# Balanced Scorecard Usage and Organizational Effectiveness: Evidence from Manufacturing Sector

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## Abstract

***Purpose***

This study investigates the drivers and impact of balanced scorecard (BSC) usage on organizational effectiveness in manufacturing companies. The objectives of the paper were to assess the organizational factors affecting the usage intensity of the BSC; the relative benefits of BSC determining its adoption speed; and the extent to which BSC usage enhances organizational effectiveness.

***Design/methodology/approach***

The study adopted survey research design. Data collection was through a structured questionnaire administered on senior accounting/ finance personnel of three hundred (300) manufacturing companies that are members of the Manufacturers Association of Nigeria. Binary logistic regression analysis, discriminant analysis and structural equation modelling (maximum likelihood estimation method) were used to analyze survey data obtained from one hundred and four (104) BSC adopters.

***Findings***

Result shows that the three organizational factors affecting BSC usage intensity are affiliation to foreign entity, availability of specialist skills, and business strategy (strategic pattern). The strongest predictor is however the availability of specialist skills. The strongest determinants of the BSC adoption speed are the need for financial stability and importance of customer feedbacks. The impact of BSC usage on organizational effectiveness is positive, statistically significant but weak. The inability of BSC usage to contribute appreciably to organizational effectiveness is attributable to the lack of integration among the performance measures in the BSC framework and shallow usage rate of BSC.

***Practical implications***

Although it is commendable that financial stability and customer satisfaction strongly drive BSC adoption speed, the low rating recorded by other factors related to product development, employee development and process improvement suggests that the performance measures in the BSC framework are not used in an integrative manner. This also confirms that the BSC, like other innovative management accounting techniques, is applied at a rudimentary level by organizations in Nigeria.

***Originality/ Value***

The current study contributes to knowledge by exposing the organizational factors and relative benefits driving BSC adoption. It provides empirical evidence on why the BSC may not deliver optimal benefit of improving organizational effectiveness despite its popularity and potential as an integrated performance measurement (IPM) apparatus that can add value to organizations. The paper adds to the scarce literature on IPM in developing countries. Drawing from the result that availability of specialist skills is the strongest predictor of BSC usage intensity, the practice of enmeshing the management accounting function with general accounting / finance should be discouraged.

Keywords; balanced scorecard; integrated performance measurement; performance evaluation; organizational effectiveness; management accounting innovation

**JEL Classification:** M10; M41

## 1. INTRODUCTION

It has been well acknowledged that non-financial measures are critical to the success of organizations, as they affect future performance and the ability of an entity to continue into the foreseeable future (Kober & Northcott, 2021; Zawawi, et al., 2020). Yet, the over reliance on, and the extensive application of financial performance measures in business operations continues to surge despite the inability of financial indicators to detect corporate collapse of giant firms in the past (Malgwi & Dahiru, 2014). The growing demand for more integration of non-financial information and their implications on firm's performance as advocated by scholars (e.g., Bui et al., 2020; Moses et al., 2018a), is perhaps yet another reminder that traditional financial performance measures may not be sufficient in accomplishing the strategic goals of organizations in a very agile and competitive business world (Alewine & Miller, 2016). This has exacerbated the shortcomings of a narrow-focused financial performance measurement system, and strengthened the call to embrace contemporary management accounting techniques such as the Balanced Scorecard (van Iwaarden, et al., 2009; Sardi, et al., 2020). Since their emergence in the early 1990s, organizations have embraced the balanced scorecard (BSC) developed by Kaplan and Norton (1992) as one of the widely acclaimed performance management frameworks (Wiersma, 2009; Rompho, 2020). Despite the popularity of BSC, empirical evidence suggests that the debate on its ability to create and add value to firms hangs in the balance (e.g., Alewine & Miller, 2016; Reda, 2017; Aly & Mansour, 2017; Zawawi, et al., 2020). For example, the proclaimed benefits to organizations applying the BSC as a performance management system have been contested (De Geuser, Mooraj & Oyon, 2009; Aly & Mansour, 2017). Extant literature hints that the uptake of traditional financial performance measures is still higher than that of innovative management accounting techniques like the BSC—especially in developing countries (Oyewo, et al., 2021). While there have been some improvements in the adoption rate of innovative management accounting techniques in developing countries (Zahoor & Sahaf, 2018; Moses, et al., 2019), studies show that BSC usage in developing countries is still emerging (e.g., Panicker & Seshadri, 2013; Kala & Bagri, 2014). Arguably, it could be that the adoption of BSC may not have yielded benefits as anticipated, which may explain its slow adoption speed (Gligorea, 2014). As a result, highlighting the importance of further incremental insights into BSC application, and the drivers for its speedy adoption becomes necessary.

Consequently, our study investigates the drivers and benefits of implementing BSC in the manufacturing sector based on a developing country context (in our case, Nigeria). Our study is different from other studies with respect to how we explicate the drivers of BSC usage. We conceptualize the drivers of BSC as: (a) organizational factors affecting the usage intensity of BSC; and (b) the benefits of its speedy adoption. While extant studies have examined the determinants and adoption of BSC (e.g., Chiaburu & Tekleab, 2005; Farooq & Hussain, 2011; Zawawi, et al., 2020), limited research have considered factors affecting its speed of adoption. Moreover, we simultaneously explored the interrelationship between BSC usage, certain organizational factors that characteristically drive management accounting innovations (referred to as control variables in the current study) and organizational effectiveness. We believe that assessing the complexity of the relationships among the variables will provide better insight into the factors affecting the uptake rate of contemporary management accounting techniques. In the meantime, empirical insight of BSC adoption speed is crucial, given the disproportionate pace of its adoption in developing countries despite its anticipated benefits. In the light of the foregoing, our study addresses the following research questions:

(i) What organizational factors drive the usage intensity of BSC?
(ii) Which BSC benefits promote it usage and adoption speed?
(iii) To what extent does BSC usage enhance organizational effectiveness?

