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## Performance Outcomes of Strategic Management Accounting Information Usage in Malaysia: Insights from Electrical and Electronics Companies

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### Abstract

The current research explored the current progress of strategic management accounting (SMA) information usage within electrical and electronics (E&E) companies operating in Malaysia. It was motivated by the scarcity of empirical attention given to the subject despite the claimed importance placed by SMA advocates. The current research sought to substantiate its propositions through two (2) research objectives. The first objective was to investigate the extent of SMA information usage amongst E&E companies and the second was to explore the outcomes of SMA information usage. Survey method was employed for the data collection purposes. Ninety-seven (97) usable questionnaires were received out of the 595 mailed questionnaires. The result suggested that E&E companies used SMA information to high extent. The result indicated that companies' extent of SMA information usage found to be significantly related to certain aspects of companies' performance. The current research has revealed some notable development with regards to SMA. The current result implies that, in Malaysia, SMA has made its progress quite extensively that failed to be reported empirically by fellow researchers. Nonetheless, more work needs to be carried out to set forth the important elements of SMA.

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**Keywords:** Strategic Management Accounting; strategic priorities; competitor information; customer information, and market information.

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## 1. Introduction

The need for Strategic Management Accounting (SMA) information had been set forth in the early 80's (Simmonds, 1981). Interestingly surprising, it has not received much publicity among academia. Empirical researches were sparse. Literature search reveals that the apparent gaps seem to be attributed to its various conceptualisations resulted from some disjointed efforts on the development (e.g. looking at individual techniques such as target costing, life-cycle costing, attribute costing, etc.) and too broad a concept entails by the subject (e.g. interface with marketing, operations, strategic management). To date, researches had been exploratory in nature, attempting to frame the elements of SMA (Guilding, 1999; Guilding & McManus, 2002; Guilding et al., 2000; Rickwood, Coates, & Stacey, 1990), of which had been confined to the strategic nature of the information. This is in line with how SMA has been conceptualised by its advocates as management accounting information that portrays externality (Simmonds, 1981; Bromwich, 1990), marketing focused (Roslender & Hart, 2002; 2003; Wilson, 1991) and future oriented (Wilson, 1991) which was pertinent for monitoring strategy implementation.

Notwithstanding on SMA's various perspectives, this paper attempts to contribute from the structural perspectives. In general, this paper attempts to further enrich the current knowledge on information element that portrays as SMA. Specifically, this paper further develops SMA conceptualisation from strategic information requirement in quest for organisation's sustainable competitiveness. Moreover, inherited by the scant researches available, limited is known about the antecedents and outcomes of SMA information usage. It is an important insight where it can further legitimise the development (SMA) as an important remedial to traditional management accounting system in aiding organisation's long-term survival should the outcome turns out to be positive – i.e. contributing to companies' performance.

Thus, motivated by the aforementioned background, this paper attempts to answer its two main objectives. Firstly, it investigates the level of SMA information usage amongst Electrical and Electronics (E&E) companies operating in Malaysia and secondly, it attempts to explore the performance outcomes of SMA information usage.

The remaining section of the paper will be organised as follows. The immediate section presents the literature review relating to the development of SMA and its performance outcome. It followed by the methodological aspects of the paper. In the final section the results and findings are presented followed by discussion and conclusion.

## 2. Literature Review

### 2.1. Strategic Management Accounting Information Elements

The earliest writing on SMA was published by Simmonds in 1981 in a professional management accounting magazine. He conceptualised SMA as the provision and analysis of management accounting data about a business and its competitors used for developing and monitoring business strategy (Simmonds, 1981, p. 26). He explicitly highlighted the potential of management accounting in aiding organisation to sustain their competitiveness. Implicitly he argued on the need for management accounting to provide financial information that portrays organisation's competitive position. He criticised the internal cost-volume-profit (CVP) as being inadequate for strategic purpose and calls for externally focused management accounting that can aid managers in formulating and monitoring their organisation's strategy. Moreover, he emphasises on the importance of learning about competitor information in dealing with organisation's strategic pursuit. Bromwich (1990, p.28) in turn, extends the conceptualisation as the provision and analysis of financial information on the organisation's product markets and competitors' costs and cost structures and the monitoring of the organisation's strategies and those of its competitors in the market over a number of periods.

