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THE IMPACT OF STRATEGIC MANAGEMENT ACCOUNTING ON IMPROVING THE EFFICIENCY OF MANUFACTURING FIRMS

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A B S T R A C T

The aim of this paper was to review the impact of strategic management accounting (SMA) on improving the efficiency of manufacturing firms. SCOPUS, EBSCO and WoS databases were searched for relevant literature, and 21 papers were finally selected for a review. The results found that the relationship between SMA and performance of manufacturing firms is influenced by many contingency factors. The decision to adopt and use SMA is the first step to improving performance. Then, there is a need to determine what types of SMA techniques to be used. This is dependent on what strategy the company wants to pursue. Having decided to use it, the firm goes through the four processes of SMA adoption leading to performance. This research has implications for manufacturing firms looking to adopt SMA to improve their performance.

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1. INTRODUCTION

Strategic management is defined as the process of evaluation, planning, and implementation designed to maintain or improve competitive advantage. The process of evaluation is concerned with the assessment of the external and internal environments (Sammut-Bonnici, 2015). Some other definitions shared by Avishkita (2023) without specifying the source are:

Strategic Management is a stream of decisions and actions which lead to the development of an effective strategy or strategies to help achieve corporate objectives.

The Strategic Management process is how strategists determine objectives and make strategic decisions. Strategic Management can be found in various types of organizations, businesses, services, cooperatives, government, and the like.

Strategic management is an ongoing process that evaluates and controls the business and the industries in which the company is involved; assesses its competitors and sets goals and strategies to meet all existing and potential competitors; and then reassesses each strategy annually or quarterly [i.e., regularly] to determine how it has been implemented and whether it has succeeded or needs replacement by a new strategy to meet changed circumstances, new technology, new competitors, a new economic environment, or a new social, financial, or political environment.

In this paper strategic management accounting (SMA) is considered. Some definitions of this term tabulated by Pires, Alves, and Rodrigues (2015) are given below in Table 1.

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Table 1. Some definitions of strategic management accounting

Source	Definition
Simmonds (1981, p. 26)	"the provision and analysis of management accounting data about a business and its competitors for use in developing and monitoring business strategy"
Bromwich (1990, p. 28)	"the provision and analysis of financial information on the firm's product markets and competitors' costs and costs structures and the monitoring of the enterprise's strategies and those of its competitors in these markets over a number of periods"
Roslender and Hart (2003, p. 255)	"SMA is identified 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"
Agasisti et al. (2008, p. 2)	"the identification of a set of information to support strategic decisions"
Langfield-Smith (2008, p. 206)	"SMA entails taking a strategic orientation to generation, interpretation and analysis of management accounting information, and competitors' activities provides the key dimension for comparison"
Tillmann and Goddard (2008, p. 80)	"SMA can broadly be defined as being the use of management accounting systems in supporting strategic decision making"
Ma and Tayles (2009, p. 474)	"the body of management accounting concerned with strategically orientated information for decision making and control"

The definitions differ according to the perceptions of their authors. Simmonds stressed competitor analysis for use in developing and monitoring business strategy. An almost similar focus on market as the basis for the competition was attempted by Bromwich. For Roslender and Hart, it was a generic approach for strategic positioning. SMA as a useful tool for strategic decisions was visualised by Agasisti and Tillmann &Goddard. To this control was added by Ma & Tayles. For Langefield-Smith, it was strategic orientation. The only converging point of all definitions is its use in strategy determination. So, it could be said that SMA drives strategy.

The four stages of strategic management which can impact to improve of the efficiency of manufacturing firms are strategic evaluation, planning strategic activities, implementation of the planned strategies, and measuring the effectiveness of the implemented strategies.

The strategic evaluation consists of internal and external environment analysis. Internal analysis of resources is done to combine them to develop capabilities of innovative technology products, reducing the time to market, creating more efficient distribution channels, and retail outlets, capturing the consumer's attention through marketing, and managing customer relationships for long-term brand loyalty, using the company's resources. These capabilities are converted to core competencies. Although the external environment is beyond the control of the firm, they also need to be evaluated. These include the PESTEL (political, economic, social, technological, environmental and legal) factors. To this list, ecological, demographical, ethical, and regulatory factors are also added. Different types of strategies can be used. They include business strategies, corporate strategies, competitive strategies, international strategies, collaborative strategies and mergers and acquisitions. These four stages of strategic management are presented in Figure 1, sourced from Sammut-Bonnici (2015).

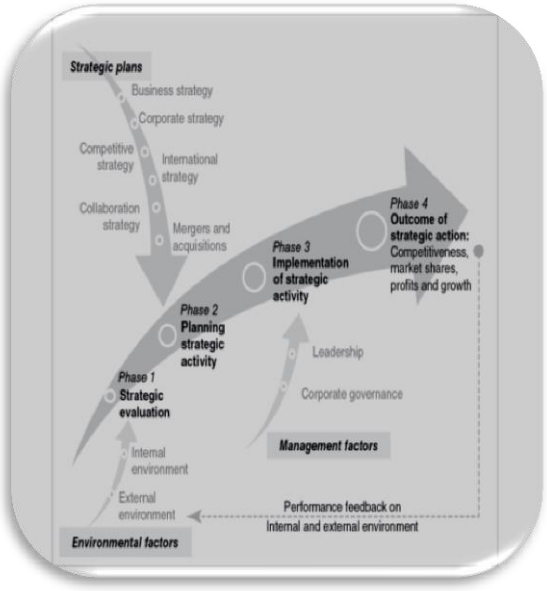


Figure 1. The different stages of strategic management (Sammut-Bonnici, 2015)

Different tools are used for the implementation of the above stages. These tools are parts of SMA. The tools required for different aspects of SMA are tabulated in CGMA (2013). These tools are presented in Figure 2.

