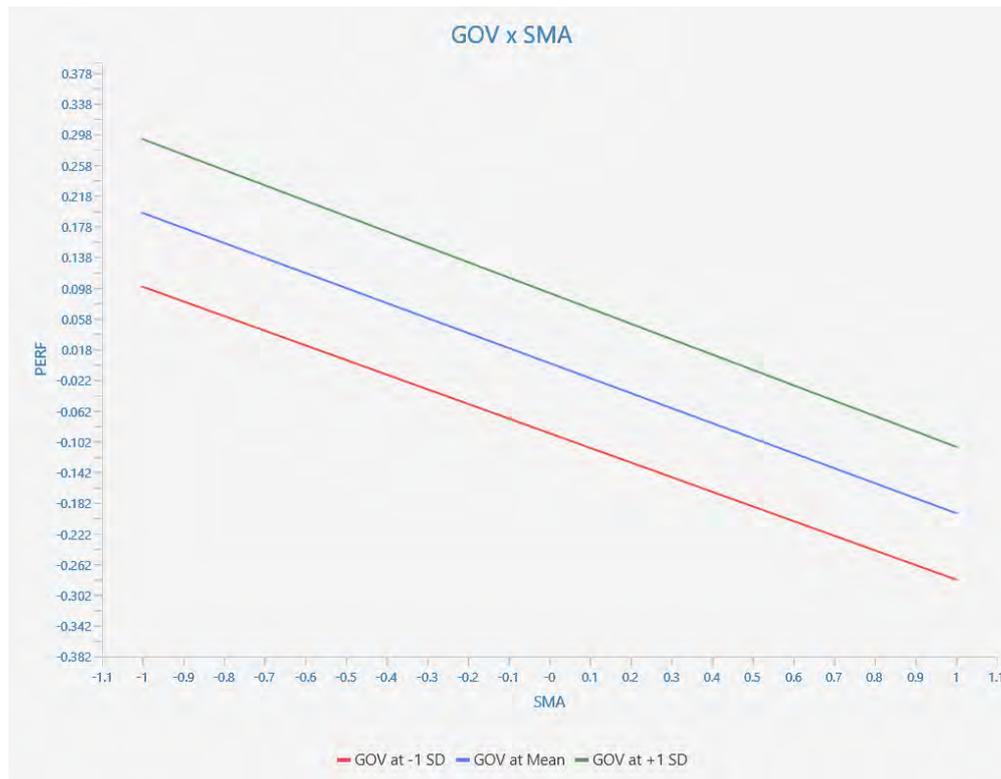
Leadership also plays a pivotal role in embedding SMA practices across all levels of the organization. Leaders are instrumental in driving the adoption of SMA, ensuring that its tools and frameworks are integrated into daily operations and aligned with the organization's strategic vision. These findings highlight that the strategic potential of SMA is fully realized only when the human element actively supports and engages with its implementation, making people a key enabler of SMA's success.

H8: Government policy moderates the Strategic Management Accounting and Performance.

Table 4.19

Moderating effect

		Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Gov	x	-0.005	-0.002	0.045	0.108	0.914
SMA	->					
Perf						



The above findings reveal that government policy does not moderate the relationship between Strategic Management Accounting (SMA) and performance, as evidenced by a non-significant p-value of 0.914. This result contradicts prior literature, which suggests that government policies and regulations significantly influence the adoption and effectiveness of SMA practices.

Previous studies, such as Odia (2019) and Aziz (2012), have highlighted the role of regulatory frameworks related to taxation, sustainability, and corporate governance in shaping how organizations implement SMA. Policies promoting transparency, accountability, and sustainable practices are theorized to encourage firms to integrate SMA into their strategic processes. However, this study found no evidence of government policies moderating the SMA-performance relationship.

Similar findings have been observed in other contexts. For instance, a study examining the moderating effect of government regulations on the relationship between strategic planning practices and financial performance among SMEs in Juba, South Sudan, found that government regulations did not significantly moderate the relationship between strategic formulation practices and financial performance (Chuol, et al., 2021). This aligns with the current study's findings, suggesting that, in certain contexts, government policies may not play a significant moderating role in the effectiveness of strategic management practices like SMA.

These results highlight the possibility that internal organizational factors, such as leadership, culture, and resource capabilities, might exert a more direct influence on the relationship between SMA and performance. Furthermore, industry-specific dynamics and the regional regulatory environment could shape the extent to which government policy impacts SMA practices.

4.7.1 Assessment of Variance Explained into Endogenous Latent Variable

The coefficient of determination (R^2 value) of the endogenous latent constructs is the most commonly used method to evaluate a structural model (Hensler et al., 2009). The coefficient of determination denotes the accuracy in the predictability of the model. It is calculated as the square of correlation coefficients of both actual and predicted values of the endogenous construct (Hair et al. 2010). Thus, R^2 becomes the quantity of variance in an endogenous construct explainable by the exogenous constructs of the model. The range of R^2 values is 0 to 1. The higher the value, the greater the predictive accuracy, as a higher percentage of variance is explained.

An acceptable R^2 is determined by the research context, model complexity, and the research discipline. In some contexts, even a low value of $R^2=0.2$ may be acceptable (Hair et al., 2010). A minimum value of 0.1 has been suggested by Henseler et al. (2009). The usual acceptable value is 0.75 or above. Sometimes, the R^2 values in the range of 0.75, 0.50 and 0.25 are categorised as substantial, moderate and weak respectively (Ringle et al., 2012). Chin (1998) suggested 0.67, 0.33 and 0.19 for this categorisation. The R-squared value for the endogenous latent variable in this context is presented in Table 4.20.

Table 4.20

R-Square

	R-square	R-square adjusted
TECH	0.682	0.681
INFO	0.712	0.711
PEO	0.708	0.707
PERF	0.316	0.306

The research model explains a 32 per cent variance in organisational performance as presented in Table 4.19. Hence, by following the criteria suggested by both Chin (1998) and Falk and Miller (1992), the endogenous latent variables showed a significant level of R-squared value, which is moderate level.

