

# **The Global Management Accounting Principles (GMAP) and the Relationship Between Organizational Design Elements**

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## ABSTRACT

### *Purpose*

This study investigates the relationship between organizational design elements (i.e., quality of management accounting skills and performance management system, PMS), management accounting practice (MAP) sophistication and organizational competitiveness using the Global Management Accounting Principles (GMAP) framework.

### *Design/methodology/approach*

Survey data was obtained through a structured questionnaire from 131 Nigerian firms. Measures of the quality of management accounting skills, robustness of PMS structure, MAP sophistication and organizational competitiveness were derived from the GMAP framework. Structural Equation Modelling (SEM) was applied to explore the complexity of relationship among variables.

### *Findings*

Whilst the quality of management accounting skills was found to have a positive but insignificant impact on MAP sophistication, the impact of PMS structure on MAP sophistication was positive and significant. MAP sophistication has a positive impact on organizational competitiveness, but the magnitude of its contribution appears to depend on the quality of management accounting skills and the robustness of PMS structure. The inability of MAP sophistication to exert much influence on organizational competitiveness is attributable to the low contribution of management accounting skills. Result supports the proposition that performance is optimized when all organizational design elements are concurrently improved.

### *Originality/Value*

The study contributes to knowledge by investigating the quality of management accounting skills and the robustness of PMS as organizational design elements affecting MAP and organizational competitiveness using the GMAP framework. The study operationalizes some elements of the GMAP framework by developing measurements that can be used by future studies.

### *Practical implications*

The study shows that organizations need to critically look into the quality of skills possessed by personnel in the accounting function, as all organizational design elements must be given equal importance to achieve the best results.

**Keywords:** global management accounting principles; organizational design; performance management system; management accounting practice; strategic management accounting

## 1. INTRODUCTION

Organizational design, amongst other considerations, is critical to strategy implementation in the business world of today. Organizational design involves the alignment of the structure of an organization with its objectives to improve efficiency and effectiveness. Structure is required to translate strategy into activities that will lead to achievement of goals (Mullins & Christy, 2013). The way activities are performed, the manner responsibilities are shared and the approach for task coordination among departments, as reflected in organizational design, may affect the agility with which data is collected and processed into useful insight that promotes organizational competitiveness (Sharma, et al., 2014). Whatever approach to strategy-formulation pursued by an organization, the appropriateness of the structure and design put in place may determine the extent to which predetermined goals are achieved (Johnson, et al., 2017). Thus, strategy and structure are inextricably linked as elements of the strategic management process and organizational design. The strategic direction pursued by a business influences organizational design at the strategy-implementation stage (Jacobides, 2007), and this extends to the structure employed for the performance of management accounting activities (Bui, et al., 2020).

Whilst a gamut of contingency studies has extensively examined various contextual factors affecting the execution of management accounting activities (referred to as management accounting practice (MAP) in this study) such as firm size, organizational lifecycle, strategy, culture, degree of centralization, competition, economy, markets and environmental uncertainty (Moores & Yuen, 2001; Al-Mawali, 2015), organizational design has not been sufficiently investigated. Meanwhile, organizational design has been identified in empirical literature (e.g., Gerdin, 2005; Chapple & Truong, 2015), as well as the recently launched Global Management Accounting Principles (GMAP) framework (CIMA, 2014a; CIMA, 2014b), as a contingent factor affecting MAP. The GMAP framework was introduced in 2014 by The American Institute of Certified Public Accountants (AICPA) and The Chartered Institute of Management Accountants (CIMA) to improve management accounting practice (CIMA, 2014a; CIMA, 2014b). The GMAP, which is a product of research from twenty countries across five continents, is the first universal set of management accounting principles guiding MAP. The GMAP framework reflects the paradigm shift in the status of management accountants in recent times as strategic partners applying their technical and soft skills to drive value creation. Examining MAP from the GMAP perspective is adjudged crucial considering that the framework arguably documents best practice

in management accounting. Acknowledging there are other frameworks shaping MAP (Bedford & Sandelin, 2015), the GMAP is conceivably more encompassing, expanding the functions of management accountants from conventional planning, control and decision-making to strategic management accounting.

The GMAP framework enumerates two organizational design elements affecting the extent to which MAP contributes to organizational competitiveness, namely: (i) people and; (ii) performance management system (PMS). The current study focuses on these two organizational design elements. Meanwhile, the alignment of management accounting skills (i.e., people) with PMS structure as organizational design elements ensures the achievement of predetermined objectives (Akroyd & Kober, 2020). MAP sophistication, as applied in this study, refers to the level at which essential management accounting activities are carried out to support achievement of organizational objectives. Whilst organizations will commit resources to hiring skilled personnel and institutionalizing PMS that ensures activities are monitored and corrective actions taken (Novas, Alves & Sousa, 2017), such structures are designed with the expectation that management practices (including MAP) will anticipatorily enhance organizational competitiveness. A causal link between organizational design, MAP and organizational competitiveness may, therefore, be expected. Although the importance of organizational design to MAP and organizational success has received research attention in other jurisdictions (e.g., Tekathen, et al., 2019; Pedroso & Gomes, 2020), the subject still requires extensive investigation in a developing country like Nigeria where knowledge on factors shaping MAP is limited (Moses & Hopper, 2021).

With these thoughts in mind, the aim of the current study is to examine the relationship between organizational design, MAP sophistication and organizational competitiveness in the Nigerian context, using the GMAP framework. Nigeria represents an important setting for the current study for several reasons. First, there have been calls for strategies to improve the competitiveness of organizations in the country (e.g., Moses et al., 2014). Given that implementing MAP could enhance organizational competitiveness (Laura & Jose Antonio, 2013), it is compelling to empirically ascertain the performance implication of implementing MAP. Second, Nigeria occupies a strategic position in both developed and developing countries (Okon, 2019). Considering its economic position in Africa, it is important to benchmark the MAP of business

organizations operating in the country against globally renown MAP framework such as the GMAP. Third, a study from Nigeria can provide evidence on the diffusion of the GMAP as a world-renown management accounting apparatus since it became operational in 2014. Findings from a study conducted in Nigeria can be compared with research output from other settings to assess the application of the framework. Finally, an exposé on the application of the GMAP by companies in Nigeria may signal the uptake rate of modern MAP in sub-Sahara Africa.

The remainder of the paper proceeds as follows: literature review and hypothesis development are covered in section 2; methodology is discussed in section 3; Results and discussion of findings are presented in sections 4 and 5; the paper is concluded in section 6, while contributions to knowledge are highlighted in section 7.