Management accounting category	Tool
Governance and risk management	The CIMA Strategic Scorecard®
	Enterprise Risk Management (ERM)
	Risk Heat Maps
	CGMA Ethical Management Reflection Checklist
Strategic planning and execution	Strategic Planning Tools – including mission and vision statements, goals and objectives, SWOT, PEST
	The Balanced Scorecard – including operational dashboards
	Strategy Mapping
	Porter's Five Forces of Competitive Position Analysis
Performance management and measurement	KPIs – financial and non-financial
	Benchmarking
	The Performance Prism
Planning and forecasting	Rolling Plans and Forecasts
	Activity-Based Budgeting (ABB)
	Scenario and Contingency Planning
	Cash Flow Modelling
Product and service delivery	Activity-Based Costing (ABC)
	Lean
	Quality Management Tools – including TQM, Six Sigma, Cost of Quality and EFQM
Value recognition	Value Chain Analysis
	Customer Relationship Management (CRM)

Figure 2. Tools used for different SMA strategies (CGMA, 2013)

Therefore, when the impact of SMA on performance improvement is to be evaluated, the use of these strategic phases and SMA tools needs to be evaluated. Using this logic, this systematic review aims at-

a) Evaluation of internal and external environments of manufacturing firms affecting their performance.
b) Evaluation of the implementation of the four stages of strategic management.
c) Evaluation of the appropriate use of tools for specific SMA strategies.

Papers for this review were selected based on the above three aims. The methodology used for the selection of papers is described below.

2. METHODOLOGY

SCOPUS, EBSCO and WoS databases were searched using the search terms in the above three aims. Only papers published in English were selected. PRISMA method of screening and selecting papers were used. The PRISMA diagram for these processes is shown in Figure 3. Finally, 21 papers were selected for this review.

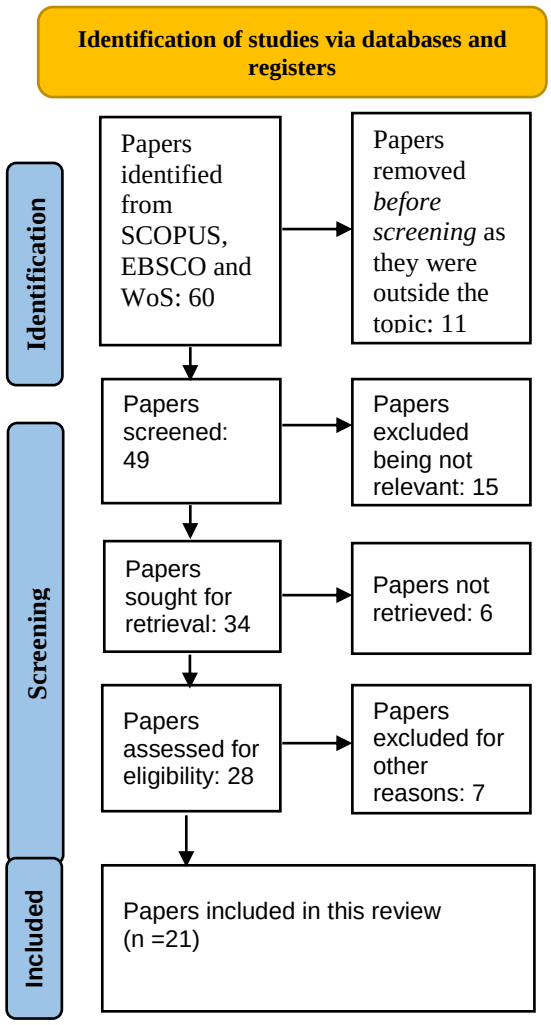


Figure 3. PRISMA diagram

The results are presented in the appropriate sections below. Relevant details filled in Excel sheets were used to derive some quantitative and qualitative common trends of the reviewed papers.

3. RESULT

3.1 Internal and external environments

Cescon, Costantini, and Grassetti (2019) examined the relationship between choices and the use of SMA techniques in large manufacturing companies and investigated whether external factors such as environmental uncertainty and competitive forces affect the SMA system. A survey of accounting staff from 55 large Italian manufacturing firms revealed that SMA usage did not depend on strategy type and only marginally depended on geographic orientation nationally or internationally. The SMA techniques reviewed were as shown in Table 2.

Table 2. SMA technique categories and techniques (Cescon, Costantini, & Grassetti, 2019).

SMA technique categories	Technique
Strategic costing	Attribute costing Target costing Life cycle costing Quality costing Value chain costing
Strategic decision making	Strategic pricing Brand valuation
Competitor accounting	Competitor position monitoring Competitor cost assessment Competitor appraisal based on published financial statements
Strategic performance measurement	Balanced scorecard Risk analysis/management

Incidentally, the scorecard method has been recommended by CGMA (2013) also. Higher importance scores were registered for strategic pricing, competitor position monitoring, balanced scorecard, risk analysis (management), and value chain costing by the surveyed firms. A majority of companies used brand valuation and competitor positioning also. On the other hand, interview results contradicted some of the survey results. In the interviews, the role of strategic costing techniques in supporting strategies based on low costs, and a positive association between international strategy and SMA usage were reported. The interview findings showed that information on strategic costing and competitor accounting was formal and structured in six of the seven large firms considered. The limitations of the study were besides the low sample size for the survey, the adoption of a dichotomous scale to measure SMA usage, a minor use in one company being equal to extensive use in another one, and the complexity involved in obtaining a reliable measure of the level of use of SMA techniques and its effect on other types of measurement errors. These limitations were addressed using suitable analytical methods.

