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# Utilizing Strategic Management Accounting Techniques (SMATs) for Sustainability Performance Measurement

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**Abstract**
**Purpose:** The main objective of this study is to determine whether the utilization of strategic management accounting techniques is capable of providing managers with information for corporate sustainability performance. **Design/methodology/approach:** A survey was carried out using self-administered questionnaires on a sample of eighty-one accountant distributed across product-sector organisations. The questionnaire was used to gather primary data from respondents. Multiple regression technique was used as the main statistical tool of analysis. **Findings:** Our findings revealed that sustainability performance measurement is a multi-faceted activity, requiring managers to implement strategic techniques capable of capturing information from diverse areas of corporate environmental and social performance in order to enable them identify, accumulate and manage environmental and social costs related to product development and manufacture.**Research limitations/implications:**The study used a purposive sampling method, which focused on respondents that agreed to the use of at least one strategic management accounting tool in their organization. However, Specific contextual studies should be carried out to identify which particular strategic management accounting techniques provide the needed information for economic, environmental and social decision-making areas in other organisational categories. **Practical implications:**The findings enumerate the need for managers to employ strategic management accounting techniques to enable them identify, accumulate, and manage social and environmental costs of their activities.**Originality/value:**The study focuses on the utility of strategic management accounting techniques by addressing the inherent measurement and management complexities experienced by managers in measuring and reporting sustainability performance.
**Keywords:** Strategic Management Accounting; Utilization; Techniques.

## 1.1 Introduction

Modern day business environment is in a state of flux and unpredictability (Ramljak and Rogošić, 2012; Kirli andGümüş, 2011); rigged with multiple challenges, risk and uncertainty among market participants (Abdul Rahman et al., 2012) caused by significant changes such as: globalisation, developments in information and communication technologies (ICTs); growing corporate social responsibility requirements from corporations, marked by increased environmental and social awareness; and, tremendous changes in production technologies (Banker and Johnston, 2006; Abushaiba and Zainuddin, 2012; Kirli and Gümüş, 2011). Therefore one key challenge facing management in this information era is on how to obtain the needed information necessary for managing production cost, quality and time related issues (Al-Khadash and Feridun, 2006). This has necessitated that management develop and implement systems capable of obtaining internal and external cost and market information, necessary to support strategic decision-making, planning and control (Banker and Johnston, 2006) for improved organizational success and a sustained market competitiveness.

Accounting information systems are designed to serve this role, by providing information to a wide range of individuals representing varying stakeholder groups. This according to AbdulHussien and Hamza (2012) would serve a wide range of users both internal and external, by providing them with data and information necessary for them to take decisions on organizational performance. They further noted that:

> 'Management accounting is that sub-accounting system, which aims to serve the internal management of the organization and assist them in performing their functions of planning, control, decision-making and performance evaluation in the operational and long-range…'.

However, Johnson and Kaplan (1987, cited in Shah, Malik, and Malik, 2011) observed that traditional management accounting systems are inadequate in fulfilling this role. They stated that the focus of traditional management accounting is "too late, too aggregated and too distorted to be relevant for managers' planning and control decisions". Ramljak and Rogošić (2012) observed that the focus of traditional management accounting on financial information, thereby neglecting the operational environment of the business where decisions are made and implemented, is a major weakness of the system in modern day business contextualization. Ramljak and Rogošić (2012) further noted that 'much of the domain of conventional management accounting appears to

be more associated with 'tactical' than 'strategic'' management.

Abdul Rahman et al. (2012) noted that organizations can respond to this state of flux by developing and installing innovative managerial systems which continuously reflect the growing complexity of the business environment, and monitor organizations' own strategic responses to such complexity. The need to include non-financial (qualitative) information and that obtained from the operational environment of the business in order to ensure a successful implementation of the company's strategy, gave rise to the development of strategic management accounting techniques (Ramljak and Rogošić, 2012). It is postulated that since sustainability is a multi-faceted construct requiring performance across three dimensions (social, economic and environmental), management accounting tools that a strategically poised in capturing and rendering the needed information (social information, economic information and environmental information) to management, would enable the absorption and utilization of such information for holistic management of performance across the three dimensions. This paper is structured as follows: The next section outlines the objectives and research questions of the study; following this is a review of related literature divided into two parts: conceptual issues and empirical review. The third section details the study design as well data collection procedures. The fourth section presents the analysis of formulated hypotheses; following this is the discussion of research findings, and finally conclusion and recommendations for further study.

### 1.2 Objectives of the Study

The main objective of this study is to determine whether the utilization of strategic management accounting techniques is capable of providing managers with information on corporate sustainability performance. More specifically, this study shall address the following objectives:

1. To determine whether the utilization of strategic management accounting techniques would provide managers with information for environmental performance measurement and management.
2. To determine whether the utilization of strategic management accounting techniques would provide managers with information for social performance measurement and management.
3. To determine whether the utilization of strategic management accounting techniques would provide managers with information for economic performance measurement and management.