## **2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

### **2.1 Skills and Performance Management System as Organizational Design Elements Affecting Management Accounting Practice**

The GMAP enumerates four elements of an effective management accounting function that contribute to organizational competitiveness: (i) people; (ii) principles; (iii) performance management and; (iv) practice areas (CIMA, 2014a). The GMAP framework links the elements by stating that “...it is the combination of competent people, clear principles, well-managed performance and robust practices that make a management accounting function effective” CIMA, 2014a, p.4). Drawing from this proposition, people and performance management system (PMS) are organizational design elements affecting the effectiveness of management accounting practice. Given that management accounting practice affects organizational competitiveness (Moore & Yuen, 2001), a relationship between organizational design, management accounting practice and organizational competitiveness may be envisaged. This is consistent with the contingency theory, used as the theoretical framework in the current study, which posits that contextual factors affect MAP, and an effective MAP contributes to organizational competitiveness (Al-Mawali, 2015; Oyewo, 2017).

#### **(a) People**

People, in the context of the GMAP, refers to quality of skills possessed by the management accounting professionals in an organization. The successful implementation of modern MAP

requires the input and cooperation of various departments to achieve goal congruence (Akroyd et al., 2019). Contemporary management accountants would have to work with various people in the organization, deploying: (i) technical skills by applying accounting, finance, marketing, and management knowledge; (ii) people skills to influence actions and decisions of people; (iii) technical skills in relation to business activities to demonstrate awareness about business imperatives (business skills); and (iv) leadership skills by leading within the organization (CIMA, 2014a). Studies have documented non-technical or soft skills as core part of professional competence (Jackling & DeLange, 2009; Gammie et al., 2010). The technical skills needed for the successful implementation of modern MAP transcend conventional accounting and finance skills because of the multifaceted nature of contemporary management accounting function. Modern MAP requires knowledge integration across various disciplines including accounting, finance, marketing, human resources and strategic management (Cadez & Guilding, 2008).

While traditional MAP involves supplying information to management for planning, control and decision making (Gackstatter et al., 2019), modern MAP extends beyond these narrowly-defined functions to include strategy formulation and implementation (Al-Mawali, 2015). Implementing modern MAP, therefore, requires adeptness in integrating accounting, business management and marketing knowledge. The types of management accounting techniques implemented in an organization, as well as the intensity of their implementation, may depend on the quality of accounting skills available (Gomez-Conde et al., 2019). Based on the foregoing discussion on the importance of skills to implementing management accounting innovation, it is hypothesized that:

*H1a: High-quality management accounting skills significantly enhance MAP sophistication*

#### **(b) Performance Management System**

The thrust of a PMS is to ensure that activities performed by individuals, groups and departments within an organization lead to the achievement of specified objectives. PMS synchronizes individual/team performance targets, strategic objectives and stakeholders' needs/expectations (Sahoo & Jena, 2012). Therefore, a robust PMS structure should encourage continuous improvement and achievement of performance targets. Performance targets are typically expressed in terms of key organizational outputs such as increased revenue, reduced cost, enlarged customer base, increased customer patronage, wider market share, improved market share price, and better risk management (CIMA, 2014a). These could be specified in numerate terms in form of key

performance indicators (Kaplan & Norton, 1992). The need to achieve these outcomes may influence the selection of management accounting techniques and the overall degree of MAP sophistication (Chapple & Truong, 2015).

Noting that PMS reflects the mission, vision and objectives of an organization (Johnson, et al., 2008), PMS design may affect MAP because top-management would want to support the implementation of management accounting techniques that help to realize set goals (Moses, et al., 2019). For the purpose of planning and control, PMS can rely on MAP to provide information on the extent to which activities are going as planned to avoid strategy drift. If, for instance, the strategic direction of the organization is cost leadership, PMS will be configured to capture cost reduction targets, which will inform the extensive implementation of cost management and budgetary control techniques (Bui, Chapple & Truong, 2020). On the other hand, if the competitive strategy of the organization is differentiation or niche strategy, using pricing, discount and product decision techniques may be preferred. MAP will also be relied upon to provide feedback on how well targets are being achieved, say through internal control, audit and management review of control (Tan, Chapple & Walsh, 2017). Meanwhile, the terms of reference for internal control and internal audit will be drawn from the standard of performance as entrenched in the PMS

In sum, MAP are management planning and control tools influenced by PMS. MAP performs a vital role in supporting organizational performance management by monitoring execution of strategy. Since MAP assists management in planning, monitoring the implementation of strategy and reinforcement of corrective measures, management accountants can use MAP to track progress in the achievement of intended outcomes. Considering that MAP is a subsystem of PMS useful for planning and control, it may be expected that PMS will affect MAP, which informs the hypothesis that:

*H1b: Robust PMS structure significantly enhances MAP sophistication.*

## **2.2 MAP Sophistication and Organizational Competitiveness**

The GMAP framework documents some of the outcomes of implementing modern MAP in terms of enhancing organizational competitiveness as follows (CIMA, 2014a): (a) Cost transformation and management techniques could provide a better understanding of cost drivers across the organization, help to develop cost targets with relevant parties within the organization, and aid



improvement in value-chain efficiency. This can lead to improved customer satisfaction, provision of quality products and services that gives value for money, increased competitiveness, and stakeholder value creation. (b) External reporting—which entails the provision of comprehensive information about financial and non-financial performance, business model and risk management strategy—provides a better understanding of the business model and performance to wide stakeholder base to inspire confidence. External reporting also offers a platform for engaging with stakeholders. (c) Financial strategy helps an organization to achieve outcomes such as balancing of capital requirements and optimization of values for owners and other stakeholders. (d) Internal control assures that the resources of the organization are safeguarded, and the likelihood of financial loss is downplayed. (e) Investment appraisals ensure that funding opportunities are prioritized to generate value for stakeholders whilst avoiding investments that will erode value. (f) Management and budgetary control will help organizations evaluate performance against targets, thereby enhancing accountability. (g) Price, discount and product decision techniques help in product positioning and product profitability within target markets. (h) Risk management creates awareness on risks that threaten achievement of objectives and helps the organization to reduce the probability of failure in meeting stakeholders' expectations. (i) Treasury and cash management helps the organization have sufficient cash to meet short- and long- term financial obligations as they fall due. (j) Internal audit assures that risks are being adequately managed, and controls (accounting and internal control systems) are effective in ensuring that the assets of the organization are safeguarded (CIMA, 2014a). In line with the contingency theory, scholars suggest that the interactive use of MAP results in the synergistic benefit of improving organizational competitiveness (Gómez-Conde, 2015). Therefore,

*H2: Modern MAP significantly contributes to organizational competitiveness.*

### **3. METHODOLOGY**

#### **3.1 Population and Sample Selection**

The study focused on private-sector organizations based in Lagos, one of the six states in South-West Nigeria. This is informed by the consideration that Lagos State is the commercial nerve-center of Nigeria. Further, the cosmopolitan nature of Lagos suggests that there are various local and international organizations competing for survival in the State that is Africa's leading New Partnership for Africa Development (NEPAD) city and World's sixth megacity. The number of registered businesses in Lagos was obtained from The Lagos Chamber of Commerce and Industry (LCCI)—a non-profit organization representing the Lagos business community on matters relating to trade, industry and commerce. The LCCI website (<https://www.lagoschamber.com>) enlisted about 2,430 registered companies as at 2018. The number was rounded up to 2,500 for the purpose of the study. Using a 10% rule of thumb (Alreck & Settle, 1995; Adwok, 2015), two hundred and fifty (250) firms were targeted. Prior studies have used a similar approach for sample selection (e.g., Soobaroyen & Poorundersing, 2008). Sector classification was used to stratify firms to ensure that sample selection cuts across all major sectors. Thereafter, firms were randomly selected in each stratum. In other words, the study used stratified random sampling to select firms across the major sectors of the economy such as Manufacturing, Financial Service (Bank & non-bank), Telecommunications, Oil and Gas, and "Others" (for the purpose of capturing companies operating in other sectors) to ensure the sample was representative. Data collection was through a structured questionnaire, and target respondents were senior accounting/ finance personnel expected to be sufficiently knowledgeable about the accounting practice in their organizations. Questionnaire administration lasted almost four months (October 2018 to January 2019), with follow-up visits and reminders at regular intervals during this period. This appreciably improved the response rate.