Firms implementing corporate social responsibility (CSR) may have a competitive advantage over those which do not. The high level of public awareness about environmental issues reflects in their positive attitude towards these firms giving them significant marketing advantage. Tanc and Gokoglan (2015) found that the Turkish manufacturing firms operating in the organized industrial zone of Diyarbakır showed their social responsibility by implementing environmental accounting as a part of SMA and enjoyed this distinctive competitive advantage. Their study aimed to investigate the sensitivity of the manufacturing companies operating in the organized industrial zone of Diyarbakır to environmental issues and environmental accounting approaches within the scope of social responsibility accounting and the applicability of these concepts in the enterprises. Accounting staff of 81 out of 196 manufacturing firms in the said region were surveyed. Of these, about 63% reported incurring environmental costs and 79% invested in environmental activities. The managers were only generally aware of environmental accounting, but not how to apply it. This reduced their competitive advantage. These firms adopted environmental accounting to add value and improve the image of the company. Since the population was only 196, the survey could have covered all of them.

3.2 CG and SMA disclosure

Aimed to examine the influence of corporate governance (CG) on SMA disclosure, Honggowati, Rahmawati, and Probohudono (2017) measured the disclosure level of SMA published in the companies' annual reports according to a GRI index made by the author using board size, independent board, and managerial ownership as proxies of CG. Five years of data from 497 Indonesian manufacturing firms were analysed. The board size had a significant positive influence on the SMA disclosure levels. The proportion of independent boards did not affect SMA disclosure. Managerial ownership had a negative influence on the SMA disclosure level. Agency theory was used to conceptualise the assessment of SMA disclosure practices. Size in terms of assets, profit and leverage were used as the control variables. Limitations included the use of data samples from manufacturing companies listed in the Indonesia Stock Exchange only affecting the generalisability of the results to all companies and outside Indonesia. The SMA measurement method only used GRI4 as the base to formulate the index making it less comprehensive.

3.3 Competitive advantage

In another Nigerian study, to determine the extent to which SMA influences the competitive advantage of manufacturing firms in Nigeria, Akenbor and Okoye (2012) surveyed the chief executives, chief accountants, and marketing directors of 71 companies. Thus, 213 responses were obtained. Out of 213, 183 respondents agreed or strongly agreed that SMA improved the competitive advantage of their firms. The challenges to the adoption of SMA in these firms were lack of skilled accounting staff, high cost of implementation of SMA, inadequate understanding of the use of SMA tools, current strategic practices, absence of consensus on what is SMA, lack of management support with policies and priorities for SMA, top management lack of SMA knowledge, other workloads, shadow accounting staff, and resistance to change to SMA among employees.

3.4 Application/adoption/use of SMA techniques

According to Lord (1996) despite many papers on SMA, examples of its actual use are rare. The techniques and elements of SMA may already be in use in a few firms, but without quantification as accounting data and may not be done by management accountants. The SMA techniques required for the survival of the firm in a hostile and competitive environment may be used as a part of the operational management system. A case study of bicycle manufacturer, *Cyclemakers*, New Zealand was used to demonstrate this point. Based on discussions and the case study, the author asked whether SMA is a pre-requisite for survival in the competitive environment, a launching pad to elevate management accountants' role or the emperor's new clothes.

The overall objective of Kariuki and Kamau (2016) was to study the organizational contingencies that influence the adoption of SMA practices among Kenyan manufacturing firms. The specific objectives were to analyse and evaluate the influence of industry competition, advanced manufacturing technologies, and the life cycle stage of the firm on SMA adoption. Corresponding null hypotheses were tested. Contingency theory was used for the study framework. The results of a survey of 112 firms revealed the intensity of industry competition and the use of advanced manufacturing technology as the two significant organisational contingencies influencing the adoption of SMA among manufacturing firms in Kenya. The life cycle stage of the firm did not have any effect. The study further established that benchmarking and competitor-focused practices are the most predominant SMA practices.

Aiming to find out what accounting methods constitute SMA out of 17 techniques, Čadež (2006) surveyed 108 Slovenian manufacturing firms. The objectives were to appraise the application of a variety of SMA techniques in Slovenian manufacturing companies and to compare the application of SMA techniques across many industries within the manufacturing sector. The sampled companies used various SMA techniques. The most widely used SMA tools were capital budgeting, quality costing and competitor performance appraisal. The least widely used was the valuation of customers as assets, lifetime customer profitability analysis and life cycle costing. The highest usage rates of SMA were noted in the case of the metal products industry, followed closely by the food, beverages, and tobacco industries. The lowest SMA usage was seen in the case of textile, leather, wood, and furniture industries. Apart from the inherent limitations of surveys, the choice and operationalisation of the seventeen SMA techniques were another. Others may, with justification, use an alternative set of techniques as constituting SMA. This problem is bound to persist as conventional management accounting techniques have a longer history than SMA techniques. There is no consensus on how a listing of conventional management accounting techniques may be achieved. Similarly, due to the nascent nature of SMA literature, the standardisation of terms used in practice may be limited.

The main objective of Arithi (2001) was to find out the types and extent to which SMA was used by large manufacturing companies in Nairobi. Three objectives derived from this were: to establish the type and extent to which SMA was used in the Nairobi manufacturing sector; to identify the factors that influenced companies to adapt to SMA systems; and to establish any benefits/problems associated with using SMA. Personal interviews with 39 financial executives were done using both structured and unstructured questions. Agro-based, minerals and industrial and construction and engineering sectors were stratified in the results. Over 60% or more firms adopted strategic costing, strategic cost analysis and competitor analysis, as their SMA techniques. The main reasons for the adoption of SMA were the need to assess the business environment and the competitors' performance. The main external strategic information collected were the general economic trends, technological changes and market trend analysis. The main benefits of adopting SMA were the ability to assess the business environment and competitor performance. Inaccessibility to external strategic information and inadequate skill and training in SMA was the major challenge in implementing SMA. Limitations were responses affected by low levels of understanding of SMA, absence of any previous Kenyan research on the topic for comparison, possible questionnaire bias and time constraints.