### 1.3 Research Questions

Predicated on the above objectives, the following research questions were raised:

1. To what extent would the utilization of strategic management accounting techniques provide managers with information for environmental performance measurement and management?
2. To what extent would the utilization of strategic management accounting techniques provide managers with information for social performance measurement and management?
3. To what extent would the utilization of strategic management accounting techniques provide managers with information for economic performance measurement and management?

## 2.0 Literature Review

### 2.1 Strategic Management Accounting: Conceptual Issues

The term strategic management accounting was introduced by Kenneth Simmonds in 1981 (Ramljak and Rogošić, 2012). Simmonds (1981, cited in, Ramljak and Rogošić, 2012) defined strategic management accounting as the 'monitoring and analysis of management accounting information of the enterprise and its competitors in order to develop and control strategy'. More succinctly put by Ward (1992, cited in Sani, 2011) as 'accounting for strategic management', which according to Collier and Gregory (1995) 'strategic management is an integrated management approach that draws together all the individual elements involved in planning, implementing and controlling business strategy'.Cinquini and Tenucci (2006) noted that a unique feature of SMA in the accounting literature is its 'external orientation'. This can be viewed from two perspectives: First it refers to 'competitors', secondly, can be applied to "suppliers and customers" (Cinquini and Tenucci, 2006). According to Abdul Rahman et al. (2012) the thrust of SMA is on 'performance measurement, management control and decision-making'. Bromwich (1990, cited in Akenbor 2011) defined SMA as 'the provision and analysis of financial information on the firm's product, markets and competitors' cost and cost structures and the monitoring of the enterprise's strategies and those of its competitors' in these markets over a number of periods'. This definition though criticised by Collier and Gregory (1995) as being narrow in scope with a purely financial focus, however highlights an aspect of information considered useful in strategic management accounting techniques implementation.

According to the Chartered Institute of Management Accountants (CIMA) (1991) strategic management accounting is "the provision and analysis of management accounting data relating to business strategy: particularly the relative levels and trends in real costs and prices, volumes, market share, cash flow and the demands on a firm's total resources". Collier and Gregory (1995) noted that this definition highlights the fact that information relevant to business strategy may as well be non-quantifiable in nature. Strategic management accounting is a type of accounting that focuses not only on internal factors of a company, but factors that are

external. This includes industry-wide financials, averages and upcoming trends[1]. Wilson (1995, cited in Kirli and Gümüş, 2011) defined strategic management accounting as an approach to management accounting that explicitly highlights strategic issues and concerns setting management accounting in a broader context in which financial information is used to develop superior strategies as a means of achieving sustainable competitive advantage.

Hogue (2001, cited in Kirli and Gümüş, 2011) defined strategic management accounting as "a process of identifying, gathering, choosing and analysing accounting data for helping the management team to make strategic decisions and to assess organizational effectiveness". Lords (1996, cited in Shah et al., 2011) identified the following functions which are commonly associated with SMA: 1. Collecting information related to the competitors; 2. Using accounting information for strategic decisions; 3. Cutting costs on the basis of strategic decisions; and, 4. Gaining competitive advantage through it. Roslender and Hart (2003, cited in Akenbor, 2011) proffered a more refined definition of SMA, as 'a generic approach to accounting for strategic positioning, defined by an attempt to integrate insights from management accounting and marketing management within a strategic management framework'. Thus, this generic nature refers to the inclusion of various management control techniques in the SMA framework. Cinquini and Tenucci (2006) noted that organizational application of SMA techniques is 'linked to the need for external information to face uncertainties and support strategic decisions'. Hilton (1999, cited in AbdulHussien and Hamza, 2012) observed the following aims of strategic management accounting:

- The provision of information for decision-making and planning
- To assist managers in directing and controlling of operational activities.
- To motivate managers and other users towards the goals and objectives of the organization.
- Measuring the performance of sub-units and managers and other users within the organization.
- Evaluation of competitive situation of the organization and work with other managers to confirm the competitive situation of the organization in the long long-term.

Wilson and Chua (1993, cited in Shah et al., 2011) tabulated ten key differences between MA and SMA as following:

**Table 2.1.1: Key Differences between Traditional MA and Strategic MA**

| s/n | Traditional MA | Strategic MA |
|---|---|---|
| 1 | Historical | Prospective |
| 2 | Single entity | Relative |
| 3 | Introspective | Out-ward looking |
| 4 | Manufacturing focus | Competitive focus |
| 5 | Existing activities | Possibilities |
| 6 | Reactive | Proactive |
| 7 | Programmed | Un-programmed |
| 8 | Data orientation | Information oriented |
| 9 | Based on existing systems | Unconstrained by existing systems |
| 10 | Built on conventions | Ignores conventions |