#### **3.2 Measurement of Variables**

##### **3.2.1 Quality of Management Accounting Skills**

Quality of management accounting skills (Skills) was measured through a self-developed scale, drawing from the requisite skills of management accountants as contained in the GMAP framework. On a 5-point scale of 1 ('strongly disagree') to 5 ('strongly agree'), respondents were asked to indicate the extent to which they agree or disagree on whether the Management

Accounting/ Finance function provides support for management in 7 critical areas: (i) performance evaluation (SK1); (ii) financial risk management (SK2); (iii) development of strategy implementation plans (SK3); (iv) provision of information that aid operational efficiency (SK4); (v) communicating accounting issues with staff in an effective and non-technical manner (SK5); (vi) using accounting information to give feedback to staff on employee performance management issues (SK6); and (vii) driving team performance by sharing accounting information (SK7).

### **3.2.2 Structure of the Performance Management System (STRC)**

Structure of the Performance Management System (STRC) was measured by constructing statements on the features of a robust PMS as suggested in the GMAP framework. Using a 10-item scale, respondents were requested to rate on a scale of 1 ('completely disagree') to 5 ('completely agree') the extent to which: (i) organizational performance is communicated according to the information needed by various stakeholders (ST1); (ii) there is a clear linkage between strategic objectives and organizational purpose (ST2); (iii) there is a clear linkage between the strategic objectives of the organization and deliverables of employees/teams (ST3); (iv) there is a clear linkage between strategic objectives and the results achieved from time to time (ST4); (v) the organization evaluates its performance at regular intervals (ST5); (vi) the organization assesses its strengths and weakness in terms of competences and market share (ST6); (vii) the organization evaluates its strategic options in the light of its competitive position (ST7); (viii) the organization validates its planned actions by testing for impact on required outcomes (ST8); (ix) the organization conducts gap analysis, regularly, to challenge performance that falls short of expectation (ST9); and (x) the organization links individual/team performance targets to the entity's long-term value creation plan (ST10). Some earlier studies have used a similar approach to gauge the robustness of PMS (e.g., Oyewo, 2017).

### **3.2.3 Management Accounting Practice (MAP) Sophistication**

MAP sophistication (MAP) was measured by focusing on 7 major practice areas in management accounting such as (i) Cost transformation and management, MAP1 (3 items); (ii) Financial Strategy, MAP2 (3 items); (iii) Internal Control, MAP3 (2 items); (iv) Investment Appraisal, MAP4 (3 items); (v) Management and Budgetary Control, MAP5 (4 items); (vi) Price, Discount and Product Decisions, MAP6 (4 items); and (vii) Treasury and Cash Management, MAP7 (4

items). Respondents were requested to rate on a scale of 1 ('not at all') to 5 ('very great extent') the extent of performing each of the 23 management accounting activities (full measurement of variables presented in Appendix 1). The measurement scale aligns substantially with the indicative diagnostic tool for each practice area as furnished in the *GMAP Consultation draft document* (see CIMA, 2014b).

### **3.2.4 Organizational Competitiveness (CPT)**

Organizational competitiveness (CPT) was measured by asking respondents to rate, on a scale of 1 ('poor') to 5 ('very good'), the performance of their organizations in 12 critical areas of business as proposed by the GMAP (CP1 to CP12): (i) customer patronage (CP1); (ii) efficiency in the allocation of scarce resources among competing ends (CP2); (iii) management of long-term finance (CP3); (iv) quality of returns on long-term investment (CP4); (v) cost management (CP5); (vi) product profitability (CP6); (vii) product/service positioning within target market (CP7); (viii) continuous improvement in processes and products/services (CP8); (ix) ability to meet short-term indebtedness as they fall due (CP9); (x) management of financial risk ensuing from exchange rate fluctuation (CP10); (xi) management of non-financial risks such as reputational, environmental and social risks (CP11); and (xii) long-term value creation for owners (CP12).

### **3.2.5 Control Variables**

Firm size (in terms of number of employees) and Organizational lifecycle (age) were used as control variables as applied in prior studies (e.g. Pasch, 2019). Size and age of a firm are inextricably linked because as an organization advance in age, it grows in size (Mullins & Christy, 2013). Respondents were requested to indicate the size and lifecycle of their organizations from a list of options provided. The Small and Medium Enterprises Development Agency of Nigeria, SMEDAN (2013) criterion was adapted in classifying firms, based on number of employees, into sizes of small (up to 200 employees), Medium (201- 500 employees), large (501-1,000 employees) and very large (above 1,000 employees) firms respectively. Other studies have used a similar approach to operationalize firm size (e.g., CIMA, 2009b; Pasch, 2019).

To measure Organizational lifecycle, the grouping used in CIMA (2009b) Management Accounting survey was adapted, comprising of: start-up firms (Up to 5 years), young firms (6 to

10 years), middle-aged firms (11 to 20 years), matured firms (21 to 30 years) and very matured firms (Over 30 years).

### **3.3 Validity and Reliability**

Exploratory factor analysis (using principal component analysis) was carried out to initially screen items measuring each variable. A 0.50 cut-off was applied to assess factor loading. Items loading below 0.50 were dropped while others satisfying the criterion were retained for analysis. Convergent Validity was assessed using Average Variance Extracted (AVE), and Composite Reliability (CR) was also computed yielding the following results: (i) Quality of Management Accounting Skills (5 items, AVE = 0.514, CR = 0.796); (ii) Structure of Performance Management System (6 items, AVE = 0.516, CR = 0.819); (iii) Management Accounting Practice (MAP) Sophistication (all 7 items loaded well as presented in Appendix 1, AVE = 0.592, CR = 0.909); (iv) Organizational Competitiveness (9 items, AVE = 0.571, CR = 0.877). The AVE is above the recommended threshold of 0.50, while CR is above 0.70 in all cases (Fornell & Larcker, 1981), thus confirming validity and reliability.

### **3.4 Response Rate and Method of Data Analysis**

From the 250 copies of the questionnaire administered, 136 copies were retrieved; 5 copies were unsuitable for use because they were not properly completed. The remaining 131 copies were processed for analysis (representing an effective response rate of 52.4%). This response rate is considered adequate to perform statistical analysis (Field, 2005). Structural Equation Modelling (SEM), using maximum likelihood estimation techniques, was applied to explore the complexity of relationship among variables.