A review of the literature on SMA (Rashid, Ali, & Hossain, 2020; Shkromyda et al., 2021; Gritsuk et al., 2020) observed that several SMA techniques such as competitor accounting, strategic pricing, benchmarking and customer accounting were highly or moderately used by many firms across the nations. Most of the other techniques were used rarely. There were differences between developed and developing countries concerning the level of adoption, contingent factors and the effects of adoption. The authors used 19 articles for this review. In the case of developing countries, no paper was found that exclusively dealt with the adoption or benefits of SMA. Most of them focused on the use of a particular SMA technique and its impact on performance. Low rates of adoption of specific SMA techniques were reported in different developing countries. PESTEL factors may account for the difference between developed and developing countries in this respect. This review had many limitations. The contention that there was no study from developing countries on SMA adoption or benefits is erroneous, as some of the papers reviewed above show. Variations exist in sample size, firm size and measurement scale of the extent of adoption among the reviewed works, so comparisons are difficult. Most of

the studies used surveys. considered in the paper are based on a questionnaire survey and other methods were not considered. The list of 17 SMA techniques may be arbitrary, as there is no consensus on what SMA is. Only 19 papers were selected, although the review was published in 2020; many more are available, as this review showed.

In a review, Langfield-Smith (2008) found that SMA techniques have not been adopted widely. The term SMA has not been widely understood or used. Some aspects of SMA had an impact on influencing how we undertake various business processes. These issues represent the wider domain of management and are not within the perspectives of management accountants only.

Petera and Šoljaková (2020) used contingency theory as contingent variables were tested in their study on the degree of SMA use and factors affecting it in 90 manufacturing firms in the Czech Republic. More specifically, answers were sought for question 1. Which SMA techniques are used the most and which the least? 2. Do companies intend to employ SMA to a greater or lesser extent in future? 3. What are the key contingent variables which influence the degree of use of SMA techniques? A review of SMA techniques used by different authors was tabulated by the authors, given in Figure 4.

Technique	Cadez and Guilding (2007; 2008)	Cescon et al. (2019)	Cinquini and Tenucci (2010)	Dmitrović-Saponja and Suljović (2017)	Guilding et al. (2000)	This study
Activity-based costing	no	no	yes	yes	no	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
Number of techniques	16	12	11	17	12	11

Figure 4. SMA techniques used by different authors (Petera & Šoljaková, 2020)

None of the authors used all techniques. Out of 26 SMA techniques listed, a maximum of 17 were used by Dmitrovic-Saponja and Suljovic (2017). The survey results showed the three most-used SMA techniques in descending order strategic planning and budgeting, customer accounting, and target costing. The least-used SMA techniques, in ascending order, were: integrated PMS like balanced scorecard, strategic pricing, and activity-based costing. The importance of customer costing and the appearance of target costing as a preferred SMA technique were pointed out. Strategic planning and budgeting is a new finding as a high-use SMA technique. The survey participants expected increased use of SMA techniques in the coming years. No influence of the contingency variables like size perceived environmental uncertainty or manufacturing industry was seen on the SMA-use index. Differentiation strategy had a positive influence on SMA use. This study has many limitations. Generally accepted limitations of survey research like the subjectivity of answers and greenwashing/giving politically correct answers were possible. There is no definitive list of all possible SMA techniques. The individual techniques are defined slightly differently in the various studies. This complicated the comparison of results and the incremental growth of knowledge. The response rate is usually quite low. Some steps need to be taken to address this problem. The study does not investigate all possible 64 contingent variables. The operationalisation of contingent variables was not unified across studies. The data were collected from Czech companies only. So, generalisations need to be made with caution.

A survey of 93 Italian manufacturing companies by Cinquini and Tenucci (2007) revealed that these firms generally used SMA techniques. Company size, industry and strategy (in the sub-dimensions of pattern, mission and positioning) were the variables considered in the exploration. The contingent variables were a strategic pattern, strategic mission, strategic positioning, company size and industry. Strategic Pattern comprised the Prospector vs. Defender comparisons of Miles & Snow, (1978). Strategic Mission consisted of Build vs. Harvest comparisons of Gupta & Govindarajan, (1984). Strategic Positioning compared Differentiation vs. Cost Leadership of Porter, (1980,1985). Company size in terms of total revenues was used. Industry included technologies and competition. The effects of these contingency variables on the adoption of 14 SMA techniques (ABC/M, Attribute Costing, Benchmarking, Competitive Position Monitoring, Competitor Cost Assessment, Competitor Performance Appraisal on public financial statements, Customer Accounting, Integrated Performance Management Systems, Life Cycle Costing, Quality Costing, Strategic Costing, Strategic Pricing, Target Costing, and Value Chain Costing) were tested. More than 50% of the sample firms reported high adoption rates of attribute costing, customer accounting and strategic pricing. Low adoption was seen for competitor cost assessment, quality costing and competitor position monitoring. Only strategic positioning weakly played a contingent role in SMA technique usage. Strategic pattern, strategic mission, company size and industry variables did not give any results. Therefore, the authors concluded that SMA techniques adoption was not strategy defined. Limitations of the study included uncertainty about the SMA concept, the difficulty to identify the management accounting techniques which are exactly strategic, ambiguity in the interpretation of the significance of

SMA and its reflection on the definition of SMA techniques, lack of knowledge about how exactly the identified SMA technique is used in the firm if SMA adoption is not strategy-driven, what other driver is possible, the possibility of the same SMA technique supporting different strategic option.