An effect size (f^2) refers to the resultant changes that occur in the R^2 , which is caused by the omission of a specific exogenous variable from a model. It is a way of examining the substantive impact, which a specific exogenous construct has on the endogenous construct (Gim et al., 2015; Hair et al., 2010). In essence, effect size (f^2) serves as a practical guide for interpreting the relative importance of the relationship a

specific exogenous variable has on the endogenous variable, in a given model (Preacher & Kelley, 2011).

The effect size (f^2) is calculated by determining the increase that occurs in the R^2 relative to the amount of variance of the endogenous latent construct that remains unexplained after estimating the PLS path model (Henseler, et al., 2009). This increase is achieved by firstly, estimating the exogenous latent variable to yield R^2 and secondly, re-specifying the structural model by omitting the exogenous latent construct to yield a new R^2 (Hair et al., 2010).

The differences in the two R^2 recorded from these two incidences show the effect of each exogenous latent construct in predicting the endogenous latent construct in a given model. Assessment of Effect Size (f) refers to the relative effect of a specific exogenous latent variable on the endogenous latent variable(s). This is assessed through changes in the R-squared values (Chin, 1998). Therefore, Effect Size (f) can be calculated through the change in R^2 of the latent variable and the extent to which the path is connected (Chin, 1998). The calculation for this is carried out using the effect size formula.

Table 4.21

Effect size

Variable	Effect size
SMA	0.05
TECH	0.07
INFO	0.04
PEOP	0.03
GOV	0.11

Except for the effect size for the government, the effect sizes of all variables were less than 0.1 and hence show a low impact of these variables on the outcome of SMA in terms of performance.

4.8 Assessment of Predictive Relevance

The study used predictive relevance (Q^2) to test the predictive ability of exogenous variables in the model to endogenous variables. The results showed that the values of Q^2 for TECH (Q^2 of 0.678), INFO (Q^2 of 0.709), PEO (Q^2 of 0.705), and PERF (Q^2 of 0.207) exceeded zero and were rather high, suggesting the satisfactory and considerable predictive power of the measurement model (Sarstedt et al., 2017).

Table 4.22

Q Square (Predictive relevance)

	Q^2_{predict}
TECH	0.678
INFO	0.709
PEO	0.705
PERF	0.207

4.9 Results Summary

Table 4.23

Results summary

No	Statement	Findings
H1	Strategic management accounting has a significant effect on performance.	Supported
H2	Strategic management accounting has a significant effect on technology.	Supported
H3	Strategic management accounting has a significant effect on information.	Supported
H4	Strategic management accounting has a significant effect on people.	Supported
H5	Technology mediates strategic management accounting and performance.	Not supported
H6	Information mediates strategic management accounting and performance.	Supported
H7	People mediate the strategic management accounting and performance.	Supported
H8	Government policy moderates the Strategic Management Accounting and Performance.	Not supported

Table 4.22 above shows the summary of the findings based on the analysis carried out.

Thus, out of eight hypotheses, six were supported. All main effects were supported.

The mediating effect of technology and the moderating effect of government policies on the SMA-performance relationship were not supported by the findings of this study.

These results and theoretical explanations will be discussed with the extent of support from the literature in the next chapter.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS & RECOMMENDATIONS

5.1 Introduction

This chapter explains the results reported in the previous chapter using literature to support the findings of this study. The chapter is organised in the following manner. First, how the findings answer the research questions is discussed. After this, some theoretical and practical implications of the study findings are discussed. This is followed by a discussion on the limitations of this study. Then, the scope for future research is examined. Finally, conclusions derivable from the findings are described at the end of this chapter.

5.2 Discussions of findings

RQ1: Is there any effect of strategic management accounting usage on Australian manufacturing firms' performance?

H1: Strategic management accounting has a significant effect on performance.

The analysis revealed a strong positive relationship between strategic management accounting (SMA) practices and firm performance. Regression results indicated that SMA practices significantly enhance performance, with a standardized coefficient of $\beta = 0.35$ and a p-value of $p < 0.01$, confirming statistical significance. These findings support H1, which proposed that SMA positively influences organizational performance.

The results demonstrate that Australian manufacturers have extensively adopted SMA practices, showcasing considerable expertise in their implementation to

achieve organizational success. Many firms reported long-term use of SMA tools such as activity-based costing, balanced scorecards, and target costing, which have become integral to their strategic decision-making processes (Moran, et al., 2018). This prolonged adoption has allowed firms to refine these practices, aligning them closely with strategic objectives to improve operational and financial performance.

Survey responses also highlighted manufacturers' confidence and proficiency in applying SMA frameworks. Respondents frequently cited SMA-generated information as critical for addressing challenges such as cost management, resource allocation, and strategic alignment (Adams & Alarifi, 2021). These findings suggest that SMA is not merely a theoretical framework but a practical tool actively employed to address organizational challenges and guide strategic decision-making. A notable insight was the role of feedback mechanisms in the implementation of SMA practices. Respondents emphasized the importance of collaboration between management and employees in leveraging SMA tools. These feedback loops were reported to improve operational efficiency and foster innovation by aligning workforce efforts with strategic goals. Such collaborative approaches are particularly valuable in the Australian manufacturing sector, where high labour costs and intense global competition require firms to remain efficient and innovative.

Additionally, SMA was recognized as both a diagnostic and prescriptive tool, enabling firms to identify inefficiencies, respond to market dynamics, and sustain competitiveness in a globalized business environment. Respondents consistently highlighted their reliance on SMA information for problem-solving, emphasizing its adaptability to sector-specific challenges and its role in promoting organizational resilience.

These findings are consistent with global studies, such as those by Johnson (2019), which have demonstrated SMA's positive impact on firm performance. However, this study underscores the unique maturity of SMA practices within the Australian manufacturing sector. Unlike firms in emerging markets, where SMA adoption remains in its early stages, Australian manufacturers have achieved an advanced level of integration, enabling them to leverage SMA tools for significant strategic advantages and industry leadership.

The Australian manufacturing sector faces distinct challenges, including high labour costs, intense international competition, and strict regulatory requirements. By combining SMA practices with robust feedback mechanisms and advanced problem-solving capabilities, firms in this sector effectively navigate these challenges while maintaining efficiency and profitability. Their ability to tailor SMA practices to their specific operating environment highlights the strategic importance of SMA in achieving and sustaining competitive advantage.