On the other hand, there were also calls for management accounting to be interfaced with strategic marketing and as a result SMA is portrayed as accounting for achieving competitive advantage – thus, organisation's management accounting system (MAS) should provide information that enable organisation to track the progress of chosen marketing strategy (Roslender & Hart, 2002; 2003; Ward, 1992). Another perspective that could be part of SMA development is calls for close link of organisation's control attributes and its strategic priorities (Simons, 1987; 1990; Govindarajan, 1988). This development is viewed as strategic because of the existence of element of strategy

as determinants of MCS design. Furthermore, as a consequence of the increase importance of strategy in the eighties, there were also suggestions for management accounting to play a role in providing information for strategic decision making. For example, Shank and Govindarajan (1992) illustrated how value chain analysis using strategic cost analysis would result in different decisions as compared to analysis done using traditional management accounting techniques. In particular the concept of strategic cost management (SCM) was advanced in dealing with organisations' value chain – from basic raw material components to end-use consumers (Shank, 1989; Shank & Govindarajan, 1988; 1992). Target costing has also contributed to SMA development (Hiromoto, 1988). These entails the various perspectives advocated on SMA.

Notwithstanding on the various perspectives on SMA, this paper attempts to contribute from the structural perspectives. In general, this paper attempts to further enrich the current knowledge on information element that portrays as SMA. Specifically, this paper further develops SMA conceptualisation from strategic information requirement in quest for organisation's sustainable competitiveness. Anecdotal evidence found some important elements of SMA being practiced by organisations to face their competitive market. For example, Rickwood, Coates, and Stacey (1990) found that their case company had provided external information relating to their competitors' marketing performance and planning to deal with their market share which was under threats. Lord (1996) reiterates that knowledge of competitor's cost, and relative market share and cost structures enables a firm to detect when the competitor is trying to change relative competitive positions and possible competitor reactions respectively. Parallel to the development, it was found that SMA also consists of information for strategy development and planning, and information to monitor market condition, competitor's cost structure, and competitor's pricing policies (Collier and Gregory, 1995).

Three important elements of SMA information emerge from the literature. They are competitor information, customers' information, and product-related information. The importance of the three elements of SMA information is indisputable for organisations operating in today's intensified business environment. Malaysia as an emerging economy, its environment is undoubtedly highly competitive. In respect of E&E companies to continuously use those elements of information which could foster continuous cost reduction and product innovation which are the key success factors of today's company (Hiromoto, 1991).

Thus, consistent with the various concepts put forward by SMA advocates, this paper conceptualises elements of SMA as 'the provision of information and analysis of major competitors, customers, and product-related features that enable organisation to monitor and evaluate the progress of its competitive strategy and long-term achievement in the market place'.

## 2.2. Performance Outcomes

The aim of most managerial activities is to improve the performance of the organisation (Davila, 2000). Strategy achievement can be evaluated through its implication on firm's performance (Schendel & Hoper, 1979). In line with the 'learning orientation' embedded in strategic management accounting information (Bromwich, 1990; Simmonds, 1981), it is justifiable that it will have an impact on companies performance though long-term achievement is emphasised through the creation of competitive advantage. For example, Simmonds (1981) advocated that by learning about incumbent's competitors' costs, sales volumes and prices, it will make apparent to the company about their strategic position in the market and enhance their capability to counter move. In addition, the extensive use of element of strategic management accounting, 'market factor' for instance will reveal the adaptability of the pursued competitive strategy. Thus, to capture the short-term and long-term effect of extent of use of element of SMA, performance outcome is conceptualised in this paper as '*the extent to which company had successful in achieving its financial performance and non-financial performance*'. Financial performance is referred to as 'level of profit' that is the outcome of successful achievement of competitive advantage. Non-financial is referred to as 'superiority achieved compared to competitors in terms of cost advantage, quality, delivery schedule, sales volume, and market share (elements of competitive advantage), and in terms of product innovation (reflection of use of information about market factor that enabled learning about customers). This conceptualisation is in line with previous work done by Mia and Clarke (1999), and Hoque and James (2000).

### 3. Theoretical Framework and Development of Hypothesis

Based on the conceptualisation of the respective variables presented above, the hypothesis are developed and presented below. The theoretical framework is depicted in Figure 1.

#### 3.1. SMA and Firm's Performance

Researches in MCS have long investigated the performance outcome of using such information. It is argued in this paper that the use of element of strategic management accounting information will enable organisation to monitor whether its strategy implementation performed as expected in the market, and the most crucial is whether it is relatively superior compared to its competitors, and accepted by customers. Thus, this in turn will lead to better decision and consequently contribute to firm's effectiveness (Chenhall, 2003). Moreover, the use of the elements of SMA information will lead to the creation of firm's competitive advantage which in turn expected to have an impact on firm's financial and non-financial performance.