**Source: Wilson and Chua (1993, adopted from Shah et al., 2011)**

AbdulHussien and Hamza (2012) viewed SMA as

> *'providing information for the formulation of organization strategy and support its implementation by encouraging behavior that is consistent with the strategy of the organization and through the application of accounting methods directed towards reducing costs, improving product quality, and performance evaluation which achieve the strategy of the organization and to preserve the status of the organization competitive position and continue to work in the changing market'*

The following techniques are considered in the literatures part of strategic management accounting 'toolbox' (Ramljak and Rogošić, 2012; Shah et al., 2011; Cinquini and Tenucci, 2006):

1. **Activity Based Costing -** This method is based on the identification of activities performed by the company. These activities are considered the causes of indirect costs in the company (Cinquini and Tenucci, 2010, cited in Ramljak and Rogošić, 2012)**;**
2. **Attribute Costing -** The costing of specific product attributes which appeal to customers (Ramljak and Rogošić, 2012). The technique considers products as a bundle of different features/attributes (Cinquini and Tenucci, 2006), this attributes are viewed as cost objects(Bromwich, 1990, cited in Cinquini and Tenucci, 2006)**;**

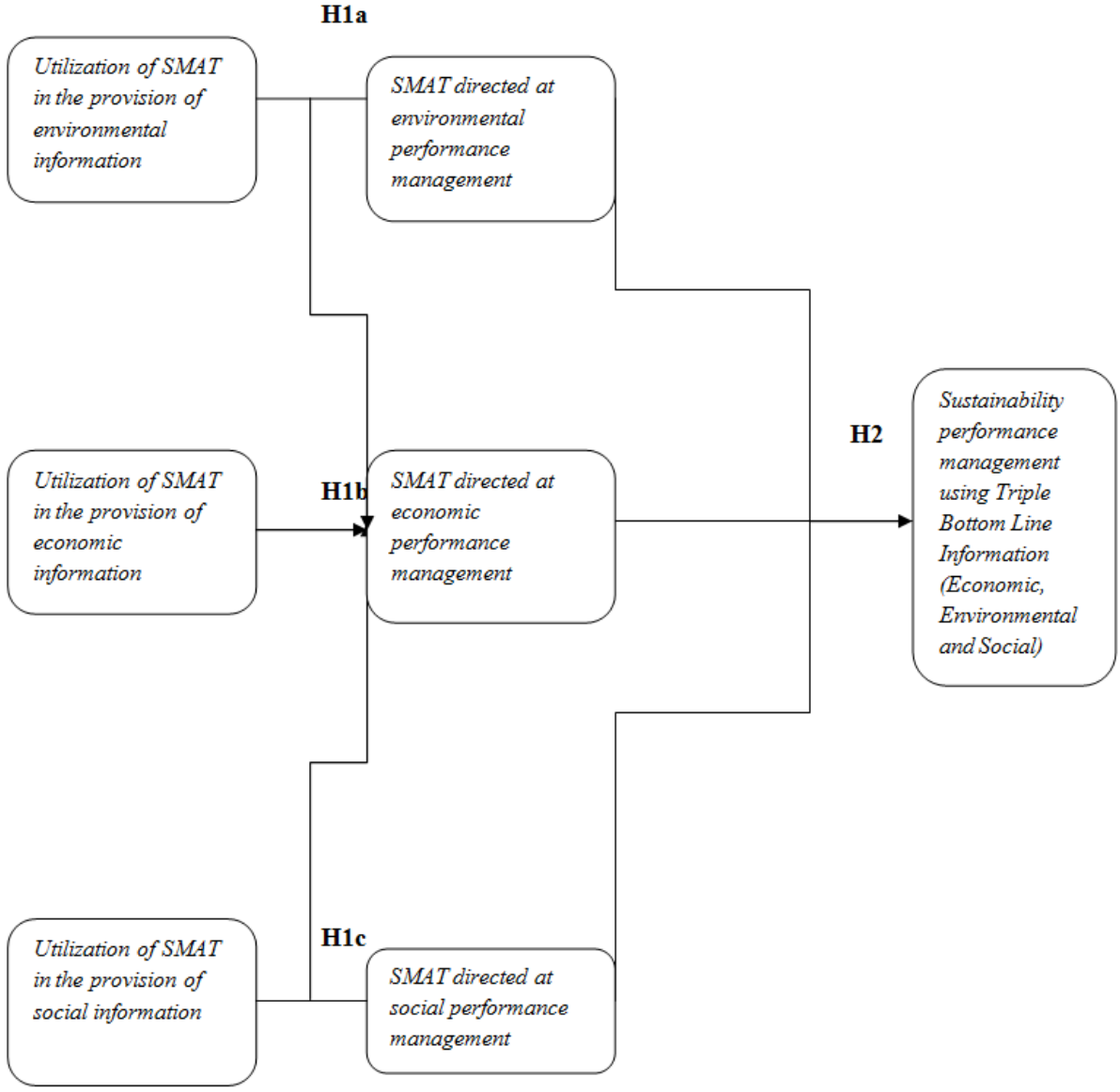
[1] http://www.ehow.co.uk/facts_6755021_strategic-management-accounting_.html