This study illustrates the transformative potential of SMA in driving organizational success. For Australian manufacturers, the combination of long-term use, expertise, collaborative feedback, and problem-solving capabilities enables them to adapt and thrive in competitive global markets. By embedding SMA deeply into their strategic processes, these firms demonstrate how strategic management tools can be harnessed to achieve lasting competitive advantage and operational excellence.

RQ 2: Do technology, information, people, or government policies influence the adoption and use of strategic management accounting among Australian manufacturing firms?

H2: Strategic management accounting has a significant effect on technology.

The findings of this study provided compelling evidence of a significant positive relationship between Strategic Management Accounting (SMA) and technology, as indicated by the statistical analysis (p -value = 0.000). A path coefficient of 0.826 and a t -statistic of 57.281 highlight the substantial influence of SMA on technology adoption and integration, particularly within Australian manufacturing firms.

This result underscores the critical role of technology in the effective implementation of SMA practices among Australian manufacturers. Advanced technological capabilities enable the collection, processing, and analysis of vast datasets, ensuring SMA's strategic relevance in a competitive, data-driven manufacturing environment. Modern SMA tools, such as Activity-Based Costing (ABC), Balanced Scorecards (BSC), and Environmental Management Accounting, rely heavily on digital technologies to analyze and manage critical information efficiently.

For Australian manufacturers, SMA information is predominantly generated through sophisticated software systems. Regular updates to these systems ensure that SMA tools remain effective in addressing the challenges of evolving market conditions. Furthermore, fully digitized operations and employees equipped with knowledge of SMA-related IT applications enable manufacturers to maximize the benefits of these technologies. This robust technological infrastructure enhances the performance of SMA tools and their integration into strategic decision-making processes.

These findings align with previous research. For instance, Said et al. (2012) highlighted how technology improves SMA efficiency by facilitating the seamless flow of financial and non-financial information. Similarly, Puspitawati and Susanto (2018) emphasized the role of technological infrastructures, such as Enterprise

Resource Planning (ERP) systems, in aligning SMA practices with strategic and operational objectives. ERP systems, widely adopted by Australian manufacturers, streamline data collection and reporting, making them critical for effective SMA implementation.

Emerging technologies, including blockchain and Industry 4.0 innovations, further enhance the strategic impact of SMA in the manufacturing sector. Blockchain improves transparency and accuracy in cost management and decision-making processes (Han et al., 2023). Simultaneously, advancements in the Internet of Things (IoT) and Artificial Intelligence (AI) empower manufacturers to adapt SMA practices to dynamic market fluctuations and complex operational challenges (Bhimani, 2020). These technologies provide real-time insights and predictive analytics, enabling manufacturers to make informed strategic decisions that enhance competitiveness.

This analysis highlights that SMA not only benefits from technological integration but also drives the adoption of new technologies within Australian manufacturing firms. By identifying opportunities for technological innovation, SMA enhances value creation and aligns technological initiatives with long-term strategic goals. The interdependence between SMA and technology underscores the need for continuous investment in technological capabilities, ensuring SMA remains a key driver of strategic success in the rapidly evolving manufacturing landscape.

H3: Strategic management accounting has a significant effect on information.

The findings of this study demonstrated a strong positive relationship between Strategic Management Accounting (SMA) and information, evidenced by a path coefficient of 0.844, a t-statistic of 69.297, and a highly significant p-value of 0.000. These results highlight the essential role of information in successfully implementing

SMA practices and its critical influence on strategic decision-making processes, particularly within Australian manufacturing firms.

SMA-generated information serves as a foundation for effective business decision-making in Australian manufacturers. By synthesizing both financial and non-financial data, SMA provides actionable insights that enable managers to make informed strategic decisions. This is particularly evident in key areas such as market analysis, customer profitability assessment, and cost management. SMA's ability to convert complex data into practical formats allows decision-makers to respond swiftly and efficiently.

In Australian manufacturing firms, SMA fosters seamless coordination between strategic decision-making and accounting functions. This collaboration ensures that decisions are not only aligned with organizational strategies but also financially sound. For example, accounting teams can leverage SMA insights to align budgets with strategic goals, optimize resource allocation, and minimize financial risks.

SMA also plays a pivotal role in capital investment decisions, helping manufacturers reduce unnecessary expenditures. By utilizing tools such as cost-benefit analysis, Balanced Scorecards (BSC), and Environmental Management Accounting, Australian manufacturers can evaluate the long-term risks and benefits of investment opportunities. This strategic evaluation reduces wasteful spending, enhances returns on capital investments, and supports sustainable growth.

A key strength of SMA lies in the clarity and usability of the information it provides. Australian manufacturers benefit from SMA tools that present complex datasets in straightforward, actionable formats, empowering managers at all levels to

interpret and apply the information effectively. This ease of use accelerates decision-making processes and ensures decisions are accurate and strategically aligned.

The importance of SMA information in manufacturing is well-supported by literature. Guilding et al. (2000) emphasize that SMA's integration of market and competitor analysis leads to more informed strategic decisions. Abdel-Kader and Luther (2006) highlight SMA's capacity to synthesize internal and external data, enabling organizations to align their strategies with changing market conditions. Said et al. (2011) further demonstrate how SMA improves organizational responsiveness by enhancing information flow and reducing uncertainty in decision-making.

Australian manufacturers are increasingly leveraging SMA information to identify and seize strategic opportunities. This includes optimizing supply chain operations, strengthening customer relationships, and navigating complex market dynamics. Emerging technologies such as advanced analytics and artificial intelligence (AI) further amplify SMA's ability to process vast amounts of data, ensuring its relevance in the ever-evolving manufacturing landscape.

H4: Strategic management accounting has a significant effect on people.

The findings of this study reveal a significant positive relationship between Strategic Management Accounting (SMA) and people, evidenced by a path coefficient of 0.841, a t-statistic of 62.338, and a p-value of 0.000. These results underscore the critical role of human resources, leadership, and organizational culture in the successful implementation and effectiveness of SMA. Aligning SMA practices with people-related factors ensures that the tools and frameworks of SMA are effectively translated into actionable insights and measurable outcomes.