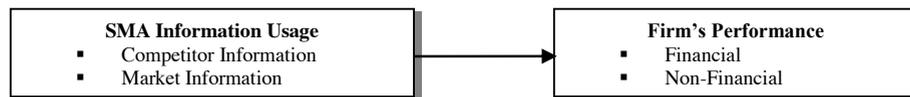


Figure 1: Initial Theoretical Framework

It is posited that:

*H1: SMA Information usage is positively related to firm performance.*

*H1a: Competitor information usage is positively related to financial performance.*

*H1b: Market information usage is positively related to financial performance.*

*H1c: Competitor information usage is positively related to non-financial performance.*

*H1d: Market information usage is positively related to non-financial performance.*

### 4. Methodology

#### 4.1. Samples and Variables Measurement

Federation of Malaysian Manufacturer (FMM) companies' directory 2013 and the latest directory of Electrical and Electronics companies obtained from Malaysian Industrial Development Authority (MIDA) was utilised as the population frame. To ensure that the selected companies implement strategic priorities and having a proper management accounting system, the research sample is further screened where only E&E companies with more than 100 employees were incorporated as the research population. It is apparent from previous researches carried out in manufacturing settings that a company with 100 employees has a clear structure and proper formal setting, and its emphasis on certain strategic priorities and extensive use of management accounting are apparent (Rozita, 2004). After screening process only 618 E&E companies fulfilled the pre-condition. However, 23 companies were used during the pilot study which made a remaining total population of 595.

Data were gathered using a structured questionnaire. The questionnaire for the current research was developed based on the existing literature. Most of the measurements for the respective variables were adapted from previous researches except for 'the elements of SMA information', extensive modification of measurement by Guilding et al. (2000). *Test-Retest* procedure was performed to the 'elements of SMA information' measurement to check on the 'stability of the measures'. Finally, SMA information usage are anchored by seven point Likert Scales where 1= not used at all to 7= greatly used. As a whole, the current research's questionnaire was refined over few times. A series of methodological procedures were carried out to ensure that the research instrument was sound and every important aspect had been addressed. After the completion of the methodological procedure on reliability and validity, particularly on the measurement for 'elements of SMA information', a complete set of questionnaire were

generated which contains three sections which encompasses: (1) Section A: General Information about the companies and the respondents; (2) Section B: questions on the Elements of SMA Information; and (3) Section C: questions inquiring about the performance of respective companies. The final version of the questionnaire was mailed to all the 595 E&E companies (total population) identified during the screening phase.

A subjective self-rating approach was used to assess firm's performance. It is widely used by researcher in management accounting research (e.g. Hoque & James, 2000; Mia & Clarke, 1999; Rozita, 2004). It is also warranted due to the limited published reports and confidentiality of manufacturing companies' performance. In addition, there is also caution about the value of using objective performance measure (Govindarajan & Fisher, 1990). Thus, for the purpose of the current study, performance was operationalised through a 12 items scales anchored from 1= poor to 7= excellent. Respondents were required to rate the performance of their company relative to their leading competitors within the same industry over the past three years. The measurement was adapted from Hoque and James (2000).

## 5. Result and Findings

### 5.1. Demographic Analysis

Only a total of 101 responded questionnaires were received despite all the data collection procedures such as sending reminders and also mailing second set of questionnaire to increase the response rate. This had made-up an overall response rate of 17.21%. Out of the 101 responded, 97 were complete and usable, and another four were partially completed and were not usable. As a result, only the 97 were used in the data analyses which represent a usable response rate of 16.52%. Their general background is summarised in Table 1.

In terms of companies' characteristic, MNCs dominated the responded companies (69.1%), while the remaining of 30.9% were local-based companies. This was expected since most of the large companies (employees > 100) were MNCs. Majority of the companies (68.0%) have been in operation for more than 15 years, while only 32.0% operated within five to 15 years. With regard to companies' production, 35.1% (34) manufacture electronic components, 13.4% (13) manufacture industrial electronic, 22.7% (22) manufacture consumer electronic, 10.3% (10) manufacture electrical products, and 18.6% (18) manufacture others (e.g. lifts and escalators) with variation in their focus market. 66.0% of the company's focus on both local and export markets, 22.7% focus on export market only, and 11.3% only focus on local market. The average annual sales in the past three years were also varies among the companies where 75.3% marked an RM50 million and above, while 24.7% achieved an average annual sales of RM5 to RM50 million in the past three years. Finally, the respondents were dominated by top management (61.9%), and the remaining was middle management (38.2%), where 49.5% have been with their existing companies for more than seven years, 21.6% have been with their companies for five to seven years, and also two to four years, and only 7.2% have been with their existing companies less than two years.