Our study setting for understanding the BSC intensity and speed of adoption is Nigeria. This setting is important and timely for several reasons. First, like most developing countries, firms in Nigeria struggle to integrate detailed non-financial information in performance management systems, because of the undue focus on financial measures (Ahmed, Bahamman & Ibrahim, 2015; Oyewo, Oyedokun & Azuh, 2019). Thus, providing an important setting to examine contextual factors shaping the performance management practice of organizations. Second, as one of the leading countries in sub-Sahara Africa, Nigeria occupies a strategic position in Africa (Moses, et al., 2018b; Moses, et al., 2019). The scorecard of performance disclosure by firms in Nigeria may reflect the typical integrated performance measurement (IPM) practice of organizations in Africa, considering that Nigerian manufacturing firms have established their presence in other African Nations. Third, an exposé on the adoption of management accounting innovations such as BSC in Nigeria as the country with the fifth largest economy in Africa (Lagos State Government, 2019) is

a valuable input for assessing the applicability and ubiquity of the BSC as a widely accepted IPM apparatus. Fourth, knowledge on the current state of IPM practice in Nigeria could be useful in developing the roadmap for the adoption of emerging reporting frameworks such as integrated reporting and sustainability reporting in the country in the future.

The remaining part of the paper is organized into five Sections (2-6). Section 2 focuses on literature review and development of research hypotheses. After expounding the methodology in Section 3, results & analyses are covered in Section 4, followed by discussion of findings in Section 5. The paper is concluded in Section 6.

## 2 LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### 2.1 Organizational Factors Affecting Balanced Scorecard Usage

The contingency theory suggests that organizational factors influence the usage of management accounting techniques, including the BSC. As organizational factors are contextual, it should be expected that the selection and usage of management accounting techniques depend on the needs of an organization. The contingency theory has been applied by scholars to investigate contextual factors affecting management accounting practice and the design of management accounting systems such as firm size, organizational lifecycle, market orientation, availability of specialist skills, degree of centralization/decentralization, geographic dispersion, organizational culture, business strategy, technology usage and dependency, and external environmental conditions, amongst others (Cuzdriorean, 2017; Erin & Adegboye, 2021). Notwithstanding that contingent management accounting research is often criticized for the piece-mental way in which it is conducted (Chenhall & Langfield-Smith, 1998), that the contingency theory provides a framework to explore the relationship between an organization and its context is the greatest attraction of the theory for organizational studies (Sardi et al., 2020).

Studies have shown that firm size and organizational lifecycle affect the adoption of management accounting innovation (Oyewo, 2020). In comparison to small start-up firms, large-sized and matured organizations will have more resources to implement an innovation. Similarly, organizations with strong market orientation have a higher propensity to implement management accounting innovations in order to consolidate their market position (Hoque & James, 2000).

Furthermore, well-established and large organizations have the resources to high specialist skills to implement innovative management accounting techniques. The need to assess performance from multiple perspectives using sophisticated and modern accounting system becomes pressing in a business environment characterized by high level of uncertainty. The BSC model is useful as both a performance measurement tool and strategy-implementation tool—thus, research has shown that business strategy typology influences management accounting innovations (Cinquini & Tenucci, 2010).

To situate the contingency theory to the current study, organizational factors may be expected to influence the adoption and usage intensity of BSC (Speckbacher, Bischof, & Pfeiffer, 2003). As the contingency factors affecting the utilization of management accounting techniques are diverse, this study concentrated on three organizational factors affecting BSC usage, namely affiliation to foreign entity, availability of specialist skills, and business strategy. These factors, among others, have been stressed as critical drivers of the adoption of management accounting innovation in recent times (e.g., Cinquini & Tenucci, 2010; Fowzia, 2011; Cadez, S., & Guilding, 2012). They were also selected due to their interrelatedness in reinforcing the utilization of modern management accounting techniques. Organizational lifecycle and size were enumerated as control variables closely related to and affecting the selected contingency variables. Organizational size has been observed to affect management accounting practice (e.g., Abdel-Kader & Luther, 2008; Cadez & Guilding, 2008). In comparison to small-sized firms, it has been argued that larger organizations have the resources to operate a sophisticated management accounting system, and the resources to hire specialists (Al-Omiri & Drury, 2007; Abdel-Kader & Luther, 2008). Advanced management accounting techniques (such as the BSC) is therefore likely to be adopted and intensely applied by larger firms (Haldma & Laats, 2002; Albu & Albu, 2012; Ahmad & Zabri, 2015).

Organizational lifecycle may also influence BSC usage (Chartered Institute of Management Accountants, CIMA, 2009). Matured organizations may have recognized the importance of modern management accounting techniques due to the value that a contemporary management accounting function may have added over the years to the organization (Moores & Yuen, 2001). As matured organizations may have expanded in size (Mullins & Christy, 2013), and would have wider customer-base, they may find the non-financial perspectives of the BSC useful for

performance management, and may have a greater tendency to apply the BSC extensively in comparison to start-up or growing firms (Wake, 2015). The ability of matured and large-sized firms to hire specialist may also account for high usage rate of BSC (Sousa, Aspinwall & Rodrigues, 2006). Hoque & James (2000), using empirical data from sixty-six (66) Australian manufacturing firms, deduced that size of organization, product life-cycle stage, and market-position influence the adoption of BSC. Organizational size was reported to have a positive relationship with BSC usage. Also, firms with products at early stage of lifecycle; and organizations with novel products were observed to intensely apply the BSC (Hoque & James (2000). Relatedly, Eldridge, van Iwaarden, van der Wiele & Williams' (2014) study concluded that the propensity to apply management control techniques (including BSC) is high during the period of uncertainty. Based on these discussions, the following is hypothesized:

*H1: There will be significant difference in the usage intensity of BSC on account of organizational factors*

Research shows that social network and linkages among internationally-connected organizations within the same system promote the uptake of the behavior of those organizations (Haider, 2010; Abdo & Aldrugi, 2012). It may be expected, therefore, that foreign-affiliated firms may extensively apply the BSC because the culture of their parent companies/ associates influence their organizational practice (Ahl, 1999; Järvenpää, 2007; Ajibolade, 2013). Moreover, multinational organizations face greater competitive pressures and are more motivated to implement innovative management accounting techniques to survive in comparison to indigenous firms competing in local terrains. Thus, subsidiaries or associates of multinational companies will have a greater tendency to implement IPM system as a coping mechanism (Eldridge et al., 2014; Weqar et al., 2020; Rompho, 2020). Therefore,

*H2: Foreign-affiliated firms are likely to apply the BSC intensely in comparison to local firms*