3. **Benchmarking -** The comparison of company performance to that of an ideal standard (Cinquini and Tenucci, 2010, cited in Ramljak and Rogošić, 2012) with the goal of improvement in organizational practices (Cinquini and Tenucci, 2006)**;**
4. **Competitive position monitoring-** This involves obtaining information on competitors' performance, such as 'sales, market share, volume and unit costs' (Simmonds, 1981, cited in Cinquini and Tenucci, 2006) and comparing performance with these in other to control and formulate strategy (Cinquini and Tenucci, 2006)**;**
5. **Competitor cost assessment -** This approach differs from the 'Competitive position monitoring' by relying solely on cost information from competitors' (Simmonds, 1981, cited in Cinquini and Tenucci, 2006)**;**
6. **Competitor performance appraisal based on published financial statements; Customer accounting -** This approach seeks to obtain and analyse competitor information from published financial statements which are readily available for use**;**
7. **Customer Accounting** - Customer accounting includes all the practices directed to appraise profit, sales or costs deriving from customers or customer segments (Cinquini and Tenucci, 2006).
8. **Integrated performance measurement systems** - Integrated performance measurement systems combine financial and non-financial measures (quantitative and qualitative factors) in defining corporate performance, a good example of such system is the Balanced Scorecard developed by Kaplan and Norton**;**
9. **Life cycle costing** - This technique calculates costs associated with a product during its entire life cycle, which corresponds to the market life of the product (introduction, growth, maturity and decline)**;**
10. **Quality costing** - The technique classify and monitor costs as deriving from quality prevention, appraisal, internal and external failures (Heagy, 1991, cited in Cinquini and Tenucci, 2006), also included are environmental and safety costs (Cinquini and Tenucci, 2006)**;**
11. **Strategic costing -** Relating cost accounting systems in the organisation to corporate strategy leads to the development of strategic costing tools, also at the heart of this system is competitive advantage which can be achieved through 'product positioning and market penetration' (Shank and Govindarajan, 1993b, cited in Cinquini and Tenucci, 2006)**;**
12. **Strategic pricing** - It regards the use of competitor information, like competitors' reactions to price changes, price elasticity, economies of scale and experience, in the pricing process (Cinquini and Tenucci, 2006)**;**
13. **Target costing** - The target cost is determined by deducting from the selling price a desired profit margin, the product design is then altered to contain the target cost**;**
14. **Value chain costing** - This approach considers all the activities performed from the design to the distribution of the product. According to Value chain accounting is a 'product of the combination of the value chain management theory, accounting theory and information technology' (Kirli andGümüş, 2011)**;**
15. **Environmental Management Accounting (EMA) -** According to Gupta (2011) is concerned with 'the identification, compilation, estimation and analysis of environmental cost information for better decision-making within the firm'**; and,**
16. **Social Management Accounting (SMA)** - The use of SMA facilitates the identification, recording and measurement of social cost information for internal decision making (Petcharat and Mula, 2010).

**Fig. 2.1.1: Conceptual Framework**




**Source: Author's Conceptualization**

## 2.2 Review of Empirical Studies

In a study of UK based Hotels, Collier and Gregory (1995) observed from interview sessions that interviewees identified two main areas of strategic management accounting application: 'the provision of information that assisted in the development of strategic plans; and monitoring the market, competitors' price structures and competitors' costs'.

Cinquini and Tenucci (2006) in a study of large sized Italian firms identified the intensity of usage among Italian companies: these seven techniques were ranked highest from 1 to 7 (Attribute Costing, Customer Accounting, Strategic Pricing, Competitive position monitoring, Competitor performance appraisal based on published financial statements, Strategic Costing, and Quality Costing) all had mean scores above 3. The following seven were ranked 8 – 14 (Competitor cost assessment, Target Costing, Benchmarking, Value Chain Costing, ABC/M, Integrated performance measurement, and Life Cycle Costing) with mean scores below 3.

Al-Khadash and Feridun (2006) in a study of industrial Jordanian companies on the level of usage of the following strategic initiatives (ABC, JIT and TQM) discovered that quoted companies employed such techniques, and a high level of awareness of the techniques among financial managers. The study also posited a negative relationship between the awareness level and the adoption level of the techniques. However, a significant relationship was between ROA and the level of adoption was observed.

Abdul Rahman et al. (2012) provided a case study of SMA application (with specific reference to 'benchmarking practice') in three private hospitals located in the Northern region of Peninsula Malaysia. The first hospital in the study 'Orange Hospital' adopts both, internal and external benchmarking practices. The argument was based on

the identification of competitive practices for improvement. The following areas were used in the hospital's benchmarking process: 1) Pricing; 2) Costing; 3) Policy; 4) Procedures; and, 5) Standard operating procedures. 'All these five areas are benchmarked with other internal and external counterparts to achieve standard practices and coordination among all group members' (Abdul Rahman et al., 2012). The second hospital, 'Red Hospital' is an established not-for-profit hospital. The results of the interview session with the hospital's staff revealed that benchmarking was not considered a simple task; therefore, attention should be directed at key areas requiring improvement. These should be a continuous and expanding process.