## **4.RESULTS**

### **4.1 Firm Attributes and Respondents' Profile**

Firm attributes and profile of informers responding on behalf of their organizations is presented in Table 1.

**Table 1: Firm Attributes and Respondents' Profile**

<i>Variable</i>	<i>Category</i>	<i>Freq.</i>	<i>%</i>	<i>Total</i>
Size (No. of Employees)	Up to 50	24	18.3	131
	51 to 200	17	13.0	
	201 to 500	19	14.5	
	501 to 1,000	4	3.1	
	Above 1,000	67	51.1	
Firm Age (In years)	Up to 5 years	18	13.7	131
	6 to 10 years	6	4.6	
	11 to 20 years	29	22.1	
	21 to 30 years	37	28.2	
	Over 30 years	41	31.3	
Nature of Business	Manufacturing	34	26.0	131
	Financial Service (Bank & non-bank)	63	48.1	
	Telecommunications	7	5.3	
	Oil and Gas	18	13.7	
	Others-Miscellaneous	9	6.9	
Job Title of Respondent	Financial Director	1	0.8	131
	Chief Financial Officer	5	3.8	
	Financial Controller	34	26.0	
	Management Accountant	30	22.9	
	Finance Manager	47	35.9	
	Others	14	10.7	
Public-quotation Status	Quoted	80	61.1	131
	Unquoted	51	38.9	

The heterogeneity in firm attributes such as size, lifecycle (age), line of business, ownership base (Location of Head-Office/ Parent company) and ownership structure (public-quotation status) provides a robust context for examining issues affecting MAP in diverse organizational settings (Table 1). Respondents varied in their job titles, underscoring the multifaceted roles performed by management accountants in recent times.

## 4.2 Relationship between Organizational Design Elements, MAP Sophistication and Organizational Competitiveness

### 4.2.1 Model 1: Relationship between Organizational Design Elements (without modelling Skills and PMS Structure as covariates), MAP Sophistication and Organizational Competitiveness

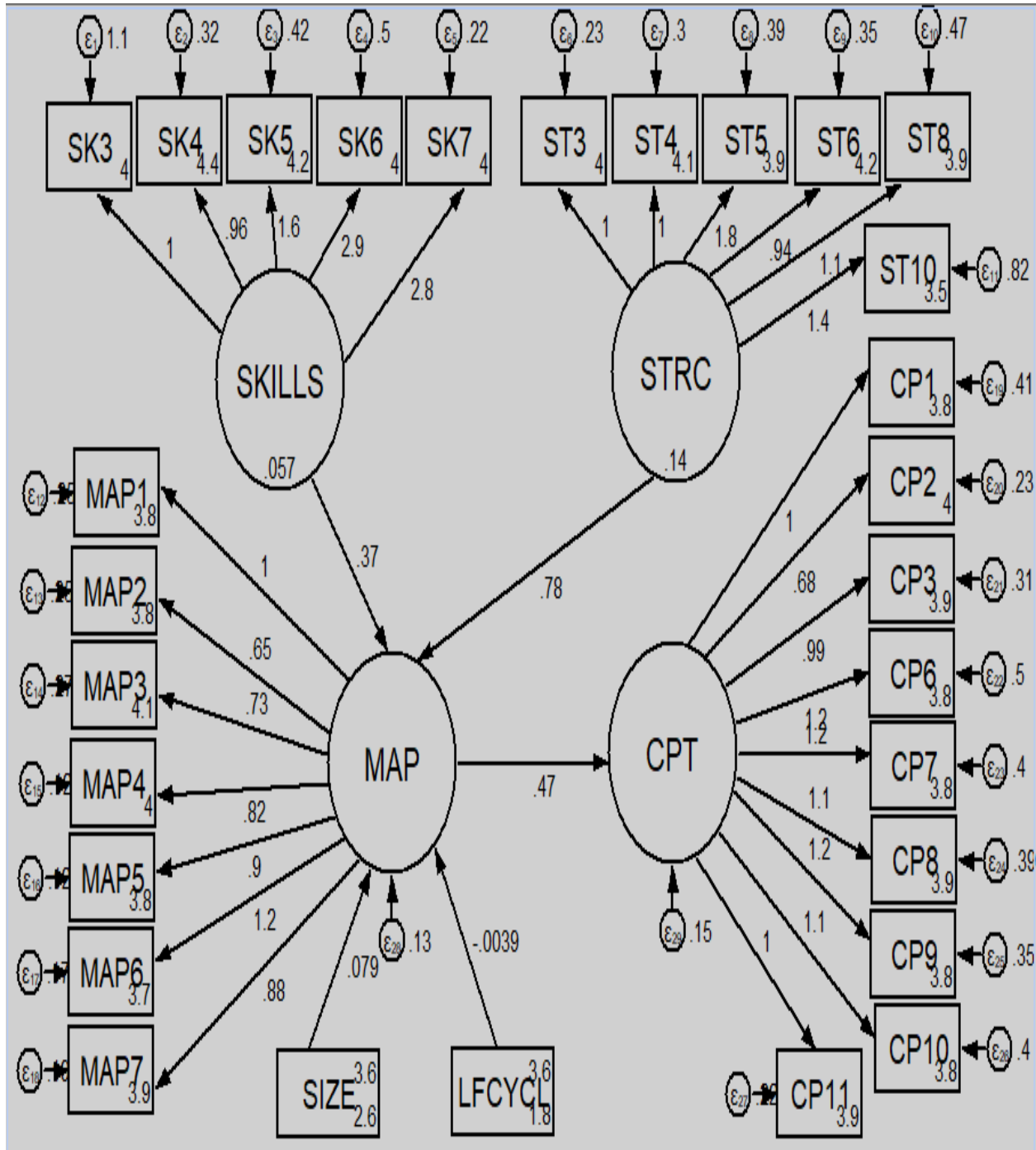
In Model 1, the basic relationship between organizational design elements (i.e., Skills and PMS Structure), MAP sophistication and Organizational competitiveness was analyzed, assuming away the nexus between Skills and PMS Structure. The analysis was to determine the extent to which organizational design affects MAP sophistication, and how MAP sophistication in return affects organizational competitiveness. Company size and organizational lifecycle were retained as control variables affecting MAP (Moores & Yuen, 2001). Result of the analysis is presented in Table 2 and Figure 1.