Some scholars have adduced the availability of qualified accounting personnel as a critical factor for the successful installation of modern management accounting systems (e.g.,Collis & Jarvis, 2002; Haldma & Laats, 2002; Ismail & King, 2007). BSC usage intensity may, therefore, depend on the availability or presence of specialist skills. After investigating the factors affecting BSC adoption in forty (40) Dutch firms, Braam & Nijssen (2008) concluded that the finance department

plays a significant role in BSC adoption. Oyewo's (2020) study of one hundred and thirty-one (131) firms in Nigeria observed that organizational characteristics such as size, organization lifecycle, presence of specialist skills, affiliation to foreign entity and ownership structure significantly affect the robustness of management accounting practice. This discussion leads to the next hypothesis that:

> *H3: Firms with specialist skills in management accounting are likely to witness intense application of BSC in comparison to firms with no specialist skills.*

Studies have linked adoption of management accounting practice to the type of strategy pursued by organizations. While Pascale & Athos (1982) and Hiromoto (1988) noted that there is a nexus between corporate goals and management accounting practice, Langfield-Smith (1997) supported by Chenhall (2003) asserted that certain type of management accounting system will be more suited to particular goals and strategies than others. The strategy typologies used in management accounting studies have however differed considerably, but are notably categorized into: (i) Miles & Snow's (1978) *prospectors, analysts*, and *defenders* taxonomy; (ii) Porter's (1980) *product cost leadership, differentiation, and focus (niche) strategy* categorization; and (iii) Gupta & Govindarajan's (1984) *build, hold* and *harvest* classification. The strategy-orientations influencing BSC adoption, using Miles & Snow's (1978); Gupta & Govindarajan's (1984); and Porter's (1980) classification are the strategic pattern, strategic mission and strategic positioning respectively (Langfield-Smith, 1997).

Miles & Snow (1978), categorizing strategic pattern according to the rate of change in product or market, identified three typologies: *Prospectors* (compete mainly through product innovation, offering wide product range), *Defenders* (operate in a relatively stable environment and offer a narrow product range) and *Analyzers* (combine features of *Prospectors* and *Defenders* because they compete in two types of product-market domain; one is more stable, the other more dynamic). *Prospectors* have a greater tendency to apply BSC for the purpose of developing new products and improving customers' experience (Kohn, 2005; Jørgensen & Messner, 2010). Hendricks, Menor & Wiedman (2004) detected that the adoption of BSC is significantly influenced by business strategy, firm size, and environmental uncertainty. They concluded that BSC adopters are more likely to follow a Prospector or Analyzer business strategy; adopters are significantly larger; and adopters exhibit significantly higher environmental uncertainty than non-adopters. However, some

scholars have argued that defenders have a greater propensity to use modern management accounting techniques than *prospectors* (e.g., Cinquini & Tenucci, 2007; Fowzia, 2011). However, we hypothesize that:

> *H4a: Firms pursuing a prospector strategy are likely to apply BSC intensely when compared with firms following a defender strategy*

Using the life-cycle costing concept, four strategic missions were conceptualized by Gupta & Govindarajan (1984) viz; *Build* strategy (aims to increase market share and competitive position in spite of unfavorable short-term earnings and cash flow), *Harvest* strategy (aims at maximizing short term earnings and cash flow rather than improving market share), *Hold* strategy (caught between the Build and Harvest strategies), and *Divest* strategy (seeks to end the activity). Firms using a *Build* strategy will find the BSC useful in developing new products, tracking customer patronage, improving efficiency of internal business process and enhancing overall market share (Nixon, Burns & Jazayer, 2011; Njuki, Okoth, Mutua & Mwangómbe, 2013). Therefore,

> *H4b: Firms deploying a Build strategy are likely to apply BSC intensely in comparison to firms following Harvest strategy.*

Three generic strategies identified by Porter (1980) are: *cost leadership* (the objective is to obtain the lowest cost relative to the competitors using economies of large scale advantage), *differentiation strategy* (providing products that have uniqueness in features per quality, customer service, design, after-sale service, etc.); and *focus strategy* (targeting to provide goods and services to specific market segment as against servicing the entire market segment as in the case of cost leadership and differentiation strategies). Firms servicing a particular market segment would be interested in knowing how well they are meeting the needs and expectations of their customers (Kennedy, Goolsby & Amould, 2003). The strength of *focus* strategy-orientated firms lies in providing unique products/ services to customers—to track performance, they will rely heavily on various non-financial performance measures (AbuKasim & Minai, 2009; Holm, Kumar & Plenborg, 2016). Based on this discussion, it is hypothesized that:

> *H4c: Firms pursuing a focus strategy are likely to apply BSC intensely in comparison to firms deploying cost-leadership and differentiation strategies*

### 2.2 Benefits of Balanced Scorecard Usage in Enhancing Organizational Effectiveness

Since the use of BSC as an IPM system is still being adopted as an innovative management accounting technique—especially in developing countries—BSC usage could be conceived as an innovation. The diffusion of innovation theory may, thus, explain the uptake of BSC as a management accounting innovation. The diffusion of innovation theory posits that innovation characteristics such as relative advantage, compatibility, complexity, trialability, and observability affect the rate of spread of an innovation (Rogers, 2003; Wisdom, Chor, Hoagwood & Horwitz, 2014). Relative advantage, to Rogers (2003, p. 229) is "the degree to which an innovation is perceived as being better than the idea it supersedes". An innovation is adopted if it is considered more advantageous than an existing practice. The contextualization of the theory to this study suggests that the BSC as a IPM tool would be preferred over traditional performance evaluation measures because of its relative benefits in sustaining customer relationship, provoking new product development, improving internal business processes, encouraging taking feedback from client seriously, and maintaining financial stability (Libby, Salterio, & Webb, 2004; Frezatti, Bido, Cruz, & Machado, 2015; Chartered Global Management Accountants, CGMA, 2016).