In the studies of Oyewo (2021) the extent to which innovation attributes (relative advantage, compatibility, complexity, trialability and observability) determined SMA usage intensity. Survey results obtained from 45 listed Nigerian manufacturing firms revealed that the overall usage rate of SMA as an innovation is generally moderate. But there was a significant difference in SMA usage intensity across industries in the manufacturing sector due to environmental uncertainty. Compatibility was the strongest determinant of SMA usage intensity. This implied the manufacturing firms intensely applying SMA to remain innovative, to continuously improve and to incorporate strategy in accounting practice to survive the competition. SMA can be extensively used if it aligns with competitive strategies. One limitation of the study was that measured innovation attributes treated all SMA techniques as one, but did not measure relative advantage, compatibility, complexity, trialability and observability for each of the techniques. This generalisation of the findings may not be suitable for generalisation.

3.5 Firm performance

It is generally agreed that the focus of SMA is external and long-term and assists managers in strategic decision-making. (Lay & Jusoh, 2012) investigated the mediating effect of SMA on the relationship between Porter's (1980) competitive strategy and firm performance. Using a contingency framework, the authors tested four hypotheses in a model. The results of a survey of managers and accountants of 103 listed manufacturing firms in Malaysia showed a mediating effect of SMA on the relationship between business strategy and performance. SMA had a direct positive effect on differentiation strategy and a negative effect on cost leadership strategy. SMA partially mediated the relationship between differentiation strategy and performance. The strategic role of accountants was positively related to the firm adopting strategic choices but negatively related to performance. The mediating role of accountants was not supported.

To examine the relationship between the organizational performance of Nigerian manufacturing companies, Emiaso and Egbunike (2018) surveyed 15 manufacturing firms in Delta State, Nigeria. SMA application was positively related to the performance of these firms. Significant differences in the effectiveness of decision-making between the application of SMA and traditional management accounting techniques were also noted. The need to use SMA for strategic decision-making for performance improvement in these firms was demonstrated by these findings.

In a survey of 109 Slovenian manufacturing companies, Cadez and Guilding (2012) measured the effectiveness of different configurational archetypes of strategy and SMA to assess the horizontal and vertical alignment with strategy impacted their performance. Miles and Snow's (1978) four strategic typologies of prospector, defender, analyser, and reactor; configurational theory (universalistic and contingency theories mentioned), equifinality theory (Different strategic and SMA system alternatives can lead to similar organizational performance levels) and fit theory was used as the conceptual basis for hypotheses development. Varying SM configurations ("analytics," "blue chips", "first movers", "domestic protectors", "laggards and socialism relics") were observed coinciding with varying levels of performance and varying degrees of fit. However, there was no strong relationship between the degree of fit and performance. The findings supported the equifinality proposition that different strategic and structural alternatives were related with similar performance levels supporting equifinality theory. Association of internally consistent configurations with high performance supported configurational theory. One limitation was the incomplete capture of the configuration complexity by the variables tested, Application of the cluster analytical technique and its reliance on researcher judgement was another possible limitation. Thus, multiple designs of strategy and strategic management accounting may be equally effective in a particular context, challenging the traditional contingency-based models.

As a method to bridge the gap between strategy and management accounting, SMA helps to evaluate business performance in terms of both financial and non-financial outcomes. Decision-making is made easier by SMA. Pedagogical changes are required to maintain and enhance the status of SMA in future. The practice of SMA leads to the integration of all management practices. These views were expressed by Shah, Malik, and Malik (2011) in a discussion paper.

The study by Berliantiningrum, Sunaryanto, and Pratikto (2017) was conducted concerning (1) the concept that strategic management (SM) and SMA determine performance achievement; (2) institutional theory which states that legitimacy can improve performance; (3) the results of previous research have not revealed the causal relationships regarding SM and SMA systems on performance. The objectives were to explain (1) the influence of the institutionalization of SM and SMA systems on performance and (2) the effect of the institutionalization of SM on the institutionalization of the SMA system in manufacturing enterprises in East Java. The survey results of 16 manufacturing firms in East Java showed that (1) there was a positive effect of the level of institutionalization of SM and SMA system on the performance of the company and (2) a positive effect of the level of SM

institutionalization on the level of SMA system institutionalization. Also, there was a positive influence on the level of institutionalization of SM by an external source, the institutional environment. The level of institutionalization of the SMA system was influenced both by external sources and internal sources of legitimacy, the institutionalisation, SM. The sociological institutional theory was used as the basis for this study.

To evaluate the effect of SMA techniques on the perceived business performance, a survey was conducted by Aksoylu and Aykan (2013) on 202 Turkish manufacturing firms in Kayseri. Three dimensions of SMA techniques were considered: cost-oriented, customer-oriented and competitor oriented. The sample firms showed a usage intensity of above average for 16 out of 17 SMA techniques. They had over 50% compliance with 12 of these techniques. The three dimensions did not have much impact on performance. But the hypotheses related to them were accepted based on positive relationships and effects. The 17 SMA techniques were tabulated into five categories of SMA techniques, as shown in Table 2. A theoretical model based on Technology Acceptance Model was used for hypotheses development.

The effect of strategic choices, market orientation, and company size on two distinct dimensions of strategic management accounting (SMA) and, it's the mediating effect of SMA on company performance was evaluated by Cadez and Guilding (2008). The three objectives of the study were to further refine the SMA concept, appreciation of SMA system in an organisational context, and investigate the validity of the proposed SMA contingency framework. A contingency model of SMA used by the authors is shown in Figure 5.