The third hospital 'Purple Hospital' acknowledged that benchmarking activity is an area which is under-explored as the practice merely involves informal discussions with other hospitals within Penang. A response from finance manager of Purple Hospital confirmed that the hospital made unsatisfactory attempt to understand how this management accounting technology works and its usefulness to assist the hospital in implementing better managerial practices (Abdul Rahman et al., 2012).

Ramljak and Rogošić (2012) studied a population of 400 Croatian large-sized companies, and observed the following frequency of the selected strategic management accounting techniques: Activity based costing with a frequency of 40%; Quality costing with a frequency of 39,4%; Target costing with a frequency of 25,8% companies; and, the balanced scorecard with a frequency of 15,2%. The least used techniques were: life cycle costing with a frequency of 9,1% and environmental costing with a frequency of 6,1%. There results also revealed that the usage of 'two or more strategic management accounting techniques will have a positive effect on cost control and reduction improvement'.

AbdulHussien and Hamza (2012) using a sample of 20 respondents drawn from four Romanian companies, tested for the importance of the following four strategic management accounting concepts: Value Chain Analysis (mean score = 3.64); Activity Based Costing (mean score = 3.50); Continuous Improvements (mean score = 3.73); and, Balanced Scorecards (mean score = 3.25). The results also indicated that respondents considered certain constraints and difficulties in the use of SMA techniques (weighted mean score = 3.17); the most significant constraint was the high costs associated with the use of these methods when compared with traditional methods. They also found out that many benefits can be derived by Romanian companies from the application of SMA techniques.

### 3.1 Research Design and Methodology

A questionnaire was administered to ascertain the perception of accountants. The questionnaire was administered on a total of eighty-one respondents. The questionnaire was divided into four parts: Part 1 was designed to elicit the relevance of SMATs in the provision of environmental information; Part 2 - to elicit the relevance of SMATs in the provision of economic information; Part 3 was designed to elicit the relevance of SMATs in the provision of social information, and part 4 was designed to elicit the opinion of respondents on the application of strategic management accounting techniques in the provision of information for sustainability performance measurement. All questions were structured using the five-point *likert* scale format. The questionnaire was administered on a sample of eighty-one accountants distributed across product and service sector organisations.

### 3.2 Hypotheses Formulation

The following hypotheses were formulated to guide the study:

*H1a:* *The utilization of strategic management accounting techniques would not provide managers with information needed for environmental performance measurement and management*

*H1b:* *The utilization of strategic management accounting techniques would not provide managers with information needed for economic performance measurement and management*

*H1c:* *The utilization of strategic management accounting techniques would not provide managers with information needed for social performance measurement and management*

*H2:* *Synergy deriving from strategic management accounting techniques application would not provide managers with information needed for sustainability performance measurement and management*

### 3.3 Model Specification

**H1a** $\mathbf{Y = \alpha + \beta X1 + \beta X2 + \beta X3 + \beta X4 + \mu}$

Where: y - Corporate environmental performance measurement;
X1 - Environmental cost identification;
X2 - Environmental cost accumulation;
X3 - Environmental cost management;
X4 - Other product related environmental costs.

**H1b** $\mathbf{Y = \alpha + \beta X1 + \beta X2 + \beta X3 + \mu}$

Where: y – Economic information areas;
X1 – Product profitability assessment;
X2 – Market positioning;
X3 – Identification of quantifiable and non-quantifiable product cost.

**H1c** $\mathbf{Y = \alpha + \beta X1 + \beta X2 + \beta X3 + \beta X4 + \mu}$

Where: y - Corporate social performance measurement;
X1 – Social cost identification;
X2 – Social cost accumulation;
X3 – Social cost management;
X4 - Other product related social costs.

**H2** $\mathbf{Y = \alpha + \beta X1 + \beta X2 + \beta X3 + \mu}$

Where: y – Corporate sustainability requirements;
X1 – SMATs and proactive environmental management;
X2 – SMATs and proactive social management;
X3 – SMATs and proactive economic management;

### 4.1 Presentation and Analysis of Findings

**Table 1: Academic Qualification of Respondents**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | B.Sc. | 47 | 58.0 | 58.0 | 58.0 |
| | Master's degree | 29 | 35.8 | 35.8 | 93.8 |
| | PhD | 5 | 6.2 | 6.2 | 100.0 |
| | Total | 81 | 100.0 | 100.0 | |

Source: Field Survey (2013)

From the table above, 58% of respondents' possessed B.Sc. degrees, 35.8% of respondents possessed Masters and 6.2% of respondents possessed advanced degrees (PhD); all qualifications were accounting related. This shows that all respondents were qualified in answering the questions administered to them.