Overall, the deployment of BSC should enhance organizational effectiveness since the use of IPM system ensures collaboration by linking functional areas/ departments during strategy formulation and implementation (Bose & Thomas, 2007; Weqar et al., 2020; Yap, Lee, Said & Yap, 2013; Rompho, 2020). The synergistic benefit of such linkage is realized when goal congruence is promoted across strategic business units (SBUs) within an organization (Johnson, Skoog, Backlund, Almqvist, 2006; Malgwi & Dahiru, 2014). Therefore,

*H5: The relative benefits of BSC, over traditional performance evaluation measures, in enhancing organizational effectiveness will significantly affect its usage rate among firms.*

## 3. RESEARCH METHODS

### 3.1 Research Design, Population and Sample

The study adopted a survey research design in line with some prior related studies (e.g., Fowzia, 2011; Steve & Fiona, 2015). The list of firms registered with the Manufacturers Association of Nigeria (MAN) was used as the sampling frame. The MAN membership is open to manufacturing

firms employing not less than ten persons in permanent establishment. MAN has over 2,800-member manufacturing firms as at 31st December 2016 (MAN Annual report, 2016) but the number increased to over 3,000 as at January 2020 (MAN website, https://www.manufacturersnigeria.org).The total number of manufacturing firms was taken to be 3,000 for the study. Using a 10% rule of thumb (Alreck & Settle, 1995; Adwok, 2015), 300 firms were selected as sample size. Three hundred (300) copies of the questionnaire were administered on manufacturing firms operating in Lagos State, one of the states in the South-West of Nigeria reputed to be the commercial nerve of Nigeria. The selection of Lagos was also based on its geographic characteristic of having a proliferation of manufacturing firms.

### 3.2 Respondent's Attrition and Response Rate

The questionnaire was addressed to senior accounting/ finance personnel performing oversight role in the sample firms because of their expected knowledgeableness on accounting practices in the organizations. Respondents were requested to complete the questionnaire if their firms have adopted BSC. Bearing in mind that the focus of the study was to examine BSC usage for firms that have adopted, and as there was no way to initially differentiate adopters from non-adopters, this approach was used to filter adopters from non-adopters. 112 firms responded that they have not adopted the BSC, thereby declining the questionnaire completion; 77 firms did not respond at all and copies administered to those firms could not be retrieved after some follow-up. 111 copies of the questionnaire were retrieved but 7 copies were unsuitable for use due to incomplete response. In all, 104 copies were found usable and processed for analysis, representing an effective response rate of 55.32% (104 / 188), excluding the 112 non-adopters.

### 3.3 Measurement of Variables

#### (a) Organizational Factors

Affiliation to foreign entity was measured by requesting respondents to indicate the location of parent/ head office (either within or outside Nigeria). Availability of specialist skills was gauged

by asking whether or not the organization has a separate management accounting department (Haldma & Laats, 2002; Ismail & King, 2007).

Business strategy was measured by the three strategy-orientation—strategic mission, strategic pattern, and strategic positioning (Cinquini & Tenucci, 2010; Cadez & Guilding, 2012). The study attempts a simultaneous exploration of the typologies using Shortell & Zajack's (1990) approach. For each dimension—strategic mission [*Harves*t versus *Build*]; strategic pattern [*Defender* versus *Prospector*]; and strategic positioning [*Cost leadership* versus *Differentiation*]—respondents were asked to select the option that best described the business strategy of their organization. The following descriptions were used as applied in prior studies (e.g. Cinquini & Tenucci, 2010; Cadez & Guilding, 2012): (i) *Harvest* (the goal of the organization is to maximize profitability in the short-medium term, be willing to sacrifice market share)/ *Build* (the goal of the organization is to increase sales and market share, be willing to accept low returns on investment in the short-medium term); (ii)*Defender* (the business is characterized by a constant competition, relatively stable set of product/service, efficiency and specialization tendency and a centralized organization)/ *Prospector* (The business is characterized by a dynamic competition, relatively frequent changes in its set of product/service, continuous efforts to pioneer in new market areas and a flexible structure); (iii) *Cost leadership* (the primary focus is to achieve low costs relative to competitors)/ *Differentiation* (the primary focus is to create something that is perceived as unique by the customers through superior product features, customer service, brand image and/or performance).

**(b) Control Variables**

Organizational lifecycle was proxied by firm age. Firm size was measured using number of employees (Yap et al., 2013; Al-Mawali, 2015) and Turnover (Cadez & Guilding, 2012; Cinquini & Tenucci, 2010; Ahmad & Zabri, 2015). The Small and Medium Enterprises Development Agency of Nigeria, SMEDAN (2013) criterion was adapted in classifying firms into sizes of small (less than 100 employees), Medium (100-200 employees) and large (above 200 employees) firms respectively. Organizational size was also measured using Turnover in the categories of small (less than ₦ 20 Million), Medium (₦ 20-50 Million), large (>₦ 50 ≤ N 100Million) and very large (Over ₦ 100Million) firms respectively.

**(c) Adoption Speed of BSC**

Adoption Speed of BSC, in the context of this study, refers to how fast an organization is in applying BSC as a management accounting innovation in relation to other organizations in the industry. The adoption speed of BSC was measured by asking respondents how long their firms have been applying the BSC in three categories of: (i) less than 5 years (firms adopting within this period were regarded as *Laggards*); (ii) 5-10 years ago (firms labelled as *Early majority*), and; (iii) more than 10 years ago (firms in this category were designated *Innovators*). Studies on diffusion of innovation have used a similar methodology to group adopters of innovations (Wisdom, et al., 2014).

**(d) BSC Usage**

BSC usage was measured through a self-developed scale by requesting respondents to rate on a scale of 1 ('very low') to 5 ('very extensive') the extent to which their firm use each of the four BSC perspectives to assess organizational performance. Responses obtained were summed up and averaged to develop a BSC usage index. Earlier studies have used a similar approach to operationalize the usage of management accounting techniques (e.g.,Abdel Al & McLellan, 2011; Fowzia, 2011; Oyewo, Oyedokun & Azuh, 2019).

For the purpose of classifying firms into categories based on usage intensity of BSC, firms were dichotomized into *non-intense users* (firms with BSC usage index of up to 3.99) and *intense users* (firms with BSC usage index of 4.00 and above). The use of the 4.00 criterion (equivalent of 80% on the 5-point scale) for categorizing users is informed by the consideration that a 80% usage rate represents extensive usage.

**(e) Benefits of BSC Usage**

A self-developed scale, featuring seven items, was used to measure the benefits of BSC usage. On a scale of 1 (Strongly Disagree) to 5 (Strongly Agree), respondents were requested to rate the extent to which they agree/disagree on a list of benefits derived by their organization from using the BSC in the following areas: (i)financial stability; (ii) sustenance of customer relationship; (iii) personnel development; (iv) responsiveness to corporate social responsibilities; (v) improvement of internal business processes; (vi) new product development; and (vii) customer feedback. These measures were developed based on the benefits that accrue from the adoption of the BSC framework across the four broad perspectives suggested in literature (e.g., Bose & Thomas, 2007;

Aly & Mansour, 2017). For the purpose of performing structural equation modelling, the seven items were combined to form a latent reflective variable ("BSC_Benefit") labelled "benefit of BSC Usage in improving organizational effectiveness".