Table 1. The General Characteristics of 97 Responding Firms.

Demographic Variables	Categories	Frequency	(%)
<b>Sample Profile</b>			
Types of Company	Local-based Company	30	30.9
	Multinational corporation (MNC)	67	69.1
Years in operation	Less than five year	0	0
	5 to 15 years	31	32.0
	More than 15 years	66	68.0
Activity Category	Manufacturing of electronic components	34	35.1
	Manufacturing of industrial electronics	13	13.4
	Manufacturing of consumer electronics	22	22.7
	Manufacturing of electrical products	10	10.3
	Others	18	18.6
Market focus	Local market	11	11.3
	Export market	22	22.7
	Both local and export	64	66.0

Average annual sales over last three years	Less than RM5 million	0	0
	RM5 million to RM50 million	24	24.7
	RM50 million and above	73	75.3
<b>Respondents Profile</b>			
Management level	Top management	60	61.9
	Middle management	37	38.2
Years with current company	Less than two years	7	7.2
	2 to 4 years	21	21.6
	5 to 7 years	21	21.6
	More than 7 years	48	49.5

## 5.2. Factor Analysis

The current research performed a principle components and varimax rotation technique in its factor analysis. The factor analysis was desirable due to the contextual differences between the current research and the research/es from which the variables' measurement was adopted, modified or constructed. In addition, reliability was evaluated by assessing the internal consistency of the items representing each construct using Cronbach's alpha that has been widely used in many studies (Hair et al., 2006). Results of the factor and reliability analyses are presented in the following sections.

### 5.2.1. Elements of SMA Information

The need to run exploratory factor analysis for SMA information and analysis was apparently due its debatable dimensions in the literature. It was highlighted in the preceding section that consensus on what should SMA constitute had not been derived upon. This paper had set forth a 26-item scales measurement to capture SMA information usage.

Table 2. Factor Analysis on Strategic Management Accounting Element.

Items	Factor Loading			
	F1	F2	F3	F4
<b>Product-Related Information and Analysis</b>				
Appraises product attributes	<b>.838</b>	.147	.262	.020
Tracks prevention costs	<b>.828</b>	.233	.208	.013
Tracks market penetration related costs	<b>.803</b>	.068	.238	.232
Appraises cost across product life-cycle	<b>.801</b>	.223	.206	.100
Tracks product positioning related costs	<b>.783</b>	.125	.235	.236
Tracks quality assurance related costs	<b>.776</b>	.196	.242	-.138
Track external failure related costs	<b>.735</b>	.167	.283	.163
Track internal failure related costs	<b>.731</b>	.251	.326	.219
<b>Competitor Strategy Information and Analysis</b>				
Appraise competitor's cost reduction	.164	<b>.911</b>	.209	.072
Appraise competitor's tech investment	.199	<b>.879</b>	.039	.005
Appraise competitor's quality program	.114	<b>.829</b>	.214	.138
Appraise competitor's R&D investment	.202	<b>.804</b>	.169	.305
Estimate competitor's sales trend	.264	<b>.644</b>	.195	.366
Estimate competitor's market share	.261	<b>.573</b>	.193	.353
<b>Customer Information and Analysis</b>				
Forecast revenue streams	.335	.100	<b>.806</b>	.236
Customer profitability analysis	.345	.250	<b>.787</b>	.067
Forecast on cost of servicing	.294	.225	<b>.786</b>	.073
Forecast customer future profits	.422	.227	<b>.745</b>	.073
Tracks customers warranty claims	.257	.127	<b>.671</b>	.184
<b>Competitor Financial Information and Analysis</b>				
Estimate competitor's costs structure	.038	.210	.207	<b>.857</b>
Estimate competitor's pricing	.192	.127	-.036	<b>.821</b>
Estimate competitor's profitability	.072	.278	.316	<b>.793</b>
Variance Explained (%)Total=75.38	26.48	19.47	17.01	12.42
Eigenvalues	10.51	2.84	1.78	1.45
KMO	.807			
Bartlett's Test Sig.	.000			

After the final factors, 22 items were maintained to make up the four factors, while 4 items were deleted. The four factors explained 75.38% of the construct. The final result is presented in Table 2.