### 4.2 Test of Hypotheses

**Consider Analysis Result for Hypothesis 1a:**

**Table 2: Descriptive Statistics (Questionnaire: Part 1)**

| | N | Mean | Std. Deviation |
|---|---|---|---|
| Corporate environmental performance measurement is a multi-faceted activity that requires managers to implement techniques capable of capturing information from diverse areas of corporate environmental performance | 81 | 4.4815 | .70907 |
| The implementation of strategic management accounting techniques would enable the identification of environmental costs related to product development. | 81 | 4.2963 | .69722 |
| The implementation of strategic management accounting techniques would enable the accumulation of environmental costs associated with product development | 81 | 4.3457 | .76093 |
| The implementation of strategic management accounting techniques would enable the management of environmental costs associated with product development | 81 | 4.0988 | .80008 |
| Strategic management accounting techniques are also capable of measuring the environmental impact of other corporate activities such as gas flaring, greenhouse emissions emanating from corporate industrial activities | 81 | 4.2963 | .60093 |

**Source: SPSS ver. 20**

**Table 3: Model Summary (Hypotheses 1a)**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .454[a] | .206 | .165 | .64804 |

a. Predictors: (Constant), Strategic management accounting techniques are also capable of measuring the environmental impact of other corporate activities such as gas flaring, greenhouse emissions emanating from corporate industrial activities, The implementation of strategic management accounting techniques would enable the accumulation of environmental costs associated with product development, The implementation of strategic management accounting techniques would enable the identification of environmental costs related to product development., The implementation of strategic management accounting techniques would enable the management of environmental costs associated with product development

**Source: SPSS ver. 20**

From the table above, R Square had a value of .206 while the adjusted R Square value was .165 (16.5% approx.). This shows that the model predictive abilities were significantly low and as such indicates the presence of other factors related to the dependent variable.

**Table 4: ANOVA[a](Hypotheses 1a)**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 8.306 | 4 | 2.076 | 4.944 | .001[b] |
| | Residual | 31.917 | 76 | .420 | | |
| | Total | 40.222 | 80 | | | |

**Source: SPSS ver. 20**

**Conclusion:**

The ANOVA table showed a statistically significant F-value of 4.944 (Sig .001<.05), our decision rule is therefore as follows: **if** $F_{Calculated} > F_{Critical}$ – Reject the Null Hypothesis, otherwise accept. Since 4.944 > 2.45 – Reject the Null Hypothesis

**Consider Analysis Result for Hypothesis 1b:**

**Table 5: Descriptive Statistics (Questionnaire: Part 2)**

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| The application of strategic management accounting techniques directed at product assessment (such as Life Cycle costing) would provide managers with the needed information for the determination of costs and revenues associated with product development | 81 | 2.00 | 5.00 | 4.1852 | .76012 |
| The application of strategic management accounting techniques would enable managers to strategically position their products in the market by employing techniques such as competitor cost and performance appraisal | 81 | 2.00 | 5.00 | 4.1481 | .72648 |
| Employing the use of integrated performance measurement systems (such as the BSC) in the corporate managerial process would enable the determination of other non-quantifiable factors capable of influencing corporate performance | 81 | 1.00 | 5.00 | 4.1235 | .69611 |
| The application of strategic management accounting techniques would provide management with information needed for assessing customer behavior, product pricing, etc. which serve as economic decision areas for managers | 81 | 2.00 | 5.00 | 4.0370 | .85797 |

**Source: SPSS ver. 20**

**Table 6: Model Summary (Hypothesis 1b)**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .384[a] | .147 | .114 | .80757 |

a. Predictors: (Constant), Employing the use of integrated performance measurement systems (such as the BSC) in the corporate managerial process would enable the determination of other non-quantifiable factors capable of influencing corporate performance, The application of strategic management accounting techniques directed at product assessment (such as Life Cycle costing) would provide managers with the needed information for the determination of costs and revenues associated with product development, The application of strategic management accounting techniques would enable managers to strategically position their products in the market by employing techniques such as competitor cost and performance appraisal

**Source: SPSS ver. 20**

From the table above, R Square had a value of .147 while the adjusted R Square value was .114 (11.4% approx.).

| Table 7: ANOVA[a](Hypothesis 1b) | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 8.672 | 3 | 2.891 | 4.432 | .006[b] |
| | Residual | 50.217 | 77 | .652 | | |
| | Total | 58.889 | 80 | | | |

**Source: SPSS ver. 20**

**Conclusion:**

The ANOVA table showed a statistically significant F-value of 4.432 (Sig .006), our decision rule is therefore as follows: **if** $F_{Calculated} > F_{Critical}$ – Reject the Null Hypothesis, otherwise accept.