In the context of Australian firms, the alignment between SMA and people is essential for seamlessly integrating strategic accounting practices into organizational workflows. These firms actively support SMA policies and perform SMA functions to align business goals with actionable strategies. Leadership plays a pivotal role, with top management in Australian companies deeply involved in the planning, implementation, and execution of SMA initiatives. This reflects the importance of leadership in bridging strategic intent with operational execution.

Moreover, Australian firms prioritize making SMA information readily accessible to decision-makers, ensuring it guides organizational strategy effectively. Leadership and organizational culture are instrumental in promoting the value of SMA, fostering collaboration, and equipping employees to utilize its tools effectively. By cultivating a culture of strategic thinking and innovation, Australian firms enable employees to actively participate in SMA implementation, turning strategic objectives into tangible business results.

The literature supports the significant role of people in the success of SMA. Cinquini and Tenucci (2007) emphasize the importance of human resources in facilitating SMA, highlighting the need for employee training, collaboration, and alignment with organizational goals. Effective SMA practices depend on employees' ability to understand and apply SMA tools, underscoring the necessity of ongoing training and development programs.

Hadid and Al-Sayed (2021) further highlight the importance of leadership and supportive organizational culture in overcoming resistance to change and driving the adoption of SMA practices. Leaders play a crucial role in translating strategic intent into operational outcomes by aligning teams around SMA objectives and ensuring employees have the necessary resources and expertise to succeed.

Cultural shifts are also essential for effective SMA implementation. A culture that prioritizes innovation and strategic thinking facilitates the seamless integration of SMA into daily operations. For Australian firms, fostering such a culture is vital for leveraging SMA to achieve long-term strategic goals.

These findings, along with supporting evidence, emphasize that people are central to the successful implementation of SMA. Australian firms exemplify this by involving top management in SMA planning and execution, ensuring the accessibility of SMA information, and fostering a collaborative and supportive organizational culture. This alignment between SMA and people-related factors enhances the strategic value of SMA, enabling firms to achieve their objectives effectively. To sustain SMA's effectiveness in dynamic business environments, future efforts should focus on continuous investment in leadership development, employee training, and cultural initiatives.

Mediation analysis

H5: Technology mediates the strategic management accounting and performance.

The results of this study indicated that technology does not mediate the relationship between Strategic Management Accounting (SMA) and performance, as evidenced by a path coefficient of 0.137, a t-statistic of 1.8, and a p-value of 0.072, which falls short of statistical significance. This suggests that while technology plays a role in organizational processes, its influence does not bridge the connection between SMA and performance as initially hypothesized. Similar findings in previous studies highlight that the anticipated impact of technology can be undermined by factors such as inadequate implementation, resistance to change, or a lack of alignment between technological tools and the organization's strategic objectives.

Studies in this domain have reported mixed results regarding the mediating role of technology in the SMA-performance relationship. For instance, Petera, et al. (2019) found that while technology facilitates SMA by enabling data processing and real-time analysis, its impact on performance is contingent upon organizational readiness and the strategic integration of technological tools. In cases where technology adoption lacks proper alignment with strategic goals, the benefits remain marginal.

Additionally, research by Pavlou and El Sawy (2010) highlights those dynamic capabilities, including technology adoption, may fail to enhance performance if they are not effectively embedded within an organization's decision-making framework. Insufficient employee training, lack of top management support, and a failure to adapt to rapidly evolving technological landscapes can all reduce the effectiveness of technology in mediating SMA's impact on performance.

The insignificant mediation result in this study could stem from organizational readiness or the lack thereof, where firms do not adequately prepare for technology integration through training employees or aligning processes. Resistance among employees and managers to adopting new technologies can further hinder the effective use of SMA systems, reducing their ability to drive performance improvements. Furthermore, when technological tools are not aligned with the firm's strategic objectives, their impact on performance becomes limited. This misalignment often leads to suboptimal use of resources and diminished efficiency. Lastly, the complexity of implementing advanced technologies such as AI, IoT, and blockchain often requires significant investment, expertise, and time, which may not be readily available to all firms.

In the context of Australian firms, technology adoption to enhance SMA practices varies widely. While many businesses have fully computerized operations

and regularly upgrade their SMA information systems, the effectiveness of these efforts depends on employee proficiency and the strategic alignment of technology. Some Australian firms may experience challenges such as resistance to change or insufficient training, which could limit the performance benefits derived from SMA tools. Australian firms that successfully integrate SMA with technology often report advantages such as improved decision-making, better market positioning, and increased innovation.

However, firms that do not adequately invest in employee training or fail to align technological tools with strategic goals may see limited performance improvements. This underscores the importance of a holistic approach to technology adoption that includes organizational readiness, strategic alignment, and ongoing support for employees.

The findings demonstrate that the mediating role of technology in the relationship between SMA and performance is not statistically significant. Similar findings in the literature suggest that organizational readiness, resistance to change, misalignment of technology and strategy, and implementation complexity are key factors that can limit the effectiveness of technology in enhancing SMA's impact on performance. Australian firms must address these challenges by investing in employee training, ensuring strategic alignment, and fostering a culture of adaptability to maximize the benefits of technology in SMA practices. Future studies could explore how these factors influence the mediating role of technology to provide actionable insights for practitioners.

H6: Information mediates the strategic management accounting and performance.

The results of this study revealed a significant mediating role of information in the relationship between Strategic Management Accounting (SMA) and performance, with a path coefficient of 0.263, a t-statistic of 2.989, and a highly significant p-value of 0.003. These findings indicate that the ability of SMA to enhance organizational performance is fundamentally tied to the quality and availability of information. By integrating comprehensive financial and non-financial data, SMA equips organizations with the insights necessary to optimize resources, align strategies, and maintain a competitive edge.

For Australian firms, the integration of SMA with high-quality information systems has been pivotal in improving performance. SMA practices in these firms emphasize supporting business decision-making through accurate and timely information. Strategic decisions are often coordinated with the accounting department, ensuring that resource allocation aligns with organizational goals. By leveraging SMA insights, Australian firms make better capital investment decisions, which in turn reduce unnecessary capital expenditures and improve operational efficiency.