**Table 2: Structural Equation Analysis Result for Model 1**

Variable	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
-----+-----						
<b>MAP &lt;-</b>						
<b>SIZE</b>	0.0793311	0.0285248	2.78	0.005***	0.0234235	0.1352387
<b>LFCYCL</b>	-0.0038781	0.0335285	-0.12	0.908	-0.0695928	0.0618367
<b>SKILLS</b>	0.3664753	0.2664698	1.38	0.169	-0.155796	0.8887466
<b>STRC</b>	0.7785183	0.1825907	4.26	0.000***	0.4206471	1.13639
-----+-----						
<b>CPT &lt;-</b>						
<b>MAP</b>	0.4687285	0.1107106	4.23	0.000***	0.2517398	0.6857172
-----+-----						
<b>Model Fitness statistics:</b>						
CMINDF ratio = 416.695 ÷ 154.4 = 2.698      RMSEA p ≤ 0.05      Prob > chi2 = 0.0000						
CFI = 0.86      TLI = 0.73      SRMR = 0.032						

\*\*\*p value significant at 1%

**Figure 1: Relationship Between Organizational Design Elements (i.e. Skills and PMS Structure), MAP Sophistication and Organizational Competitiveness [Model 1]**



**KEY:** SKILLS = Quality of Management Accounting Skills; STRC = Structure of the Performance Management System; MAP = Management Accounting Practice Sophistication; CPT = Organizational Competitiveness; SIZE = Organizational Size (control variable); LFCYCL = Organizational Lifecycle (control variable)



A Chi square divided by the degrees of freedom (CMINDF) ratio  $< 3.0$  (Schreiber, et al., 2006), a Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) close to 0.95 (Hu & Bentler, 1999), a Root Mean Squared Error of Approximation (RMSEA)  $p$  value of  $< 0.05$  (Schreiber et al., 2006), and a Standardized Root Mean Squared Residual (SRMR) close to 0 indicate good fit. The result in Table 2 satisfies all the recommended thresholds, confirming model fitness (CMINDF ratio = 2.698; CFI = 0.86; TLI = 0.73; RMSEA  $p < 0.05$ ; SRMR = 0.032).

In Table 2, PMS structure (STRC) has a positive beta ( $b$ ) coefficient of 0.7785183 which is also statistically significant at 1% ( $p = 0.000 < 0.01$ ) while skills (SKILLS) has a lower coefficient ( $b = 0.3664753$ ) which is not statistically significant ( $p = 0.169$ ). This implies that PMS has greater impact on MAP sophistication compared to skills. Organization size (SIZE) has a significant positive impact on MAP ( $b = 0.0793311$ ,  $p = 0.005 < 0.01$ ). Organizational lifecycle (LFCYCL) has a negative and insignificant impact on MAP sophistication ( $b = -0.0038781$ ,  $p = 0.908$ ). Further, MAP sophistication has a significant positive impact on organizational competitiveness (CPT) ( $b = 0.4687285$ ,  $p = 0.000 < 0.05$ ).

#### **4.2.2 Model 2: Alternative Model on the Relationship between Organizational Design elements (with Skills and PMS Structure Modeled as covariates), MAP Sophistication and Organizational competitiveness**

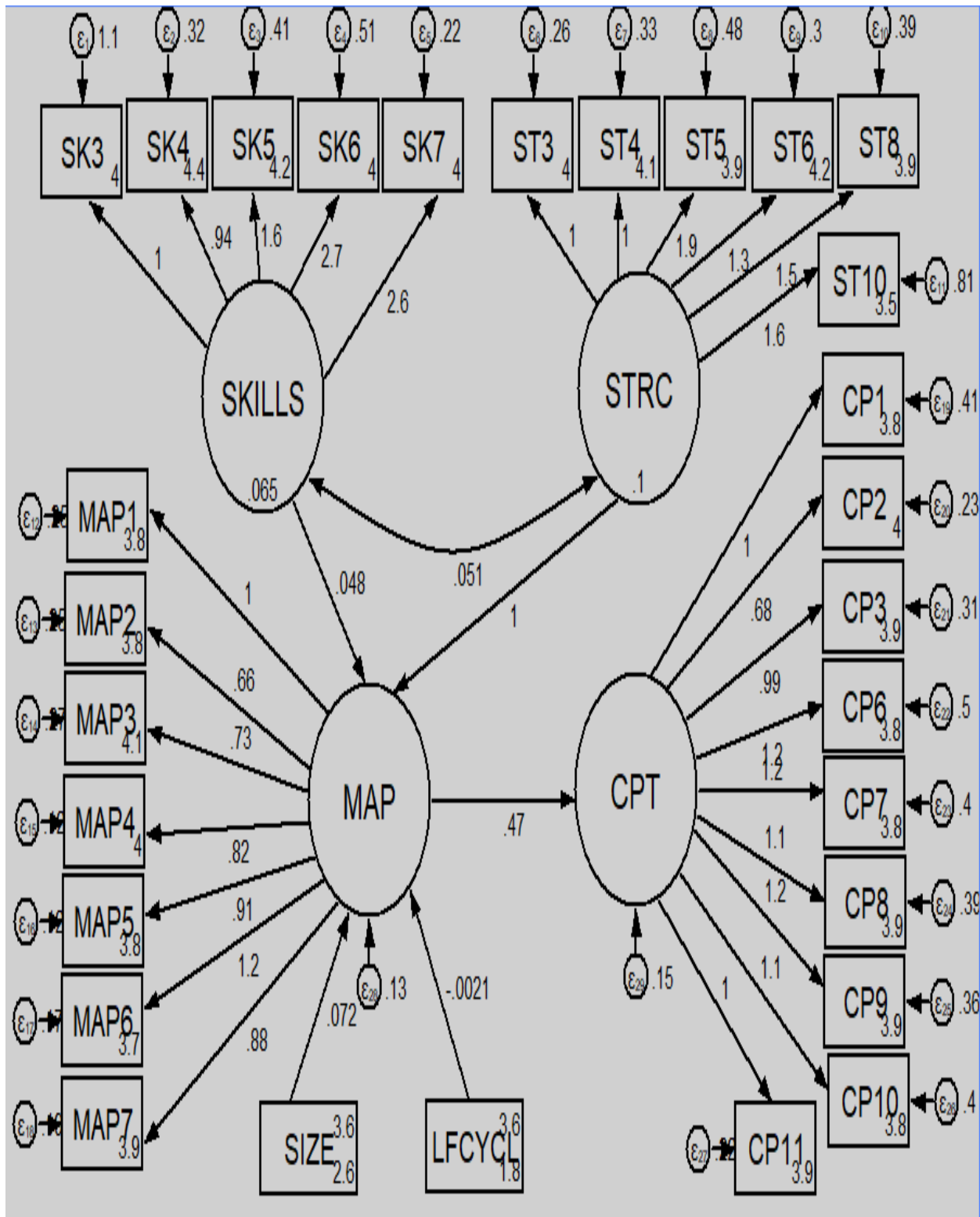
An alternative model (Model 2) was proposed whereby Skills and PMS structure are linked as covariates (depicting their relationship as organizational design elements). This is based on discussion in literature that higher congruence, compatibility or fit amongst organizational design elements leads to better performance (CIMA, 2014a; Burke, 2017). Furthermore, recognizing the two factors as covariates [and as elements of organizational design] gives effect to the interaction approach to contingency theory as proposed in this study (Chenhall & Chapman, 2006). The result of the analysis is presented in Table 3 and Figure 2.