Since 4.432 > 2.68 – Reject the Null Hypothesis

**Consider Analysis Result for Hypothesis 1c:**

| Table 8: Descriptive Statistics (Questionnaire: Part 3) | | | | | |
|---|---|---|---|---|---|
| | N | Minimum | Maximum | Mean | Std. Deviation |
| Corporate social performance measurement is a multi-faceted activity that requires managers to implement techniques capable of capturing information from diverse areas of corporate social performance | 81 | 3.00 | 5.00 | 4.2963 | .60093 |
| The implementation of strategic management accounting techniques would enable the identification of social costs related to product development. | 81 | 2.00 | 5.00 | 3.9506 | .92061 |
| The implementation of strategic management accounting techniques would enable the accumulation of social costs associated with product development | 81 | 2.00 | 5.00 | 4.0494 | .80469 |
| The implementation of strategic management accounting techniques would enable the management of social costs associated with product development | 81 | 1.00 | 5.00 | 2.4815 | .95015 |
| Strategic management accounting techniques are also capable of measuring the social impact of other corporate activities such as gas flaring, greenhouse emissions emanating from corporate industrial activities | 81 | 1.00 | 5.00 | 2.5802 | 1.09389 |

**Source: SPSS ver. 20**

| Table 9: Model Summary (Hypothesis 1c) | | | | |
|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .343[a] | .118 | .071 | .57909 |

a. Predictors: (Constant), Strategic management accounting techniques are also capable of measuring the social impact of other corporate activities such as gas flaring, greenhouse emissions emanating from corporate industrial activities, The implementation of strategic management accounting techniques would enable the accumulation of social costs associated with product development, The implementation of strategic management accounting techniques would enable the identification of social costs related to product development., The implementation of strategic management accounting techniques would enable the management of social costs associated with product development

**Source: SPSS ver. 20**

From the table above, R Square had a value of .118 while the adjusted R Square value was .071 (7.1% approx.).

| Table 10: ANOVA[a](Hypothesis 1c) | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 3.402 | 4 | .851 | 2.536 | .047[b] |
| | Residual | 25.487 | 76 | .335 | | |
| | Total | 28.889 | 80 | | | |

**Source: SPSS ver. 20**

**Conclusion:**
The ANOVA table showed a statistically significant F-value of 2.536 (Sig .047), our decision rule which is **if** $F_{Calculated} > F_{Critical}$ – Reject the Null Hypothesis, otherwise accept.
Since 2.536 > 2.45 – Reject the Null Hypothesis

**Consider Analysis Result for Hypothesis 2:**

**Table 11: Descriptive Statistics (Questionnaire: Part 4)**

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| To meet up with corporate sustainability requirements managers require the implementation of tools and techniques capable of capturing (quantifiable and non-quantifiable) information from social, environmental and economic performance areas of the organization | 81 | 2.00 | 5.00 | 4.3580 | .74680 |
| The application of strategic management accounting techniques directed at providing environmental information on corporate activities would ensure a proactive response by management on environmental cost handling and management | 81 | 1.00 | 5.00 | 3.8025 | 1.14477 |
| The application of strategic management accounting techniques directed at providing social information on corporate activities would ensure a proactive response by management on social cost handling and management | 81 | 1.00 | 5.00 | 3.9506 | 1.11693 |
| The application of strategic management accounting techniques directed at providing economic information on corporate activities would ensure a proactive response by management on economic cost handling and management | 81 | 1.00 | 5.00 | 3.1235 | 1.27850 |

**Source: SPSS ver. 20**

**Table 12: Model Summary (Hypothesis 2)**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .406[a] | .165 | .132 | .69564 |

a. Predictors: (Constant), The application of strategic management accounting techniques directed at providing economic information on corporate activities would ensure a proactive response by management on economic cost handling and management, The application of strategic management accounting techniques directed at providing environmental information on corporate activities would ensure a proactive response by management on environmental cost handling and management, The application of strategic management accounting techniques directed at providing social information on corporate activities would ensure a proactive response by management on social cost handling and management

**Source: SPSS ver. 20**
From the table above, R Square had a value of .165 while the adjusted R Square value was .132 (13.2% approx.).

**Table 13: ANOVA[a](Hypothesis 2)**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 7.356 | 3 | 2.452 | 5.067 | .003[b] |
| | Residual | 37.262 | 77 | .484 | | |
| | Total | 44.617 | 80 | | | |

**Source: SPSS ver. 20**
**Conclusion:**
The ANOVA table showed a statistically significant F-value of 5.037 (Sig .003), our decision rule which is **if** $F_{Calculated} > F_{Critical}$ – Reject the Null Hypothesis, otherwise accept. Since 5.037 > 2.68 – Reject the Null Hypothesis

**4.3 Discussion of Findings:**

- ✓ Respondents perceived that corporate environmental and social performance measurement is a multi-

faceted activity which requires managers to implement techniques capable of capturing information from diverse areas of corporate environmental and social performance;