These firms heavily depend on advanced technology to generate SMA information through software systems. Regular upgrades to these systems ensure that information remains relevant and precise. Fully computerized operations and a workforce proficient in SMA IT applications further enhance the usability and reliability of SMA information, enabling Australian firms to make informed, data-driven decisions.

The reliance on SMA information allows Australian firms to outperform their competitors in various dimensions. Companies leveraging high-quality SMA

information report greater market share, faster growth, higher profitability, and stronger innovation. These advantages highlight the critical role of SMA information in enabling strategic alignment and driving long-term success.

The mediating role of information in the relationship between SMA and performance is well-supported in the literature. Guilding et al. (2000) emphasize the importance of market-oriented SMA practices, such as customer and competitor analysis, which rely heavily on the availability of high-quality information. These practices provide firms with a comprehensive understanding of their strategic position and opportunities for competitive advantage.

Said et al. (2011) further demonstrate that organizations leveraging SMA practices benefit from improved decision-making, resource optimization, and strategic alignment. The success of SMA is directly tied to the availability of timely, relevant, and accurate information, which serves as the foundation for actionable insights and strategic initiatives.

Moreover, SMA's ability to synthesize internal financial data with external market intelligence enables organizations to make holistic decisions. This integration not only enhances operational efficiency but also strengthens the strategic impact of SMA on performance.

The findings, along with evidence from Australian firms and supporting literature, demonstrate that information is a critical enabler of SMA's success in enhancing performance. By leveraging high-quality information systems, Australian firms optimize decision-making processes, align strategies, and achieve superior performance outcomes. These insights reinforce the importance of continuous

investment in SMA information systems and employee training to maintain a competitive advantage in dynamic markets.

H7: People mediate the strategic management accounting and performance.

The results of this study revealed a significant mediating role of people in the relationship between Strategic Management Accounting (SMA) and performance, with a path coefficient of 0.188, a t-statistic of 2.602, and a p-value of 0.009. These findings highlight the importance of human elements—such as skills, knowledge, commitment, and organizational culture—in transforming SMA practices into tangible performance improvements. The alignment of SMA tools and frameworks with employee efforts ensures the realization of SMA's strategic potential, ultimately driving better organizational outcomes.

The critical role of people in maximizing SMA's impact on performance is well-supported in existing research. Petera and Šoljaková (2020) emphasize that the success of SMA is heavily dependent on employees' skills, knowledge, and commitment. They further note that a culture fostering collaboration and innovation is essential for optimizing the strategic benefits of SMA.

Leaders play an integral role in ensuring that SMA practices are adopted and embraced across the organization. They are responsible for communicating SMA's value, providing training, and aligning employee efforts with strategic goals. A collaborative and strategically aligned workforce enhances the effectiveness of SMA in driving performance improvements. Additionally, SMA fosters a culture of continuous improvement, encouraging employees to align their daily activities with organizational objectives and contribute to overall performance.

In Australian firms, the human factor is critical in mediating the relationship between SMA and performance. These firms actively support SMA policies and perform SMA functions with a strong emphasis on aligning employee activities with strategic objectives. The availability of SMA information for decision-making is prioritized, and top management is deeply involved in planning and implementing SMA policies to ensure alignment between strategy and operations.

Australian businesses invest in fostering an organizational culture that promotes collaboration, innovation, and strategic alignment. By ensuring that employees have sufficient knowledge of SMA IT applications, Australian firms empower their workforce to effectively leverage SMA tools and frameworks. These efforts create a workforce that is capable of using SMA insights to solve complex business problems, optimize resource allocation, and drive innovation.

The outcomes of such alignment are evident in the superior performance of Australian firms. Compared to competitors, these companies often exhibit greater market share, faster growth, higher profitability, and stronger innovation capabilities. The integration of SMA practices with human resources strengthens the strategic foundation of Australian firms, enabling them to adapt to dynamic market conditions and maintain a competitive edge.

The findings, supported by literature and evidence from Australian firms, demonstrate that people are a critical enabler of SMA's impact on performance. Skills, knowledge, commitment, and a culture of collaboration and innovation ensure that SMA tools and frameworks are effectively implemented and utilized. Australian firms exemplify the importance of integrating SMA with human capital to drive superior performance outcomes. Continuous investment in leadership development, employee

training, and cultural initiatives will further enhance SMA's strategic impact, ensuring long-term organizational success.

Moderation analysis

RQ3: Does government policy moderate the relationship between strategic management accounting and the performance of Australian manufacturing firms?

H8: Government policy moderates the Strategic Management Accounting and Performance.

The findings of this study revealed that government policy does not moderate the relationship between Strategic Management Accounting (SMA) and performance, as indicated by a non-significant p-value of 0.914 and a negligible path coefficient of -0.005. This result suggests that government policies do not significantly influence the effectiveness of SMA in driving performance, which contradicts previous studies that have highlighted the importance of regulatory frameworks in shaping organizational strategies and performance.

Prior literature has emphasized the role of government policies in encouraging the adoption of SMA practices. For example, Odia (2019) and Aziz (2012) identified how policies related to taxation, sustainability, and corporate governance promote transparency and accountability, which theoretically enhance the integration of SMA into strategic processes. However, this study aligns with findings from Chuol, et al. (2021), which observed that government regulations did not significantly moderate the relationship between strategic planning practices and financial performance among SMEs in Juba, South Sudan. These results suggest that in certain contexts, government

policies may not play a direct moderating role in enhancing the effectiveness of strategic management practices.

One explanation for these findings is that internal organizational factors, such as leadership, corporate culture, and resource capabilities, may exert a stronger influence on the SMA-performance relationship than external government interventions. Furthermore, industry-specific dynamics and regional regulatory environments may vary significantly, affecting the degree to which government policies are relevant to SMA implementation. In the case of Australian manufacturing firms, low adoption levels of SMA might limit the impact of government policies on the SMA-performance link. Additionally, survey participants may have found it difficult to isolate government policies specifically related to SMA, leading to a perceived lack of significance in the moderating role of such policies.