### 3.4 Validity and Reliability

Internal validity was achieved by developing new scales and adopting/ adapting existing ones used in prior studies to measure variables. Face and Content validity were achieved by submitting initial draft of the questionnaire to three experts (one academic and two management accounting practitioners) for critiquing. Feedbacks obtained were used to improve the quality of the instrument. To minimize measurement error, multi-item measures were used. Cronbach alpha was used to gauge the reliability of the multi-item variable measurement (Table 1).

**Table 1: Reliability Test Result for Multi-Item Scale**

| Variable | Cronbach's Alpha | Number of Items |
|---|---|---|
| BSC Usage | .872 | 4 |
| Benefits of BSC usage | .936 | 7 |

Both items in Table 1 satisfy the minimum acceptable coefficient of 0.7, thus confirming reliability (Sabine & Brian, 2004).

### 3.5 Method of Data Analysis

Descriptive statistics, binary logistic regression analysis, discriminant analysis and structural equation modelling (maximum likelihood estimation method) were used to analyze data.

## 4. RESULTS AND DISCUSSION

This section present results of analysis and discussion of findings.

### 4.1 Respondents' Profile and Firm Attributes

Educational profile of respondents and attributes of sample firms are reported in Tables 2 and 3.

**Table 2: Educational Profile of Respondents**

| Variable | Categories | Frequency (n) | Percentage (%) |
|---|---|---|---|
| | First Degree | 56 | 53.8 |

| | | | |
|---|---|---|---|
| **Highest Academic Qualification** | Second Degree (Masters) | 39 | 37.5 |
| | Third Degree (Doctorate) | 9 | 8.7 |
| | **Total** | **104** | **100.0** |
| **Professional Qualification** | Professionally-Qualified | 79 | 75.9 |
| | Not Qualified | 25 | 24.1 |
| | **Total** | **104** | **100.0** |

The academic and professional qualifications of respondents reported in Table 2 reveal that 56 (53.8%) hold a first degree, 39 (37.5%) a second degree, and 9 (8.7%) a third/ Doctorate degree. Further, 79 (75.9%) are professionally-qualified, while 25 (24.1%) have no professional qualification. These results suggest respondents should have requisite knowledge on the subject of investigation.

**Table 3: Attributes of Study Firms**

| Firm Attribute | Categories | Frequency (n) | Percentage (%) |
|---|---|---|---|
| **Organizational lifecycle (Age of Organization)** | 1-5years | 4 | 3.8 |
| | 6-10years | 13 | 12.5 |
| | 11-14years | 14 | 13.5 |
| | 15-20years | 17 | 16.3 |
| | above 20years | 56 | 53.8 |
| | **Total** | **104** | **100.0** |
| **Size 1 (Number of employees)** | Less than 100 | 12 | 11.5 |
| | 100-200 | 18 | 17.3 |
| | above 200 | 74 | 71.2 |
| | **Total** | **104** | **100.0** |
| **Size2 (Turnover per annum)** | less than ₦20Million | 7 | 6.7 |
| | ₦ 20-50Million | 3 | 2.9 |
| | >₦ 50 ≤ ₦ 100Million | 10 | 9.6 |
| | Over ₦ 100Million | 84 | 80.8 |
| | **Total** | **104** | **100.0** |
| **Location of parent company** | In Nigeria | 89 | 85.6 |
| | Outside Nigeria | 15 | 14.4 |
| | **Total** | **104** | **100.0** |
| | Yes | 63 | 60.6 |
| | No | 41 | 39.4 |

| | | | |
|---|---|---|---|
| **Existence of Management Accounting department** | **Total** | **104** | **100.0** |
| **Strategic Pattern** | *Defender* | 60 | 57.7 |
| | *Prospector* | 44 | 42.3 |
| | **Total** | **104** | **100.0** |
| **Strategic Mission** | *Build* | 82 | 78.8 |
| | *Harvest* | 22 | 21.2 |
| | **Total** | **104** | **100.0** |
| **Strategic positioning** | *Cost leadership* | 10 | 9.6 |
| | *Differentiation* | 57 | 54.8 |
| | *Focus* | 37 | 35.6 |
| | **Total** | **104** | **100.0** |
| **Timeliness of BSC Adoption (i.e., Adoption Speed)** | Laggards(< 5 years ago) | **57** | 54.8 |
| | Early majority(5-10 years ago) | **29** | 27.9 |
| | Innovators (> 10 years ago) | **18** | 17.3 |
| | **Total** | **104** | **100.0** |

The result presented in Table 3 shows that firms differ in age, size, affiliation, structure and strategy-orientations. These heterogeneity in firm attributes provides a robust context for investigating the issues affecting BSC usage in diverse organizational settings.

### 4.2 Organizational Factors Affecting BSC Usage Intensity

To assess the organizational factors determining BSC usage intensity, firm attributes were regressed against BSC usage intensity using logistic regression analysis. Firms *not intensely applying* the BSC were coded '0', while those *intensely applying* the BSC were coded '1'. Logistic regression results are reported in Tables 4a to 4c.

**Table 4a: Model Fit Statistics for Logistic Regression**

| Omnibus Tests of Model Coefficients | | | | | Model Summary | | |
|---|---|---|---|---|---|---|---|
| | | Chi-square | df | Sig. | -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
| Step 1 | Step | 62.286 | 9 | .000 | 73.111[a] | .451 | .619 |
| | Block | 62.286 | 9 | .000 | | | |
| | Model | 62.286 | 9 | .000 | | | |

**Table 4b: Classification Table[a]**

| | | | Predicted | | |
|---|---|---|---|---|---|
| | Observed | | Intensity of BSC usage | | Percentage Correct |
| | | | Not intense | Intense | |
| Step 1 | Intensity of BSC usage | Not intense | 57 | 10 | 85.1 |
| | | Intense | 4 | 33 | 89.2 |
| | Overall Percentage | | | | 86.5 |

a. The cut value is .500

The full model was statistically significant at 1% [$\chi^2$ (9) = 62.286, p = 0.000 ≤ 0.01] (Table 4a). The model was able to successfully distinguish between firms *intensely applying the BSC* from those *not intensely applying the BSC*. The Cox & Snell R Square coefficient of 0.451, and the Nagelkerke R Square of 0.619 (Table 4a), connote that 45.1% to 61.9% of the likelihood of intensely applying BSC is attributable to the predictor variables. Predictions were correct 90 times out of 104 times, accounting for an overall success rate of 86.5% (Table 4b). Results in Tables 4a and 4b provide full support to accept H1. The strength of the variables in predicting BSC usage intensity is provided in Table 4c.