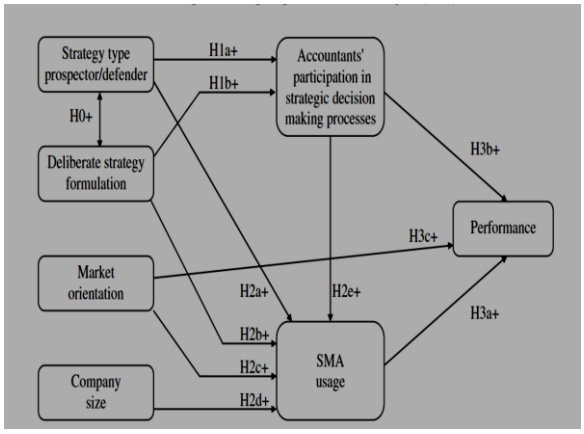


Figure 5. Contingency model of SMA (Cadez & Guilding, 2008)

A survey of 193 firms (108 manufacturing) and interviews with senior accountants of 10 of these firms showed that the participation of accountants in strategic decision-making is positively related to the application of prospector strategy and deliberate strategy categories. SMA usage was positively related to prospector strategy, deliberate strategy, company size, and accountants' participation in strategic decision-making. SMA usage improved performance. These results supported contingency theory as the basis for SMA. As a large proportion of variables explained SMA usage and performance, the identified contingent factors were relevant to the SMA organizational framework. The qualitative data supported the findings from quantitative data. Interviewees unanimously agreed that strategy was the main determinant of SMA usage. The intensity of competition was also associated with SMA usage. The relationship between marketing orientation and SMA usage was supported by a few interviewees. Some limitations of this study were the model is still incomplete, thus possibly affecting the interpretation of results. Single item measure of business strategy denies evaluation of construct reliability. Endogeneity problems can also affect the interpretation of results.

3.6 General observations

Most papers highlighted the confusion regarding what SMA is. The low adoption level of SMA in most countries due to lack of awareness, knowledge, skills, high costs and the long time required for improved performance was pointed out by many authors. Very few examples of actual adoption and implementation of SMA demonstrating improved performance exist. Sadly, most studies used very small sample sizes for surveys on narrowly defined types of firms.

Some quantitative analyses are given below, which reflect certain trends.

Topics reviewed-
Figure 6 gives the percentage frequency of topics covered by the 21 papers included in this review.

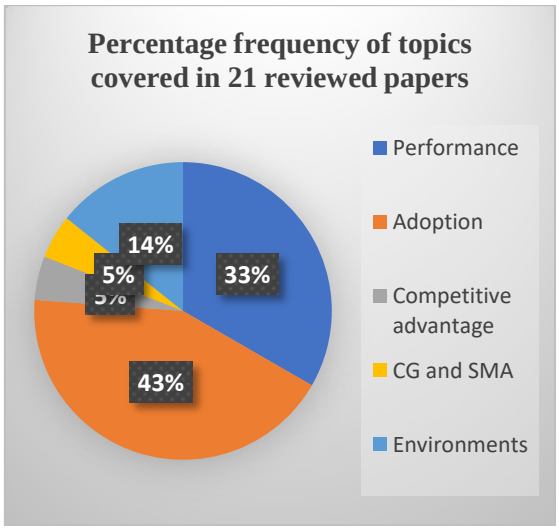


Figure 6. Frequencies of topics covered in the 21 reviewed papers

Out of 21 papers, nine (43%) were on SMA adoption, without connecting it to performance. Seven (33%) dealt with performance. Only 1-3 papers covered environment, competitive advantage and corporate governance. One paper on social responsibility was included in the performance, as that was the dependent variable measured.

3.7 Year-wise distribution of papers

The year-wise frequencies of the 21 reviewed papers are presented in Figure 7.

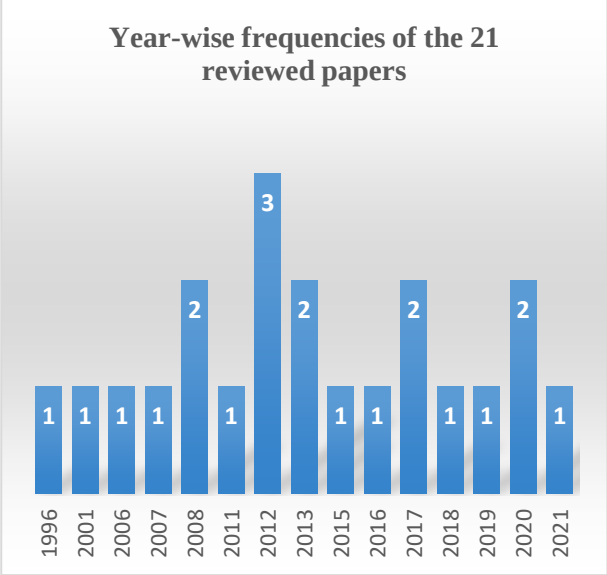


Figure 7. Year-wise frequencies of the 21 reviewed papers

There was an almost even distribution of papers published during 1996-2021. Only in 2012, three papers were published. Two papers each were published in 2008, 2013, 2017 and 2020.

The research method used-
The pie chart on the frequencies of different methods used for data collection in the 21 selected papers is presented in Fig 8.

Survey dominated as the method of choice with 57% (12 out of 21). There were only 1-2 papers that used other methods.

This review has shown many anomalies concerning SMA. Just as there is no consensus on a definition of SMA, there are also variations in listing SMA techniques. The only converging point of all definitions of SMA is its use in strategy decisions. Once the strategy has been decided based on the evaluation of the information provided by SMA, the next three stages of the implementation process can begin. The paper by Sammut-Bonnici (2015) explains the processes succinctly. The contingency approach is followed by certain researchers. For them, a set of contingency variables affect SMA adoption and its eventual impact on production. Agency theory was also usefully applied to assess SMA practices (Honggowati, Rahmawati, & Probohudono, 2017). There are other views also.