The findings indicate that Australian manufacturing firms may not rely heavily on government policies to enhance the effectiveness of SMA practices in improving performance. While the Australian government addresses broader business needs, such as providing accountancy training programs, facilitating relationships with private agencies, and simplifying procedures for expanding capital, these measures may not be directly aligned with SMA practices. Instead, Australian firms may focus on leveraging internal capabilities, such as skilled leadership, employee training, and technological infrastructure, to maximize the effectiveness of SMA.

That said, government policies can still play a supporting role in creating an environment conducive to SMA adoption. For example, business advisory services and simplified capital expansion procedures can indirectly contribute to the resources and capabilities needed for effective SMA implementation. Firms should consider

these policies as complementary rather than primary drivers of SMA's impact on performance.

The absence of a moderating effect of government policy on the relationship between SMA and performance raises important questions about the role of external factors in strategic accounting practices. It suggests that Australian firms need to focus less on awaiting regulatory support and more on leveraging internal capabilities such as leadership development, employee training, and the integration of advanced technologies.

These findings challenge policymakers to design more targeted and industry-specific policies that address the unique challenges and opportunities related to SMA adoption. For firms, the priority should be building resilience and adaptability, ensuring that SMA practices are embedded into their core strategic framework irrespective of external support. Future research should delve deeper into understanding the interplay between internal organizational factors and selective, high-impact government interventions that can indirectly influence SMA effectiveness in different contexts.

5.3 Contribution of Study

5.3.1 Theoretical Contribution

This study contributes significantly to the accounting discipline by integrating Contingency Theory, Dynamic Capabilities Theory, and Stakeholder Theory to examine how specific Strategic Management Accounting (SMA) practices—such as activity-based costing (ABC), target costing, performance measurement systems (PMS), and competitor analysis—impact firm performance in the Australian

manufacturing context. It uniquely explores how these accounting practices are enhanced or constrained by dynamic internal resources (technology, information quality, and skilled personnel) and influenced by stakeholder engagement and regulatory context.

Building on Contingency Theory, the findings support the view that the effectiveness of SMA tools (e.g., ABC or strategic budgeting) depends heavily on their alignment with firm-specific operational structures and environments. The study reveals that firms with mature accounting information systems and strong human capital in financial planning achieve better integration of SMA into decision-making. It also finds that external government policy does not directly enhance performance through SMA, reinforcing the theory's central premise that internal contextual fit is more critical than external alignment (Cadez & Guilding, 2008).

Through the lens of Dynamic Capabilities Theory, the study expands on how accounting-based strategic practices such as benchmarking, life-cycle costing, and value chain analysis are operationalized using internal enablers. It shows that the firms with advanced ERP systems and data analytics are better able to update cost structures and forecasts dynamically—thus adapting faster to market pressures. This builds on the theory by identifying specific SMA applications as vehicles through which firms develop adaptive capacity and achieve sustainable advantage (Tawse & Tabesh, 2021).

In terms of Stakeholder Theory, the research examines the broader implications of regulatory expectations and shareholder demands on SMA adoption. While government policies were not found to significantly moderate performance outcomes, the study provides insight into how stakeholder transparency (through SMA tools like strategic performance measurement or environmental accounting) can indirectly influence decision-making. For instance, some firms adopted integrated reporting and

social impact accounting in response to stakeholder concerns, which, while not improving short-term profits, contributed to long-term stakeholder alignment (Shamil et al., 2022).

In conclusion, this research offers a more accounting-centered contribution by demonstrating how specific SMA tools interact with dynamic capabilities and contingency-fit, thus refining and extending the practical application of these theories in the field of strategic management accounting in manufacturing firms.

5.3.2 Practical contributions

This study presents practical contributions aimed at enhancing strategic management accounting applications in Australian manufacturing firms by focusing on the integration of specific accounting tools with internal enablers. Rather than treating SMA generically, the research identifies key techniques—including activity-based costing (ABC), value chain analysis, balanced scorecard (BSC), and strategic variance analysis—and evaluates how their effectiveness is influenced by firms' technological, informational, and human capabilities.

First, firms are advised to embed SMA tools into their operational systems. For example, ABC should be integrated with ERP platforms to allow real-time cost tracing, helping managers to identify non-value-adding activities and optimize production. Target costing and benchmarking can also be improved through digital dashboards and AI-driven pricing models, enhancing competitiveness and strategic alignment.

Information quality was found to be a key enabler. Firms must ensure that accounting systems are not only technically functional but also generate strategic insights, such as cost-to-serve analysis and predictive financial models. Data warehouses and financial analytics should be tailored to support SMA functions like profitability analysis by segment or customer class. To this end, data literacy training for accounting teams is essential.

Workforce capability remains a cornerstone of effective SMA. Beyond general training, firms should invest in upskilling accountants and finance staff to master strategic tools like balanced scorecard implementation, life cycle costing, and economic value added (EVA). Upskilling must focus on strategic thinking and cross-functional collaboration to link accounting outputs with broader business goals.

While government policy was not found to be a significant direct moderator, institutional support plays a vital complementary role. Regulatory bodies and industry associations should encourage SMA adoption through sector-specific accounting frameworks, such as reporting templates aligned with sustainability targets or global supply chain requirements. Policymakers may also support capacity-building grants aimed at integrating advanced SMA systems, especially in SMEs.

Finally, firms should implement internal audit and review protocols to evaluate the effectiveness of SMA tools in real-time. Performance metrics should be tracked at both operational and strategic levels using accounting dashboards, facilitating continuous improvement and strategic recalibration.

In summary, the practical implications of this research lie in its concrete recommendations for embedding strategic accounting techniques within dynamic resource environments. This approach moves beyond generic variables and

contributes to actionable strategies that can lift both accounting performance and business competitiveness in the Australian manufacturing sector.

5.4 Limitations of the study

Despite contributing valuable theoretical and practical implications, this study has several limitations that must be acknowledged. These limitations not only contextualize the findings but also highlight areas for further research to address unresolved questions and improve the robustness of future studies.

Firstly, the survey questionnaire was distributed to 5,000 participants, but only 400 responses were obtained, resulting in a response rate of 8%. While this sample size was sufficient for the statistical analyses conducted, the relatively low response rate raises questions about the generalizability of the findings. Non-response bias may have influenced the results, as individuals who did not respond may have differed in important ways from those who did. This limitation suggests that the method of survey distribution may not always be the most appropriate approach for gathering data in similar contexts. Future studies could explore alternative data collection methods, such as targeted interviews or mixed-method approaches, to achieve a more representative sample and gain deeper insights into the variables under investigation.