**Table 3: Structural Equation Analysis Result for Model 2**

Variable	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
-----+-----						
<b>MAP &lt;-</b>						
<b>SIZE</b>	0.0717388	0.0285654	2.51	0.012**	0.0157517	0.127726
<b>LFCYCL</b>	-0.0020912	0.0336608	-0.06	0.950	-0.0680651	0.0638827
<b>SKILLS</b>	0.0484097	0.2649092	0.18	0.855	-0.4708027	0.5676221
<b>STRC</b>	0.9962168	0.2896221	3.44	0.001***	0.4285679	1.563866
-----+-----						
<b>CPT &lt;-</b>						
<b>MAP</b>	0.4726133	0.1112938	4.25	0.000***	0.2544815	0.6907452
-----+-----						
<b>cov (SKILLS,STRC)</b>	0.0508542	0.0259425	1.96	0.050**	7.79e-06	0.1017006
-----+-----						
<b>Model Fitness statistics:</b>						
CMINDF ratio = 433.716 ÷ 169.2 = 2.563      RMSEA p ≤ 0.05      Prob > chi2 = 0.0000						
CFI = 0.88      TLI = 0.76      SRMR = 0.042						

\*\*\*p value significant at 1%      \*\*\*p value significant at 5%

**Figure 2: Relationship between Organizational Design Elements (i.e., linkage of Skills and PMS Structure as covariates), MAP Sophistication and Organizational Competitiveness [Model 2]**



**KEY:** SKILLS = Quality of Management Accounting Skills; STRC = Structure of the Performance Management System; MAP = Management Accounting Practice Sophistication; CPT = Organizational Competitiveness; SIZE = Organizational Size (control variable); LFCYCL = Organizational Lifecycle (control variable)

Result in Table 3 confirms model fitness for Model 2 (CMINDF ratio = 2.563; CFI = 0.88; TLI = 0.76; RMSEA  $p < 0.05$ ; SRMR = 0.042). Skills and PMS structure emerged as covariates with weak but statistically significant relationship ( $b = 0.0508542$ ,  $p = 0.050 < 0.01$ ). The significant relationship between the two variables confirms that they are interrelated organizational design elements affecting MAP sophistication. The impact of PMS structure on MAP ( $b = 0.9962168$ ,  $p = 0.001 < 0.01$ ) is statistically significant, while that of skills is not ( $b = 0.0484097$ ,  $p = 0.855$ ). Firm size emerged as a significant control variable affecting MAP sophistication ( $b = 0.0717388$ ,  $p = 0.012 < 0.05$ ), but organizational lifecycle did not exert significant influence ( $b = -0.0020912$ ,  $p = 0.950$ ). MAP sophistication has a significant positive impact on organizational competitiveness (CPT) ( $b = 0.4726133$ ,  $p = 0.000 < 0.05$ ).

Overall, the result for Model 2 (in Table 3) is consistent with that of Model 1 (Table 2) in which PMS structure and organizational size have significant positive impact on MAP sophistication. The impact of Skills and organizational lifecycle on MAP sophistication is not statistically significant. MAP sophistication consistently has a significant positive impact on organizational competitiveness in both Models.

#### **4.2.3 Robustness Check—Controlling for the Predominance of Financial Service Sector**

Considering that the Financial Service sector (Banks & non-banks) makes up 48.1% of the total sample (Table 1), further checks were carried out to evaluate whether the result is driven by the dominant presence of financial institutions. The study controlled for this by splitting the samples and performing additional analysis for firms not operating in the financial service sector. The results obtained are robust enough to validate the earlier findings that PMS structure has a significant positive impact on MAP sophistication ( $b = 0.407$ ,  $p = 0.005 < 0.05$ ), while the impact of Skills is positive but not statistically significant ( $b = 0.064$ ,  $p = 0.568 > 0.05$ ). MAP sophistication also positively and significantly impacts organizational competitiveness ( $b = 0.696$ ,  $p = 0.000 < 0.05$ ). The effect sizes are also comparable to those reported in Tables 2 and 3.

#### **4.3 Test of Hypotheses**

The regressor coefficients for Skills, with respect to its impact on MAP, are not statistically significant in both Models 1 and 2 (Tables 2 and 3). H1a is therefore rejected. The regressor coefficients of PMS structure, in relation to its impact on MAP sophistication, are positive and

statistically significant in Models 1 and 2. H1b is therefore retained. Since the regressor coefficients of MAP sophistication (with respect to its impact on organizational competitiveness) are statistically significant in Models 1 and 2 (Tables 2 and 3), H2 is retained.

## **5 DISCUSSION OF FINDINGS**

To ensure an in-depth discussion of how organizational design elements affect MAP sophistication and organizational competitiveness, boxplots showing the distribution of quality of management accounting skills and robustness of PMS structure across firms are presented in Appendices 2 and 3 respectively. In Appendix 2, most items measuring Skills start at point ‘3’ (which represents the tail of the whisker) on the 5-point measurement scale. In addition, a notable number of firms have scores below 3 (representing outliers). Overall, the result gives the impression that the quality of management accounting skills is generally basic since most items start at the middle point on the 5-point scale. The trend observable in Appendix 2 for quality of management accounting skills contrasts sharply with that of Appendix 3 (boxplot for PMS structure) in which most items have a minimum score of ‘4’, implying robust PMS structure—however, some firms have scores below and above ‘4’. Taken together, the result in Appendices 2 and 3 suggests that although firms differ in organizational design, it appears they generally have robust PMS structure in place, while the quality of management accounting skills is generally basic/ rudimentary. This may be responsible for the significant (insignificant) impact of PMS structure (quality of management accounting skills) on MAP sophistication.

### **5.1 Impact of Organizational Design Elements on MAP Sophistication**

The impact of management accounting skills on MAP sophistication is positive but not statistically significant in Models 1 and 2. This suggests that although management accounting skills has the potential to contribute to MAP sophistication, the quality of such skills generally appears not to be well-refined as to enhance MAP (Appendix 2). Low quality of management accounting skills may be caused by low awareness level on modern MAP; low awareness on MAP may, in return, be attributable to the slow rate of incorporating topics on modern management accounting techniques in the curriculums of academic and professional accounting programs in developing countries (Oyewo, et al., 2015). Even when modern management accounting topics are introduced in accounting programs, they may be taught theoretically or at superficial level, devoid of any

practical application of knowledge—the result is ill-equipped accountants performing management accounting activities that do not yield the gains nor deliver the benefits of implementing modern MAP. Studies have documented paucity of skills as a challenge affecting the uptake rate of management accounting innovation (e.g., Ahl, 1999; Pitcher, 2015).

In recent times, the roles of management accountants have metamorphosed from traditional management accountants providing information for operational planning and control to strategic partners implementing business imperatives (Pasch, 2019). Such changes in management accounting function are being shaped by a combination of factors, including developments in the business environment, the changing roles of management, and the approaches to strategy (CIMA, 2009a; Karlsson et al., 2019). It may be expected, therefore, that the activities performed by the management accounting function should incorporate changes in the business environment if MAP will add value. However, people manning the management accounting function must be well grounded in modern MAP for the management accounting function to contribute meaningfully to the advancement of the organization. This makes it important to improve the quality of management accounting skills.