With regard to the two new extracted factors (factor 2 and 4), they were renamed according to the characteristics of the respective item scales loaded to each factor. The first factor was renamed as competitor strategy information and analysis which was made up by six items with a variance explained of 19.47%. All the six items loaded into the factor reflected the information and analysis that enabled a company to evaluate the strategy of their competitors. The second factor of the competitor factor was renamed as competitor financial information and analysis. All the three items loaded to the factor reflected the information that enabled the company to evaluate the financial performance of their competitor. The variance explained was 12.42%. In combination, all the four factors could explain 75.38% of SMA information constructs which considered as more than satisfactory in social sciences research (Hair et al., 2006, p.120).

### 5.2.2. Firm Performance

The factor analysis on firm performance produced three factors instead of two as per earlier conceptualisation. The three factors were formed only on a single process of factor analysis. In other words, the first run which included all the twelve items formed nicely into the three factors with their eigenvalues above one respectively, KMO was .796, and Bartlett's Test of Sphericity was significant at 0.00, and the cumulative percentage of variance was 74.62%. Table 3 indicated the result of the factor analysis on firm performance. As indicated in the table, all individual items' factor loadings that formed respective factors were above .55, and their communalities were above .5. There were no cross-loading exists among items. In summary, the firm performance in the current research was represented by marketing and production performance, non-financial performance, and financial performance.

Table 3. Factor Analysis on Firm Performance

Items	Factor Loading		
	F1	F2	F3
<b>Marketing &amp; Production Performance</b>			
Sales volume	<b>.863</b>	.088	.239
Sales growth	<b>.818</b>	.195	.190
Market share	<b>.752</b>	.102	.315
Productivity	<b>.736</b>	.395	.133
Operating Profit	<b>.733</b>	.189	.324
<b>Non-Financial Performance</b>			
Customise product to customer's needs	-.010	<b>.899</b>	.161
Continuous product innovation	.188	<b>.823</b>	.208
Continuous cost reduction	.505	<b>.671</b>	-.007
Product quality	.418	<b>.665</b>	-.180
Research and development	.131	<b>.637</b>	.489
<b>Financial Performance</b>			
Return on Equity	.353	.146	<b>.862</b>
Return on Investment	.319	.092	<b>.852</b>
Variance Explained (%) Total=74.616	31.408	25.506	17.702
Eigenvalues	5.941	1.813	1.200
KMO	.796		
Bartlett's Test Sig.	.000		

### 5.3. Reliability Test

The results of the reliability analysis are summarised in Table 4 below. It can be seen that the Cronbach alphas of all the dimensions of SMA information (product-related information and analysis, competitor strategy information and analysis, customer information and analysis, competitor financial information and analysis), and firm performance (marketing and production, non-financial, financial), display satisfactory levels of reliability with

Cronbach's alpha values much higher than the minimum threshold (Cronbach's alpha > .70). This indicates that the instrument is stable and consistent in measuring the concepts of the respective variables.

Table 4. Reliability Analysis on Variables of the Study.

Construct	Variables	No of Items	Cronbach's alpha
Strategic Management Accounting Information	Product-Related Information and Analysis	8	.95
	Competitor Strategy Information and Analysis	6	.92
	Customer Information and Analysis	5	.91
	Competitor Financial Information and Analysis	3	.86
Firm performance	Marketing and Production Performance	5	.90
	Non-Financial Performance	5	.85
	Financial Performance	2	.93

#### 5.4. Descriptive Analysis

Table 5 displays the mean value and standard deviation scores of strategic management accounting information usage and firm performance.

Table 5. Mean Values and Standard Deviation of Variables (n=97).