**Table 4c: Organizational Factors Affecting BSC Usage Intensity**

| Variables | B | S.E. | Wald | Sig. | Odds Ratio |
|---|---|---|---|---|---|
| Constant | -30.943 | 11040.6 | .000 | .998 | .000 |
| Organizational Lifecycle | -.344 | .343 | 1.002 | .317 | .709 |
| Size 1 (Number of Employees) | -.047 | 1.026 | .002 | .964 | .954 |
| Size 2 (Turnover) | 1.784 | 1.605 | 1.235 | .267 | 5.951 |
| **Affiliation to Foreign Entity** | | | | | |
| (Head office in Nigeria) | | | | | |
| Head office outside Nigeria | 2.131 | .979 | 4.732 | .030** | 8.420 |
| **Availability of Specialist skills** | | | | | |
| (No Mgt. Acctg. Unit) | | | | | |
| Presence of Mgt. Acctg. Unit | 3.618 | 1.640 | 4.864 | .027** | 37.249 |
| **Strategic Pattern** | | | | | |
| (Prospector) | | | | | |
| Defender | 1.794 | .937 | 3.669 | .055* | 6.013 |
| **Strategic Mission** | | | | | |
| (Harvest) | | | | | |
| Build | .695 | 1.635 | .181 | .671 | 2.003 |
| **Strategic Positioning** | | | | | |
| (Focus strategy) | | | 3.159 | .206 | |
| Cost Leadership | 17.805 | 11040.648 | .000 | .999 | 54029633.913 |
| Differentiation | 19.233 | 11040.648 | .000 | .999 | 225248444.11 |

***p significant at 5%  *p significant at 10%  ( ) depicts reference group*

From the result in Table 4c, Affiliation to foreign entity ($p = .030 \leq .05$), availability of specialist skills ($p = .027 \leq .05$) and firm strategy (strategic pattern, [$p = .055 \leq .10$]) significantly affect BSC usage intensity. Firms affiliated to foreign entities are 8.420 times more likely to intensely apply the BSC than indigenous firms ($p = .030 \leq .05$). Hence, H2 is retained. Firms with a separate management accounting department are 37.249 times more likely to intensely use the BSC in comparison to firms with no management accounting department ($p = .027 \leq .05$). H3 is retained. Firms pursuing defender strategy are 6.013 times more likely to intensely utilize BSC than prospector-strategy firms ($p = .055 \leq .10$), leading to the rejection of H4a. BSC usage intensity does not significantly differ in terms of Strategic Mission and Strategic Positioning. Therefore, H4b and H4c are rejected.

In summary, the three organizational factors affecting BSC usage intensity are affiliated to foreign entity, availability of specialist skills, and business strategy (Strategic Pattern). The strongest predictor is however the availability of specialist skills judging from the highest odds ratio (37.249) and statistical significance (lowest p value of .027≤ .05) (research question one).

### 4.3 Relative Benefits of BSC Usage affecting the Adoption Speed

#### 4.3.1 Result from Discriminant Analysis

To determine the benefits of BSC driving its adoption speed among firms, the seven dimensions of benefits featured in the research instrument were regressed on the adoption speed using multi-discriminant analysis. Results are reported in Tables 5a-5c.

**Table 5a: Goodness of Fit for Discriminant Function**

| Function | Eigenvalue | % of Variance | Cumulative % | Canonical Correlation | Wilks' Lambda | Chi-square | Sig. |
|---|---|---|---|---|---|---|---|
| 1 | 15.619[a] | 98.4 | 98.4 | .969 | .048 | 297.132 | .000 |
| 2 | .248[a] | 1.6 | 100.0 | .446 | .801 | 21.700 | .001 |

a. First 2 canonical discriminant functions were used in the analysis.

**Table 5b: Classification Results[a]**

| | | | Predicted Group Membership | | | |
|---|---|---|---|---|---|---|
| | | Group Membership | Laggards | Early majority | Innovators | Total |
| Original | Count | Laggards | 57 | 0 | 0 | 57 |
| | | Early majority | 0 | 16 | 5 | 21 |
| | | Innovators | 0 | 8 | 18 | 26 |
| | % | Laggards | 100.0 | .0 | .0 | 100.0 |
| | | Early majority | .0 | 76.2 | 23.8 | 100.0 |
| | | Innovators | .0 | 30.8 | 69.2 | 100.0 |

a. 87.5% of original grouped cases correctly classified.

The multi-discriminant analysis generated two Functions (1 and 2) with 98.4% variance explained by Function 1, while Function 2 explains 1.6% of the variation (Table 5a). The Eigenvalue (15.619) and Canonical Correlation (.969) of Function 1 contrast sharply with that of Function 2

at .248 (Eigenvalue) and .446 (Canonical Correlation) respectively. The Wilks' Lambda (λ) of Function 1 through 2 (.048) is lower than the one for Function 2 (.801) [Table 5b]. Both Functions 1 and 2 are statistically significant at 1% (Model 1: $p = .000 < 0.01$; Model 2: $p = .001 < 0.01$); discriminant Functions 1 & 2 were able to significantly discriminate the adoption speed of BSC vis-à-vis its relative benefits as an IPM tool (Table 5a). As these statistics suggest that Function 1 is more sophisticated than Function 2, discriminant analysis yielded by Function 1 was scrutinized for analysis. The hit ratio of the discriminant analysis at 87.5% (57 + 16 + 18 = 91/104) (Table 5b) suggests that the discriminant function was largely accurate in predicting the adoption speed of BSC based on its relative benefits. Results in Tables 5a and 5b provide full support for the acceptance of H5.

The discriminating power of each variable is provided in Table 5c.