Result shows that PMS structure is a strong determinant of MAP sophistication in Models 1 and 2, and this may not be unconnected to the generally robust PMS structure instituted in most organizations (Appendix 3). This result establishes the usefulness of MAP as a tool for achieving organizational goals. The result also extends studies on management control systems (e.g., Bedford & Sandelin, 2015; Heinicke & Guenther, 2019).

Firm size contributed significantly to MAP sophistication, thus corroborating submissions in literature that size is a contextual factor influencing the adoption of management accounting innovation as posited by the contingency theory (Cadez & Guilding, 2008). Organizational lifecycle consistently had negative coefficients with respect to its impact on MAP sophistication in Models 1 and 2. This signifies that less-matured/ growing firms are more receptive to innovative MAP compared to developed/ matured firms as argued by scholars (e.g., Pasch, 2019). The reluctance of matured firms to embrace management accounting innovation may be traceable to the ossification of traditional MAP. Organizational rituals may take pre-eminence over planned course of action in developed or matured organizations resulting in strategy drift and the failure to achieve specified objectives (Johnson et al, 2017). Another plausible reason for the low uptake of

management accounting innovation in matured firms could be the nascent nature of the GMAP framework released in 2014 by CIMA and AICPA. The management accounting function may not be sufficiently familiar with innovative management accounting techniques, thereby preferring the implementation of traditional MAP over modern MAP. In addition, the level of bureaucracy/centralization in matured firms may also discourage the application of modern MAP (Pasch, 2019). Conversely, high level of decentralization, which is typical of a growing company, may permit the implementation of modern MAP on a trial basis. Studies have documented the slow adoption speed of modern MAP by large companies (e.g., Yazdifar & Askarany, 2010; Fowzia, 2011).

## **5.2 Impact of MAP Sophistication on Organizational Competitiveness**

MAP sophistication has a significant positive impact on organizational competitiveness in Models 1 and 2. This result is consistent with literature (Yazdifar & Askarany, 2010).

## **5.3 Skills and PMS Structure as Organizational Design Elements (covariates) Affecting MAP Sophistication and Organizational Competitiveness**

Result shows that when Skills and PMS structure were treated as unrelated variables in Model 1, the impact of MAP sophistication on organizational competitiveness (CPT) was 46.87% ( $b = 0.4687285$ ,  $p = 0.000 < 0.05$ ) [Table 2]. When Skills and PMS structure were linked as covariates in Model 2, the impact of MAP sophistication on organizational competitiveness improved incrementally to 47.26% ( $b = 0.4726133$ ,  $p = 0.000 < 0.05$ ) [Table 3]. In effect, the impact of MAP sophistication on organizational competitiveness was enhanced (moved from 46.87% to 47.26%) when Skills and PMS structure were linked as covariates. This provides empirical evidence that a good fit between context (i.e., organizational design elements in this case) and MAP enhances organizational competitiveness as posited by the contingency theory (Gerdin, 2005; Chenhall & Chapman, 2006).

However, the impact of MAP sophistication on organizational competitiveness could have been greater assuming Skills contributed appreciably to MAP sophistication. While PMS structure contributed noticeably to MAP sophistication, moving up from 77.85% ( $b = 0.7785183$  in Model 1, Table 2) to 99.62% ( $b = 0.9962168$  in Model 2, Table 3), the contribution of Skills diminished from 36.64% ( $b = 0.3664753$ , Table 2) to 4.8% ( $b = 0.0484097$ , Table 3). The contribution of PMS structure in enhancing MAP sophistication and organizational competitiveness was almost

counteracted by the negligible contribution of Skills when both variables were linked as covariates. Not surprisingly, there was a slight increase of 0.39% (47.26% - 46.87%) in the impact of MAP sophistication on organizational competitiveness because of the weak contribution of Skills. To recapitulate, although a robust PMS structure may enhance MAP sophistication and, by extension, contribute to organizational competitiveness, the magnitude of its contribution may be affected by the quality of management accounting skills, as both factors (Skills and PMS Structure) are interdependent organizational design elements (i.e., statistically significant covariates). The implication of this result is that improving PMS structure whilst downplaying the quality of management accounting skills is suboptimal. Performance is optimized when organizational design elements are concurrently improved or given equal importance (CIMA, 2014a; Burke, 2017).

## **6 CONCLUSION**

The current study investigates the relationship between management accounting skills and PMS structure as organizational design elements affecting MAP sophistication and organizational competitiveness from the standpoint of the Global Management Accounting Principles (GMAP). The study concludes that whilst the quality of management accounting skills has a positive but insignificant impact on MAP sophistication, the impact of PMS structure on MAP sophistication is positive and significant. Considering that skills and PMS are organizational design elements that are interdependent, the contribution of a robust PMS structure may be counteracted by low quality management accounting skills. MAP sophistication has a positive impact on organizational competitiveness, but the magnitude of its contribution depends on the quality of management accounting skills and the robustness of PMS structure. The inability of MAP sophistication to exert much influence on organizational competitiveness is attributable to low contribution of management accounting skills. Lack of competence in implementing modern MAP may, thus, deny an organization the opportunity of deriving optimal benefits from implementing management accounting innovations.

These findings bring to bear the need to critically look into the quality of skills possessed by people manning accounting function in organizations. Forward-thinking organizations would want to improve the quality of management accounting skills by investing in staff training. This is one of the areas to improve, as the nascent nature of the GMAP framework may be responsible for



insignificant impact of quality of management accounting skills on MAP sophistication. To accord the management accounting function its place as a strategic arm of the business, organizations subsuming management accounting function under general accounting may consider having a separate management accounting department, or outsourcing the management accounting function if the competence for implementing modern MAP is not available in-house. Start-ups or growing organizations with no means of operating a robust standalone management accounting department internally may consider patronizing the services of competent management consulting firms. As external change agents, management consultants should facilitate the switch from traditional MAP to modern MAP for their clients.

## **7 CONTRIBUTIONS TO KNOWLEDGE**

The study contributes to knowledge in the sense that it is the first, to the researchers' knowledge, to investigate the quality of management accounting skills and robustness of PMS as organizational design elements affecting MAP and organizational competitiveness in the Nigerian context from the perspective of the GMAP framework. The study operationalizes some elements of the GMAP framework by developing measurements that can be used in future studies. The paper extends research on management accounting practice and provides empirical evidence on the relevance of the GMAP framework in enhancing the competitiveness of a business. The paper contributes to the debate on contextual factors shaping the design of management accounting system. The study provides empirical evidence on the proposition of the GMAP framework and organizational design models that a good fit between organizational design elements enhances the competitiveness of a business.