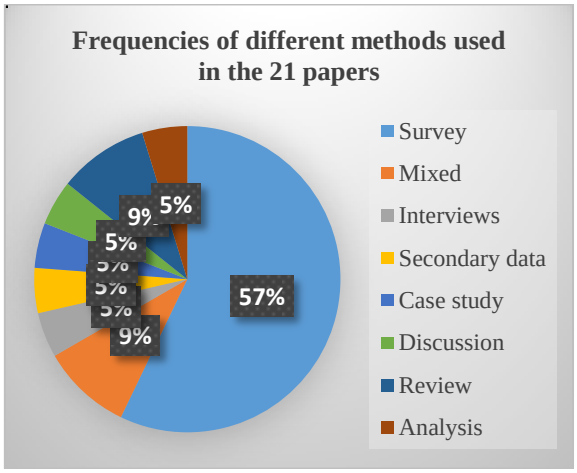


Figure 8. Frequencies of methods used in the 21 reviewed papers

Although accountants' participation in decision-making has been advocated, some researchers (Lay & Jusoh, 2012) found that the role of accountants was important only for SMA adoption and not performance.

One of the findings of Cinquini and Tenucci (2007) was that SMA adoption was not strategy-driven. It may be the other way- SMA drives strategy. Since SMA helps decision-making, decisions on strategies based on SMA analysis would be more appropriate.

Various authors have used different lists of SMA techniques, both in the type and the number of techniques, as the tabulated list of Petera and Šoljaková (2020) shows. This confusion needs to be resolved. There are different numbers of categories of SMA techniques also. There is no example of any firm using all categories and all SMA techniques. It need not be also since the decision on the SMA technique is determined by the context of the business and how it wants its business to improve. Decisions on strategies also are similar.

This review helped to understand the areas in which SMA research has been done. The first of these is the internal and external analysis of the business environment. However, the difference between what is routinely collected and what SMA does is not clear, as Lord (1996) pointed out.

Contingency variables, institutional variables and agency variables can influence the relationship between SMA use and performance. Most reviewed papers tested many such variables to find a significant effect or no effect of these variables on performance. The paper by Cinquini and Tenucci (2007) is particularly notable.

Apart from contingency theory, configurational theory, universalistic theory, contingency theory, equifinality theory and fit theory were used by Cadez and Guilding (2012). The hypothesis based on equifinality theory was supported by their findings. This meant different strategic and SMA system alternatives can lead to similar organizational performance levels.

4. CONCLUSION

The decision to adopt and use SMA is the first step to improving performance. Then, there is a need to determine what types of SMA techniques to be used. This is dependent on what strategy the company wants to pursue. Having decided to use it, the firm goes through the four processes of SMA adoption leading to performance. The relationship between SMA and performance is influenced by many contingency factors.
Limitation: This is an in-depth review, in which, each paper was critically reviewed. So, considering the limitations of the length of the paper, only 21 papers could be selected. It is recognised that there are many more papers on SMA.

No paper on the effect of covid pandemic on SMA was available during the search. But it is not denied that papers related to this issue exist. A separate review of covid effects could be done as further research.

References:

Akenbor, O. C., & Okoye, E. I. (2012). The adoption of strategic management accounting in Nigerian manufacturing firms. *AFRREV IJAH: An International Journal of Arts and Humanities, 1*(3), 270-287. Retrieved March 10, 2023, from https://www.researchgate.net/profile/Cletus-Akenbor-2/publication/254927358_The_Adoption_of_Strategic_Management_Accounting_in_Nigerian_Manufacturing_Firms/links/5544ef5a0cf234bdb21d4e9b/The-Adoption-of-Strategic-Management-Accounting-in-Nigerian-Manufact

Aksoylu, S., & Aykan, E. (2013). Effects of strategic management accounting techniques on perceived performance of businesses. *Journal of US-China Public Administration, 10*(10), 1004-1017. Retrieved March 10, 2023, from https://d1wqtxts1xzle7.cloudfront.net/32857451/JUCPA_Volume_10_Number_10_October_2013-libre.pdf?1391751677=&response-content-disposition=inline%3B+filename%3DJUCPA_Volume_10_Number_10_October_2013.pdf&Expires=1678458725&Signature=PSkFARDap5vJ1byQ2RuttXHXu

Arithi, P. M. (2001). *Application of strategic management accounting by large manufacturing companies in Nairobi.* University of Nairobi. Retrieved March 10, 2023, from http://erepository.uonbi.ac.ke/bitstream/handle/11295/22007/Muthuri_Application%20Of%20Strategic%20Management%20Accounting%20By%20Large%20Manufacturing%20Companies%20In%20Nairobi.pdf;sequence=3

Avishkita, R. (2023). *Strategic management.* Retrieved March 8, 2023, from Your Article Library: https://www.yourarticlelibrary.com/strategic-management/strategic-management/99700

Berliantiningrum, R., Sunaryanto, H., & Pratikto, H. (2017). Berliantiningrum, R., Sunaryanto, H., & Pratikto, H. (2017). The effect of strategic management and strategic management accounting system on the performance of manufacturing companies in East Java. *Berliantiningrum, R., Sunaryanto, H., & Pratikto, H. (2017). The effect of strategic management and strategic management accounting system on the performance of manufacturing companies in East Java, 12*(1), 44-51. Retrieved March 10, 2023, from http://ijbel.com/wp-content/uploads/2017/05/ACC-305.pdf

Čadež, S. (2006). The application of strategic management accounting techniques in Slovenian manufacturing companies. *Zagreb International Review of Economics & Business, 9*(1), 61-75. Retrieved March 10, 2023, from https://hrcak.srce.hr/file/116760

Cadez, S., & Guilding, C. (2008). An exploratory investigation of an integrated contingency model of strategic management accounting. *Accounting, organizations and society, 33*(7-8), 836-863. doi:10.1016/j.aos.2008.01.003

Cadez, S., & Guilding, C. (2012). Strategy, strategic management accounting and performance: a configurational analysis. *Industrial Management & Data Systems, 12*(3), 484-501. doi:10.1108/02635571211210086