Secondly, some findings of this study were contrary to those reported in the existing literature, particularly in the areas of technology's mediating role and government policy's moderating effect on the SMA-performance relationship. While the study provided potential explanations for these inconsistencies, such as contextual differences or variations in organizational practices, these remain speculative. The lack of clarity regarding these discrepancies limits the ability to draw definitive conclusions

and calls for further research to explore these relationships in more depth. Comparative studies across different industries or geographic regions could shed light on whether these results are unique to the Australian manufacturing sector or indicative of broader trends.

Thirdly, the absence of a mediating effect of technology on the SMA-performance relationship and the moderating effect of government policies is particularly notable, as it contradicts the findings of many prior studies. Technology is widely recognized as a critical enabler of SMA practices, and government policies are often considered influential in shaping organizational strategies.

The reasons behind these non-significant findings are not fully understood and could be related to factors such as low adoption levels of SMA practices in Australian manufacturing firms, insufficient alignment between technology and strategic goals, or challenges in isolating the specific impact of government policies on SMA. These complexities underscore the need for future studies to investigate these relationships further, possibly using longitudinal data or qualitative methods to capture the nuanced dynamics at play.

Additionally, while the study utilized a comprehensive survey design, the reliance on self-reported data may have introduced response biases, such as social desirability bias or subjective perceptions, which could affect the accuracy of the findings. Cross-validation of survey results with objective performance metrics or secondary data sources could enhance the reliability of future research.

5.5 Suggestions for further research

The findings of this study, while providing valuable insights, differ in some respects from those reported in previous research. These differences underscore the need for further investigation into the relationships between Strategic Management Accounting (SMA) and the mediating and moderating variables examined in this study. Future research should focus on understanding the factors contributing to the unexpected findings, including the non-significant mediating role of technology and the non-significant moderating effect of government policy.

Examining interactive effects, such as synergistic relationships between SMA components (e.g., technology, information, and people), could provide deeper insights into how these variables interact to influence performance. This line of inquiry may help elucidate the reasons behind some of the atypical results obtained in this study.

This study was conducted exclusively in the context of Australian manufacturing firms, which limits the generalizability of the findings. Future research should aim to expand the scope to include firms from different sectors, such as services, retail, and healthcare, to determine whether the relationships observed in this study are sector-specific or applicable across industries. Additionally, extending the research to other geographic regions, including both developed and developing countries, could provide valuable insights into how cultural, regulatory, and market differences influence SMA practices and their impact on performance.

Moreover, further exploration of under-researched aspects of SMA could help clarify its role in organizational contexts. For example, SMA might be a prerequisite for the survival of firms operating in highly competitive or volatile markets. In such

cases, performance improvement may not be the primary objective of SMA implementation. Investigating whether SMA is used solely as a survival mechanism in certain firms and examining its impact on long-term strategic resilience would provide a more nuanced understanding of its application.

This study did not explore whether any of the 400 surveyed Australian manufacturing firms employed SMA primarily for survival purposes, an area that warrants further investigation. Additionally, it is possible that firms using SMA for survival may still achieve performance improvements as a byproduct of enhanced decision-making and operational efficiency. Future research could explore these scenarios in greater depth to provide a holistic view of SMA's role in different organizational contexts.

Another avenue for further research is to critically evaluate the theoretical frameworks applied to the SMA-performance relationship. While this study drew on Contingency Theory, Dynamic Capabilities Theory, and Stakeholder Theory, future research could focus on narrowing down and refining the theories most relevant to SMA practices.

For example, comparative studies could assess the explanatory power of different theories in diverse contexts to determine which frameworks are most effective in explaining the SMA-performance relationship. Additionally, studies that integrate or develop new theoretical perspectives could provide innovative insights into the factors that shape SMA effectiveness.

Lastly, further research should emphasize the practical implications of SMA findings to guide firms seeking to implement these practices for performance improvement. Case studies and longitudinal research examining the real-world

application of SMA practices in organizations could bridge the gap between theory and practice. Such research would help identify best practices, potential challenges, and strategies for overcoming barriers to SMA implementation. Practical insights derived from these studies could serve as a valuable resource for firms aiming to optimize their use of SMA tools and frameworks to achieve strategic and operational excellence.

In summary, future research should focus on addressing the discrepancies observed in this study, expanding the scope of analysis to different sectors and regions, exploring under-investigated aspects of SMA, refining theoretical frameworks, and emphasizing practical applications. By doing so, researchers can provide a more comprehensive understanding of SMA's role in organizational performance and offer actionable guidance for both academics and practitioners.

5.6 Conclusions

This study aimed to investigate the impact of Strategic Management Accounting (SMA) among Australian manufacturing firms and evaluate how SMA could improve their performance, ultimately contributing to the manufacturing sector's enhanced role in the national GDP. The impetus for this research arose from national data indicating a declining contribution of the manufacturing sector to GDP and a correspondingly low level of SMA adoption. Understanding whether the limited adoption of SMA a contributing factor to the sector's decline is and how this situation can be reversed through increased adoption formed the core motivation of this research.

The declining contribution of manufacturing to Australian GDP necessitates a deeper examination of the role of SMA in addressing this issue. The research posited that SMA adoption could potentially lead to improved firm performance, thereby encouraging firms to integrate SMA practices more extensively. However, for this hypothesis to hold, it was critical to establish that SMA adoption is linked to performance improvements. Furthermore, it was hypothesized that factors such as technology, information, and people play critical roles in motivating and enhancing the adoption of SMA practices.

To explore these relationships, four research questions, corresponding objectives, and eight hypotheses were formulated. The study employed a survey methodology involving 400 Australian manufacturing firms to test these hypotheses. The results validated six hypotheses, while the remaining two were not supported. These findings provide empirical evidence that SMA influences performance, with information and people mediating the SMA-performance relationship. However, the hypothesized roles of technology as a mediator and government policy as a moderator were not supported, indicating contextual nuances that warrant further investigation.