The study also contributes to knowledge by presenting empirical evidence that developing the competence of management accountants is in the interest of an organization, as opposed to the practice of according financial reporting issues pre-eminence [in the wake of global adoption of International Financial Reporting Standards (IFRS)] over management accounting. This is because improving one/some aspects of the organization whilst downplaying other elements/ strategic business units/ functions/ departments may be counterproductive. The argument for improving the competence of management accounting personnel is underscored by the consideration that compatibility among organizational design elements directly affects the level of organizational

competitiveness. As shown by the result from this study, the benefits of a robust PMS in improving management practice and creating competitive advantage may be counteracted by lack of competent personnel. All organizational design elements must be given equal importance to achieve the best results. Honing the skills of management accounting practitioners is critical, because performance is optimized when the organizational design elements complement each other. Seeing that MAP sophistication enhances organizational competitiveness, business entities seeking to gain and sustain competitive advantage are implored to intensify efforts in implementing modern MAP. However, this also depends on the availability of skilled personnel, thus reiterating the need to invest in training and development of management accountants.

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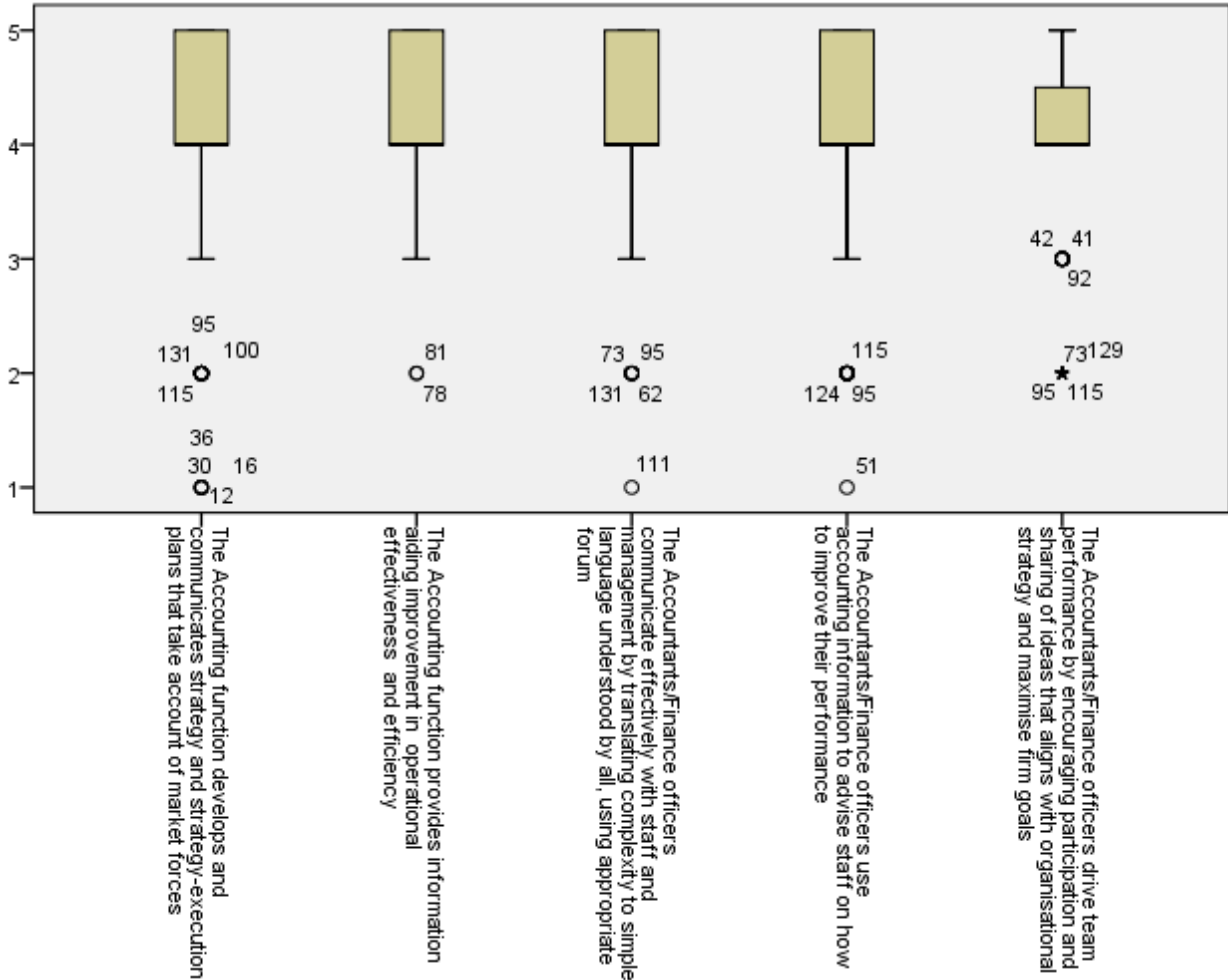
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### Appendix 1: Management Accounting Practice (MAP) Sophistication

Practice Area	Items	Reliability [Cronbach]
Cost Transformation & Management (MAP1)	Cost targets are developed, implemented and refined from time to time with inputs from concerned stakeholders	0.747
	Trend analysis of cost incurred is undertaken as a feedforward strategy to improve cost management practice	
	Cost drivers are analyzed from time to time to gain useful insight into strategies that can be used to better manage cost	
Financial Strategy (MAP2)	Impact of investment decision on shareholders' value is assessed before committing resources to the implementation of such decisions	0.736
	Long-term finance is sourced at lowest costs possible in the capital market	
	Impact of financial and non-financial risks on investment are assessed before resources are committed to implementing investment decisions	
Internal Control (MAP3)	Financial controls are embedded in the organizational structure	0.639
	The activities that expose the organization to risks are assessed and control measures that mitigate the risks are evaluated on a consistent basis	
Investment Appraisal (MAP4)	Investment appraisals are usually performed and the results presented to decision-makers in an understandable manner	0.615
	Investment appraisals are based on estimates that reflect economic realities	
	Non-financial information is incorporated in investment appraisal decisions	
Management and Budgetary control (MAP5)	The budgeting process is open, objective and participative	0.695
	Budget goals and targets are well communicated across the organization	
	Budget participants are regularly updated about their performance as a feedforward strategy to improve achievement of budgetary goals	
	Sensitivity analysis is performed to assess the impact of risk on the realization of budgetary goals	
Price, Discount & Product Decisions (MAP6)	Pricing information for products is readily available to relevant employees	0.723
	The management accounting function is involved in the (new) product development process of the organization	
	The process for product pricing is understood by the concerned parties/employees	
	Sensitivity analysis is carried out on new products introduced into the market	
Treasury & Cash Management (MAP7)	The organization proactively engages with lenders on facilities that require renewal in order to forestall any breach of covenant	0.719
	The cash management system continuously forecasts the cash needs of the organization such as there is no excess or shortage of cash for operation	
	The credit management system is robust enough to ensure timely collection of payments	

	Risks emanating from exchange rate fluctuations are regularly estimated and proactively managed	
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**Appendix 2: Boxplot for Quality of Management Accounting Skills**





### Appendix 3: Boxplot for Robustness of PMS Structure