Cescon, F., Costantini, A., & Grassetti, L. (2019). Strategic choices and strategic management accounting in large manufacturing firms. *Strategic choices and strategic management accounting in large manufacturing firms, 23*(3), 605-636. doi:10.1007/s10997-018-9431-y

CGMA. (2013). *Essential tools for management accountants.* Chartered Global Management Accountants; Association of International Professional Accountants. Retrieved March 9, 2023, from https://www.cgma.org/content/dam/cgma/resources/tools/essential-tools/downloadabledocuments/essential-tools-for-management-accountants.pdf

Cinquini, L., & Tenucci, A. (2007). *Is the adoption of Strategic Management Accounting techniques really "strategy-driven"? Evidence from a survey.* Munich Personal RePEc Archive. Retrieved March 11, 2023, from https://mpra.ub.uni-muenchen.de/11819/1/mpra_paper_11819.pdf

Emiaso, D., & Egbunike, A. P. (2018). Strategic management accounting practices and organizational performance of manufacturing firms in Nigeria. *Journal of Accounting and Financial Management, 4*(1), 10-18. Retrieved March 10, 2023, from https://farapaper.com/wp-content/uploads/2018/08/Fardapaper-Strategic-Management-Accounting-Practices-and-Organizational-Performance-of-Manufacturing-Firms-in-Nigeria.pdf

Gritsuk, V.N., Gamulinskaya, V.N., & Petrova, V.E. (2020). The innovative approach to managing the product quality in the digital economy: Intellectual accounting and audit. *International Journal for Quality Research*, *14*(2), 543–558. https://doi.org/10.24874/IJQR14.02-13

Honggowati, S., Rahmawati, R. ,., & Probohudono, A. N. (2017). Corporate governance and strategic management accounting disclosure. *Indonesian Journal of Sustainability Accounting and Management, 1*(1), 23-30. doi:10.28992/ijsam.v1i1.24

Kariuki, S. N., & Kamau, C. G. (2016). Organizational contingencies influencing the adoption of strategic management accounting practices among manufacturing firms in Kenya. *International Journal of Advanced Research in Management and Social Sciences, 5*(4), 167-182. Retrieved March 10, 2023, from http://repository.embuni.ac.ke/bitstream/handle/123456789/1293/Energy%20Efficiency%20and%20Conservation%20Economies.pdf?sequence=1&isAllowed=y

Langfield-Smith, K. (2008). Strategic management accounting: how far have we come in 25 years? *Accounting, Auditing & Accountability Journal, 21*(2), 204-228. doi:10.1108/09513570810854400

Lay, T. A., & Jusoh, R. (2012). Business Strategy, Strategic Role of Accountant, Strategic Management Accounting and their Links to Firm Performance: An Exploratory Study of Manufacturing Companies in Malaysia. *Asia-Pacific Management Accounting Journal, 7*(1), 59-94. Retrieved August 14, 2021, from https://arionline.uitm.edu.my/ojs/index.php/APMAJ/article/view/57

Lord, B. R. (1996). Strategic management accounting: the emperor's new clothes. *Management accounting research, 7*(3), 347-366. doi:10.1006/mare.1996.0020

Oyewo, B. (2021). Do innovation attributes really drive the diffusion of management accounting innovations? Examination of factors determining usage intensity of strategic management accounting. *Journal of Applied Accounting Research, 22*(3), 507-538. doi:10.1108/JAAR-07-2020-0142

Petera, P., & Šoljaková, L. (2020). Use of strategic management accounting techniques by companies in the Czech Republic. *Economic research-ekonomska istraživanja, 33*(1), 46-67. doi:10.1080/1331677X.2019.1697719

Pires, R. A., Alves, M. C., & Rodrigues, L. L. (2015). Strategic management accounting: definitions and dimensions. *XVIII Congreso AECA" Innovación y internacionalización: factores de éxito para la pyme"* (pp. 1-18). Asociación Española de Contabilidad y Administración de Empresas. Retrieved March 8, 2023, from https://bibliotecadigital.ipb.pt/bitstream/10198/16575/1/76d.pdf

Rashid, M. M., Ali, M. M., & Hossain, D. M. (2020). Strategic management accounting practices: a literature review and opportunity for future research. *Asian Journal of Accounting Research, 6*(1), 109-132. doi:10.1108/AJAR-06-2019-0051

Sammut-Bonnici, T. (2015). Strategic Management. In C. L. Cooper (Ed.), *Wiley Encyclopedia of Management* (Vols. Wiley Encyclopedia of Management - Vol 12 Strategic Management). John Wiley & Sons, Ltd. doi:10.1002/9781118785317.weom060194

Shkromyda, N., Shkromyda, V., Gnatiuk, T., Franchuk, I., & Viter, S. (2021). Development of social entrepreneurship: Accounting, analysis and quality standards. *International Journal for Quality Research*, *15*(4), 1293–1306. https://doi.org/10.24874/IJQR15.04-17

Shah, H., Malik, A., & Malik, M. S. (2011). Strategic management accounting—A messiah for management accounting. *Australian Journal of Business and Management Research, 1*(4), 1-7. Retrieved March 10, 2023, from https://d1wqtxts1xzle7.cloudfront.net/32495995/ajbmrv01n0401-libre.pdf?1391594051=&response-content-disposition=inline%3B+filename%3DSTRATEGIC_MANAGEMENT_ACCOUNTING_A_MESSIA.pdf&Expires=1678448328&Signature=aWFBxzZWDATncsJi1cc0RvNrmMVAYYP1mUK-ubyA8eiV-Zab

Tanc, A., & Gokoglan, K. (2015). The impact of environmental accounting on strategic management accounting: a research on manufacturing companies. *International Journal of Economics and Financial Issues, 5*(2), International Journal of Economics and Financial Issues. Retrieved March 9, 2023, from https://dergipark.org.tr/en/download/article-file/363028

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