- ✓ Respondents also perceived the need for the implementation of strategic management accounting techniques to enable the identification of environmental and social costs related to product development. This is because the implementation of strategic management accounting techniques would enable the accumulation and management of environmental and social costs related to product development;
- ✓ Respondents also agreed that the application of strategic management accounting techniques directed at product assessment (such as Life Cycle costing) would provide managers with the needed information for the determination of costs and revenues associated with product development;
- ✓ From an economic perspective, respondents agreed that the application of strategic management accounting techniques would enable managers to strategically position their products in the market by employing techniques such as competitor cost and performance appraisal, and that employing the use of integrated performance measurement systems (such as the BSC) in the corporate managerial process would enable the determination of other non-quantifiable factors capable of influencing corporate performance;
- ✓ The application of strategic management accounting techniques would provide management with information needed for assessing customer behavior, product pricing, etc. which serve as economic decision areas for managers.

### 5.1 Conclusion

Sustainability is at the forefront of modern business corporations, as enlarged stakeholder interests necessitates that managers of modern corporations should transcend from meeting shareholder interests (Economic interest) to a more widened scope encompassing 'social and environmental concerns'. This study is therefore set out to establish the nexus between the application of strategic management accounting techniques and the provision of information for sustainability performance (namely: social, environmental and economic cost and performance information) for managerial decision making.

### 5.2 Recommendations

1. The implementation of strategic management accounting techniques to enable corporate managers in the (i) identification, (ii) accumulation, and (iii) management of environmental and social costs of the organisation;
2. The implementation of strategic management accounting techniques to enable corporate managers monitor and analyse the economic performance of their corporations;
3. As needs of organisation vary across industries and over time it is suggested that corporations should carry out an in-depth analysis of their activities to determine the information needs of managers which should guide the adoption and implementation of any technique in the strategic management accounting toolbox. Constant monitoring of the adopted tools should also be enforced to ensure that the tools meet the needs of managers over time.

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Appendix I

**Hypotheses 1a – Model Coefficients Table:**

| Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.768 | .820 | | 2.156 | .034 |
| | The implementation of strategic management accounting techniques would enable the identification of environmental costs related to product development. | .210 | .109 | .206 | 1.923 | .058 |
| | The implementation of strategic management accounting techniques would enable the accumulation of environmental costs associated with product development | -.006 | .112 | -.006 | -.051 | .960 |
| | The implementation of strategic management accounting techniques would enable the management of environmental costs associated with product development | .325 | .108 | .366 | 3.011 | .004 |
| | Strategic management accounting techniques are also capable of measuring the environmental impact of other corporate activities such as gas flaring, greenhouse emissions emanating from corporate industrial activities | .118 | .140 | .100 | .842 | .402 |

**Hypotheses 1b – Model Coefficients Table:**

| Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.641 | .786 | | 2.088 | .040 |
| | The application of strategic management accounting techniques directed at product assessment (such as Life Cycle costing) would provide managers with the needed information for the determination of costs and revenues associated with product development | .030 | .123 | .027 | .248 | .805 |
| | The application of strategic management accounting techniques would enable managers to strategically position their products in the market by employing techniques such as competitor cost and performance appraisal | .114 | .129 | .097 | .886 | .379 |
| | Employing the use of integrated performance measurement systems (such as the BSC) in the corporate managerial process would enable the determination of other non-quantifiable factors capable of influencing corporate performance | .435 | .131 | .353 | 3.317 | .001 |

 

**Hypotheses 1c – Model Coefficients Table:**

| Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 4.985 | .424 | | 11.771 | .000 |
| | The implementation of strategic management accounting techniques would enable the identification of social costs related to product development. | -.017 | .073 | -.026 | -.234 | .816 |
| | The implementation of strategic management accounting techniques would enable the accumulation of social costs associated with product development | -.007 | .083 | -.009 | -.079 | .937 |
| | The implementation of strategic management accounting techniques would enable the management of social costs associated with product development | -.072 | .071 | -.114 | -1.018 | .312 |
| | Strategic management accounting techniques are also capable of measuring the social impact of other corporate activities such as gas flaring, greenhouse emissions emanating from corporate industrial activities | -.161 | .061 | -.293 | -2.646 | .010 |

**Hypotheses 2 – Model Coefficients Table:**

| Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 3.852 | .477 | | 8.067 | .000 |
| | The application of strategic management accounting techniques directed at providing environmental information on corporate activities would ensure a proactive response by management on environmental cost handling and management | .210 | .080 | .322 | 2.622 | .011 |
| | The application of strategic management accounting techniques directed at providing social information on corporate activities would ensure a proactive response by management on social cost handling and management | .001 | .085 | .001 | .010 | .992 |
| | The application of strategic management accounting techniques directed at providing economic information on corporate activities would ensure a proactive response by management on economic cost handling and management | -.094 | .067 | -.162 | -1.400 | .165 |

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