The findings highlight that SMA adoption, supported by effective use of technology, information, and people, can significantly enhance firm performance. This, in turn, has the potential to increase the manufacturing sector's contribution to the national GDP.

The validated hypotheses affirm that SMA adoption is not only a tool for operational efficiency but also a strategic enabler when integrated with dynamic organizational resources. Information and people, as mediating factors, are particularly critical for maximizing the impact of SMA on performance. These findings align with

existing literature while adding new insights into the context of Australian manufacturing firms.

While the findings are largely consistent with prior research, this study also identified areas requiring further investigation. The non-significant role of technology as a mediator and government policy as a moderator challenges assumptions in the literature, suggesting that these factors may operate differently in specific contexts, such as the Australian manufacturing sector. These results underscore the importance of considering industry-specific dynamics, organizational readiness, and external environmental factors when evaluating the effectiveness of SMA practices.

This study makes important contributions to both theory and practice. Theoretically, it provides empirical support for the roles of technology, information, and people in enhancing the effectiveness of SMA. It also reinforces the contextual nature of SMA adoption, as highlighted by Contingency Theory, and the critical role of dynamic resources, as posited by Dynamic Capabilities Theory. Practically, the findings provide actionable recommendations for Australian manufacturing firms to strategically integrate SMA with these dynamic resources to achieve performance improvements.

In a nutshell, the research findings demonstrate that Australian manufacturing firms can enhance their performance by increasing their levels of SMA adoption through strategic integration of technology, information, and people. Improved performance within the manufacturing sector has the potential to reverse its declining contribution to the national GDP, thus achieving the primary aim of this study. However, the extent to which these findings can be generalized across different sectors and geographic contexts requires further research. Future studies should build on this foundation to explore the interplay of SMA practices, mediating factors, and external

influences in diverse organizational and national settings, providing deeper insights into the transformative potential of SMA in driving economic and organizational performance.



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APPENDICES

Screening question: How many years since your firm is using any SMA technique:
less than 3 years/3 years or more (Please tick what applies to you).

Less than three years- Thank you for your interest in the survey. We are sorry that
access to the questionnaire is denied, as your firm has been practising SMA only for
less than 3 years,

3 years or more- Please proceed to the questionnaire.

Appendix 1 SECTION A: BACKGROUND INFORMATION

3. Gender: (Please tick what applies to you)

1. Male

2. Female

4. Age:

1. Below 35 years old

3. Over 50 years old

2. 35 - 50 years old

5. Professional qualification

(Please give your professional qualification here):

6. Experience in the current organisation

(Please provide the number of years completed, even if it is the same as above):

7. Current position in the organisation- (Please give your current official designation):

8. Manufacturing Sector (Please provide the industry sector to which your organisation belongs):



9. Size of Organisations (Please tick what applies to you)

<input type="checkbox"/>	1. Medium
<input type="checkbox"/>	2. Large

10. Ownership Status (Please tick what applies to you)

<input type="checkbox"/>	1. Private
<input type="checkbox"/>	2. Public

11. Australian State Located (Please mention the state in which your company is located. If located in more than one state, please list all of them):

12. To what extent does your company (or business unit) use the following strategic management accounting techniques?

Please tick (√) on a scale of 1=Never, 2-Rarely, 3-Occasionally, 4-Frequently, 5-Always.

No		Never	Rarely	Occasionally	Frequently	Always
1	Attribute costing					
2	Life-cycle costing					
3	Quality costing					
4	Target costing					
5	Value chain costing					
6	Activity-based costing					
7	Benchmarking					
8	Balanced Scorecard					
9	Strategic cost management					
10	Strategic pricing					
11	Brand valuation					
12	Competitor cost assessment					
13	Competitor position monitoring					
14	Competitor performance appraisal					

15	Customer profitability analysis					
16	Lifetime customer profitability analysis					
17	Valuation of customers as assets					

Please tick (√) on the appropriate box.

Strongly disagree	disagree	Neutral	agree	Strongly agree
1	2	3	4	5

Appendix 2

Section B		Strategic Management Accounting				
		1	2	3	4	5
1	We have been using strategic accounting management in our business for many years.					
2	We have experience in strategic accounting management discipline.					
3	We always provide feedback to the management and employees during the strategic management accounting implementation.					
4	We understand the implementation of strategic management accounting.					
5	We solve most of our company's problems through strategic management accounting information.					

Appendix 3

Section C		Technology				
		1	2	3	4	5

1	Our strategic management accounting information is generated by software system.					
2	We always do the upgrading of the strategic management accounting information system.					
3	Technology can provide the inducements in improving strategic accounting information performance.					
4	Our business is fully computerized.					
5	All the employees have sufficient knowledge in strategic management accounting IT application.					

Appendix 4

Section D						
Information		1	2	3	4	5
1	We always use strategic management accounting information to support our business's decision-making.					
2	We always make strategic decisions in coordination with the accounting department's employees.					
3	A good strategic management capital investment information decision can reduce the firm's capital expenditure.					
4	Strategic accounting information has a positive effect on our business decision-making.					
5	Strategic management accounting information is easy to use to support the decision-making process.					

Appendix 5

Section E						
People		1	2	3	4	5
1	We support strategic management accounting policy.					
2	We perform strategic management accounting functions.					
3	We ensure that strategic management accounting information is always available whenever it is needed for decision-making.					

4	Our company's top management involves in planning the strategic management accounting policy in the organisation.					
5	We involve in implementing and executing strategic management accounting in the organisation.					

Appendix 6

Section F						
Government policy		1	2	3	4	5
1	The Australian government always pay attention to our business needs.					
2	The Australian government always provides accountancy training programs and seminars for businesses.					
3	The Australian government provides access for useful relationship with private agencies.					
4	The Australian government provides business advisory service when we need them.					
5	The Australian government always provides easy procedures when we need to expand our business capital.					

Appendix 7

Section G						
Company Performance		1	2	3	4	5
1	Compared to our key competitors our company is more successful.					
2	Compared to our key competitors our company has a greater market share.					
3	Compared to our key competitors our company is growing faster.					
4	Compared to our key competitors our company is more profitable.					
5	Compared to our key competitors our company is more innovative.					