**Table 5c: Standardized Canonical Discriminant Function Coefficients**

| | Standardized Canonical Function | | Structure Matrix | |
|---|---|---|---|---|
| | Function | | Function | |
| Benefits in enhancing organizational effectiveness | 1 | 2 | 1 | 2 |
| BSC has helped to maintain financial stability | .703 | .093 | .779 | -.083 |
| BSC has helped to sustain customer relationship | .338 | .381 | .527 | .364 |
| BSC has helped developed and retain personnel | -.315 | -.368 | .375 | -.118 |
| BSC has helped with responding to corporate social responsibilities | .080 | .961 | .479 | .240 |
| BSC has helped improved internal business processes | .304 | .577 | .146 | .190 |
| BSC has brought about new product development | -.159 | -.771 | .412 | -.339 |
| BSC has encouraged taking feedback from customers seriously. | .553 | -.533 | .679 | -.420 |

Result in Table 5c shows the ordering of variables based on the pooled within-groups correlations between the discriminating variables and standardized canonical discriminant functions. Relative benefits such as maintenance of financial stability (.779) and taking feedback from customers seriously (.679) are high-ranking in the structure matrix. This is consistent with the ranking

produced by the standardized canonical function which shows that the strongest determinants of the BSC adoption speed are the maintenance of financial stability (.703) and taking feedback from customers more seriously (.553) [Table 5c] (research question two).

### 4.3.2 Robustness Check—Customer Satisfaction and Financial Performance as Important Drivers of BSC Adoption.

To check the robustness of the result in Table 5c, additional analysis was performed using the rating on the importance of the BSC perspectives. In a separate section of the questionnaire, respondents were requested to rank the importance of the following BSC perspectives on a scale of 1 ('Unimportant') to 5 ('very important'): (i) Growth in financial indicators such as revenue and profit; (ii) Improvement in Customer satisfaction & service quality; (iii) Improvement in internal processes and operations; (iv) New product development (i.e., an aspect of learning and growth); and (v) Improvement in the employees' skills (i.e., another sub-dimension of learning and growth). The result of the analysis is presented in Table 6. Ranking is in the descending order of: improvement in customer satisfaction (M = 4.99) growth in financial indicators (M = 4.98), improvement in internal processes and operations (M = 4.86), improvement in employees' skills (M = 4.81) and new product development (M = 3.68).

**Table 6: Importance of the BSC perspectives to Firms**

| BSC perspective | Min. | Max. | Mean | SD |
|---|---|---|---|---|
| Improvement in Customer satisfaction and service quality. | 4 | 5 | 4.99 | .098 |
| Growth in financial indicators such as revenue, profit, etc. | 4 | 5 | 4.98 | .138 |
| Improvement in internal processes and operations | 3 | 5 | 4.86 | .380 |
| Improvement in the employees' skills | 1 | 5 | 4.81 | .576 |
| New product development | 1 | 5 | 3.68 | 1.725 |

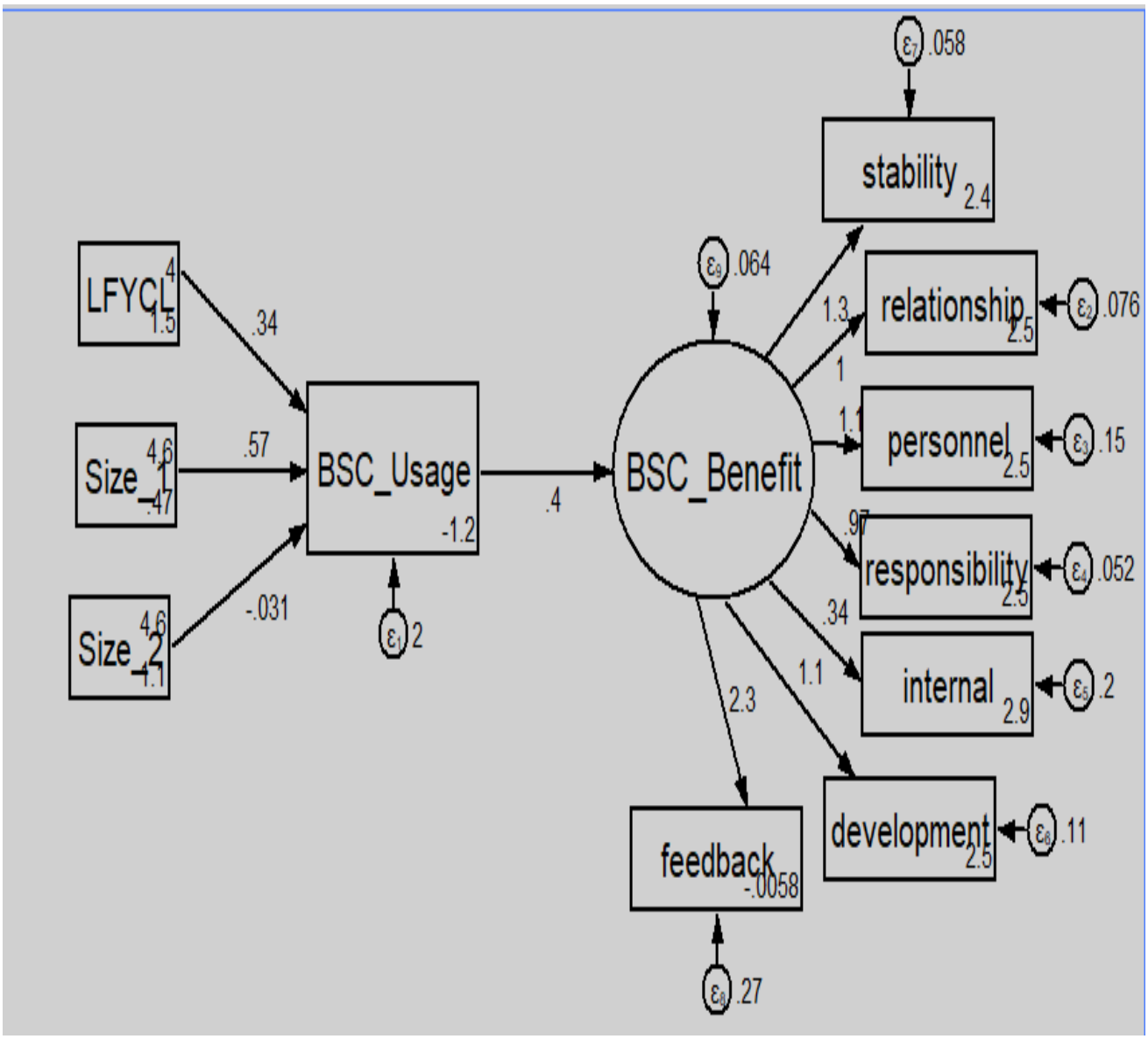
The customer satisfaction and financial performance perspectives are the highest-ranking items with the two lowest standard deviations (SD). This implies there is a strong consensus among respondents with respect to the importance attached to these perspectives. Meanwhile, in Table 5c, benefits relating to financial performance (i.e., maintaining financial stability) and customer perspective (taking feedback from customers seriously, and sustaining customer relationship) are notable determinants. Taken together, the results of Tables 5c and 6 confirm that the need to

improve financial performance and enhance customer satisfaction is important drivers of BSC adoption (research question two).