Variables	Mean	Std. Deviation
Product-Related Information and Analysis	5.29	1.04
Competitor Strategy Information and Analysis	5.07	1.13
Customer Information and Analysis	5.16	1.15
Competitor Financial Information and Analysis	5.31	1.00
Marketing and Production Performance	5.42	.96
Non-Financial Performance	5.65	.75
Financial Performance	5.64	.96

All the items measuring SMA information were measured using a seven-point likert scale anchored by 1 (not used at all) and 7 (greatly used). Table 5 above shows that the mean score of all the four dimensions of SMA information varied from 5.07 to 5.31, which were above the mid-point of 4. This indicates that responding E&E companies highly used SMA information and analysis. The highest mean value was competitor financial information and analysis (5.31) and followed by product-related information and analysis (5.29). The usage of customer information and analysis was the third highest with its mean value of 5.16, and competitor strategy information and analysis was the lowest 5.07. The standard deviation on the other hand ranged from 1.00 to 1.15, indicating the pattern of observations was heterogeneously dispersed. The items of firm performance were measured using a seven-point likert scale anchored by 1 (poor) and 7 (excellent). In addition, the firm performance was a reflection of respondents' performance relative to their major competitor in past three years. The descriptive analysis presented in Table 5 shows that the mean value of responding companies' performance ranged from 5.42 to 5.65. The highest mean value was non-financial performance (5.65), followed by financial performance (5.64), and marketing and production performance (5.42). The standard deviation ranged from .75 to .96. The descriptive results indicated that E&E companies' in Malaysia perceived that they had high performance relative to their competitors in the past three years.

#### 5.5. Modified Framework and Restatement of Hypotheses

The factor analyses carried out had resulted distinct dimensions compared to those put forth during the conceptual phase. It was discussed in detailed in the respective sections above. As a result, the original theoretical framework was modified and is presented in Figure 2 below.

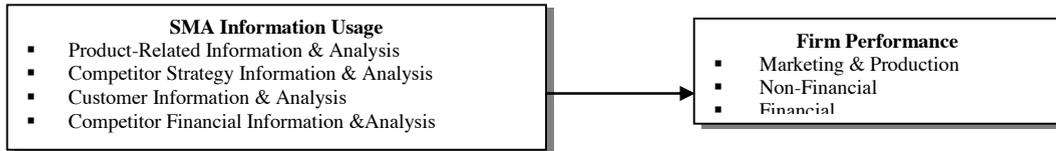


Figure 2: Modified Theoretical Framework

Thus, the restated hypotheses are as follows:

- H1: SMA information usage is positively related to firm performance
- H1a: Product-related information usage is positively related to marketing and production performance.
- H1b: Competitor Strategy information usage is positively related to marketing and production performance.
- H1c: Customer information usage positively related to their marketing and production performance.
- H1d: Competitor financial information usage positively related to their marketing and production performance.
- H1e: Product-related information usage positively related to their non-financial performance.
- H1f: Competitor strategy information usage positively related to their non-financial performance.
- H1g: Customer information usage positively related to non-financial performance.
- H1h: Competitor financial information usage positively related to non-financial performance.
- H1i: Product-related information usage positively related to financial performance.
- H1j: Competitor strategy information usage positively related to financial performance.
- H1k: Customer information usage positively related to financial performance.
- H1l: Competitor financial information usage positively related to financial performance.

## 5.6. Multiple Regression Result

### 5.6.1. SMA Information Usage and Marketing and Production Performance

The result presented in Table 6 indicates that the extent of companies’ SMA information and analysis usage has a significant relationship with marketing and production performance ( $R^2=.201$ ,  $p>0.01$ ). The result revealed that 20.1% of the total variance in marketing and production performance was explained by SMA information and analysis usage. However, the result further demonstrated that only customer information and analysis ( $\beta=.234$ ,  $p>0.10$ ) has a significant positive influence on marketing and production, while the other three dimensions namely product-related information and analysis, competitor strategy information and analysis, and competitor financial information and analysis were not found to be significantly related. It shows that the higher E&E companies used customer information and analysis the higher their marketing and production performance. As a result, H1a, H1b, and H1d were rejected and only H1c was supported.

Table 6. Regression Analysis of SMA Information and Analysis and Marketing and Production.

Dependent Variable	Independent	Std. Coefficient Beta ( $\beta$ )
Marketing and production performance	SMA Information and Analysis:	
	Product-Related Information and Analysis	.158
	Competitor Strategy Information and Analysis	.170
	Customer Information and Analysis	.234 *
	Competitor Financial Information and Analysis	-.043
	$R^2$	.201
	Adjusted $R^2$	.163
	Sig. F	5.279***

Note: Significant levels: \*\*\* $p<0.01$ , \*\* $p<0.05$ , \* $p<0.10$

### 5.6.2. SMA Information Usage and Non-Financial Performance

With regard to hypotheses H1e-H1h, it were posited that all dimensions of SMA information and analysis as

having a positive relationship with non-financial performance. The result presented in Table 7 demonstrates that 17.3% of the variation in non-financial can be explained by SMA information and analysis ( $R^2=.173$ ,  $p>0.05$ ). Three of the dimensions were found to significantly influenced companies' non-financial performance, namely product-related information and analysis ( $\beta=.225$ ,  $p>0.10$ ), customer information and analysis ( $\beta=.232$ ,  $p>0.10$ ), and competitor financial information and analysis ( $\beta=-.321$ ,  $p>0.01$ ), while competitor strategy information and analysis was not. However, note that competitor financial information and analysis had negatively related to non-financial. This implies that the higher the usage of product-related and customer information and analysis the higher non-financial performance, while the higher the usage of competitor financial information the lower non-financial performance. Therefore, only hypotheses H1e and H1g were supported while H1f and H1h were rejected.

Table 7. Regression Analysis of SMA Information and Analysis and Non-financial

Dependent Variable	Independent	Std. Coefficient Beta ( $\beta$ )
Non-financial performance	SMA Information and Analysis:	
	Product-Related Information and Analysis	.225 *
	Competitor Strategy Information and Analysis	.176
	Customer Information and Analysis	.232 *
	Competitor Financial Information and Analysis	-.321 **
	$R^2$	.173
	Adjusted $R^2$	.135
	Sig. F	4.510**

Note: Significant levels: \*\*\* $p<0.01$ , \*\* $p<0.05$ , \* $p<0.10$

### 5.6.3. SMA Information Usage and Firm Performance

It was found that a significant relationship existed between companies' SMA information and analysis usage and their financial ( $R^2=.124$ ,  $p>0.05$ ). In other words, the result indicated that 12.4% of the variation in financial can be explained by SMA information and analysis usage. However, only competitor financial information and analysis was found to have a positive significant influence on financial ( $\beta=.295$ ,  $p>0.05$ ). It means that the higher E&E companies' usage of competitor financial information the higher their financial performance. Therefore, only hypothesis H1l was supported while hypotheses H1i, H1j, and H1k were rejected.

Table 8. Regression Analysis of SMA Information and Analysis and Financial

Dependent Variable	Independent	Std. Coefficient Beta ( $\beta$ )
Financial performance	SMA Information and Analysis:	
	Product-Related Information and Analysis	-.245
	Competitor Strategy Information and Analysis	.182
	Customer Information and Analysis	.058
	Competitor Financial Information and Analysis	.295 **
	$R^2$	.124
	Adjusted $R^2$	.081
	Sig. F	2.927**

Note: Significant levels: \*\*\* $p<0.01$ , \*\* $p<0.05$ , \* $p<0.10$

## 6. Discussion

### 6.1. Extend of SMA information Usage

It is interesting to note that it was found that E&E companies in Malaysia used SMA information and analysis to high extent. Results of the descriptive analysis indicated that all the four dimensions, or rather the elements of SMA information scored mean values above the mid-point score of the seven point measurement Likert scale. Competitor financial information and analysis had the highest mean value (5.31), followed by product-related information and analysis (5.29), customer information and analysis (5.16), and competitor strategy information and analysis (5.07). The result of the current research reveals a notable progress of SMA information usage among companies in Malaysia, in general and E&E industry in particular which academic had failed to explore.

With reference to the information and analysis of competitor strategy, companies require the information to aid managers in formulating and monitoring their organisation's strategy (Simmonds, 1981). Simmonds's (1981)

concerned is on organisation's competitive positioning in its industry as the basic determinant of future profits and organisation's value. Competitor information and analysis such as appraising competitor's R&D investment, cost reduction, technology, and sales trend apparently provide companies with valuable information that could be used to track their competitiveness relative to their competitor. Similarly, emphasising on competitor financial information and analysis may aid companies in matters pertaining to pricing, costing, and perhaps in determining a competitive profit margin. Thus, estimating competitor's costs structure, pricing, and profitability information by the E&E companies portray the value of such information. Perhaps such information enables the respective E&E companies to plan their strategic moves in light of the market competition. Belohlav (1993) had also reiterated that recognising the importance of competitor information enable a company not only on what products and services their competitors are providing, but also how they are providing the product and services.

Secondly, in addition to the competitor related information and analysis, customers' information and analysis was also portrayed as another important element of SMA information that should be provided for strategic purpose. The current research has revealed that E&E companies in Malaysia used the information extensively. This is in line with the argument by Bromwich (1992) that big corporations incorporated or rather used management accounting information relating to its objectives towards customer-orientation. For E&E companies, the importance of the information is indisputable. With the rapid changes in technology and customer's preferences and tastes, knowing about customer is notably crucial. Analysing customer warranty claims, customer profitability analysis, and cost of servicing would reveal the aspect that a company should further emphasise or rather improve in relation to their customer.

Thirdly, another important element of SMA information is product-related information and analysis which was advanced by Bromwich (1990). He argued that because of today's customer become sophisticated, disloyal, and demanding, organisations were forced to concentrates on matters pertaining to the product market to maintain its existing share or to attract new customers. The result of the current research reiterates the importance of the information where E&E companies used product-related information widely. For example, tracking internal and external failure related costs, quality assurance related costs, and cost across product life-cycle to mention a few, are notably important for organisations' to continuously monitor the performance of their current production. These information may provide an early signal should any deficiencies occurs along companies' production processes. Consequently remedy could be undertaken before any further deficiencies persist.

## 6.2. SMA Information Usage and Firm Performance

The current findings show that SMA information does add values to companies' performance; marketing and production performance, non-financial performance, and financial performance. However, noteworthy that each of the elements of SMA information found to be significantly related to certain aspects of companies' performance. Subsequently, some useful implications can be set forth from the current research's findings.

Within E&E context, marketing and production performance refers to companies' performance relative to their core competitors in terms of their market share, operating profit, sales growth, sales volume, and productivity. The current findings indicated that, for E&E companies aiming to be relatively superior in terms of their marketing and production compared to their core competitor, customer information and analysis are to be emphasised. It was apparent from the result that information and analysis related to customer had contributed significantly towards companies' marketing and production performance. Perhaps, customer information had developed their ability to serve their customer distinctively compared to their competitor, which is demanded in today's competitive market that characterised by demanding customers with unprecedented tastes and wants.

In addition, it could be taken that the usage of customer information and analysis had created companies' ability to serve their customer distinctively via continuously understanding their customers grievances on their products which are beneficial to be incorporated in their future undertakings. Secondly, for E&E companies that intent to enhance their relative non-financial performance compared to their core competitors, extensive use of product-related information and customer information are found to be essential. The current result had shown that E&E companies' usage of the two information elements significantly and positively influenced their non-financial performance. Non-financial performance encompasses E&E companies' relative achievement compared to their core competitors in terms of research and development, continuous product innovation, continuous cost reduction, product customisation, and quality of product. The third performance outcome of SMA information usage is

financial performance. From the finding, company that intent to achieve superior financial performance, they only have to emphasise on competitor financial information and analysis. This is because, the information provide them with their competitors' pricing, costs structure, and profitability. From thereon, E&E company could use the information to strategies on how they should compete in terms of price, or perhaps could also as a basis to plan on issue related to costs. Subsequently, clear enough that the information could contribute to companies' ROI and ROE via their success to manage their profits, which is the important element of deriving at ROI and ROE.

## 7. Conclusion

To sum up, this paper provides a strong indication that companies have applied element of SMA information for their strategic undertaking. This could be interpreted as a positive progress made by the subject, and as a signal to fellow academics to further refine its concept in a more practical manner (as opposed to its currently conceptual level). Thus, a definitive conceptual framework of SMA is essential, which could only be achieved through consensus and close cooperation amongst fellow academics and practitioners. For that reason, SMA should not be seen as mere collection of strategic techniques but more towards management accounting information that is used within and for organisations' strategic purposes.

Finally, the findings of the current research should be considered in light of two crucial limitations. Firstly, due to the exploratory nature of the current study, it has limited itself to E&E companies. As a result, generalisation of the finding to other industries, especially to non-manufacturing industry is to be cautioned as the business nature and environment are different. Second limitation is inherited by the nature of research method occupied, i.e. cross-sectional, where data is collected in one point of time. Whilst the result of the current study provides a notable insight on companies' extent of SMA information usage, its long term outcomes may not be captured accurately. Insights about companies' motivations and nature of SMA information usage are unable to be explored via the survey based research.

As a result, future research could be extended to other highly competitive industry such as service sector. It is warranted as the current study proved that companies' used more SMA information when they are facing high intensity of market competition. Secondly, as SMA is a relatively new interest in management accounting, and it is in the course of developing its conceptual framework, case study method may be beneficial to detail out the technical aspects of SMA.

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