### 4.4 BSC Usage and Organizational Effectiveness

To examine the extent to which BSC usage has yielded expected benefit in improving organizational effectiveness, structural equation modeling (SEM) was applied. SEM allows for assessment of the interrelationship between BSC usage, control variables and organizational effectiveness since the complexity of relationships between variables can be simultaneously explored using structural equation analysis (Leth-Steensen & Gallitto, 2016). Benefit of BSC usage in enhancing organizational effectiveness was modelled as a reflective latent variable comprising of the seven BSC usage benefits. The result of the analysis is presented in Figure 1 and Table 7.

**Figure 1: Structural Equation Modelling of the Impact of BSC Usage on Organizational Effectiveness with Organizational Lifecycle and Size Modelled as Control Variables**




**Key:** BSC_Usage = BSC Usage; BSC_Benefit: Benefit of BSC Usage in improving organizational effectiveness; LFYCL = Organizational lifecycle; Size_1 = Organizational size measured by number of employees; Size_2 = Organizational size measured by Turnover; stability = BSC benefit in enhancing financial stability; relationship = BSC benefit in sustaining customer relationship; personnel = BSC benefit in developing and retaining personnel; responsibility = BSC benefit in contributing to corporate social responsibilities; internal = BSC benefit in improving internal business processes; development = BSC benefit in developing new products; feedback = BSC benefit in encouraging taking feedback from customers seriously

**Table 7: Structural Equation Analysis Result on the Impact of BSC Usage on Organizational Effectiveness (with Organizational Lifecycle and Size Modelled as Control Variables)**

| | Coef. | Std. Err. | z | P>\|z\| | [95% Conf. Interval] | |
|---|---|---|---|---|---|---|
| BSC_Usage<- | | | | | | |
| LFYCL | .335662 | .1425398 | 2.35 | 0.019** | .0562892 | .6150349 |
| Size_1 | .5688352 | .2994091 | 1.90 | 0.057* | -.017996 | 1.155666 |
| Size_2 | -.0312931 | .1894925 | -0.17 | 0.869 | -.4026916 | .3401053 |
| _cons | -1.201786 | .9502454 | -1.26 | 0.206 | -3.064233 | .6606608 |
| BSC_Benefit<- | | | | | | |
| BSC_Usage | .3955034 | .0225435 | 17.54 | 0.000*** | .351319 | .4396877 |
| **Model Fitness statistics:** CMINDF ratio = 100.047 ÷ 41 = 2.440RMSEA p = 0.001 <= 0.05 Prob > chi2 = 0.0000 CFI = 0.950 TLI = 0.937SRMR = 0.043 | | | | | | |

****p value significant at 1%  **p value significant at 5%  *p value significant at 10%*

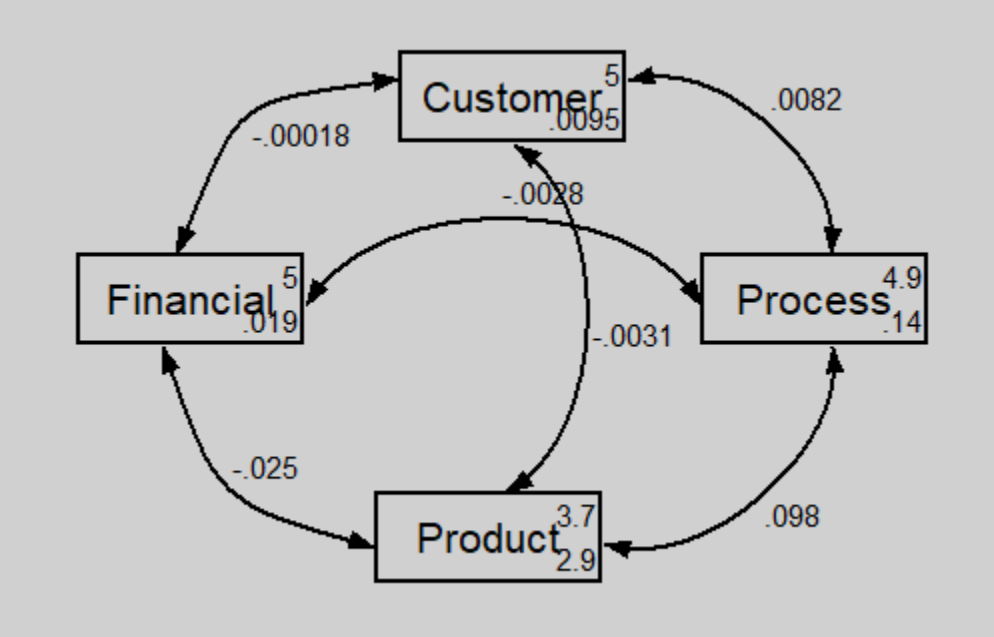
In Table 7, the model satisfies all the diagnostic checks for robustness of results in SEM analysis—Chi square divided by the degrees of freedom, CMINDF ratio = 2.440< 3.0; Comparative Fit Index, CFI = 0.950; Tucker-Lewis Index, TLI = 0.937; Root Mean Squared Error of Approximation, RMSEA $p < 0.05$; Standardized Root Mean Squared Residual, SRMR = 0.043 close to 0.00—indicating that the model fit is reasonable (Schreiber, Nora, Stage, Barlow & King, 2006; Leth-Steensen & Gallitto, 2016). The impact of BSC usage on organizational effectiveness is positive, statistically significant but weak ($b = .3955034$, $p \leq .01$). This implies that although BSC usage can yield the expected benefit of improving organizational effectiveness, the magnitude of its contribution is low (research objective three). H5 is accepted. To investigate the cause of the low impact of BSC usage on organizational effectiveness, diagnostic checks were conducted with respect to the extent of integration among the BSC perspectives (section 4.4.2) and the overall extent of BSC usage (4.4.3).

### 4.4.2 Extent of integration among the BSC perspectives as it affects Organizational Effectiveness

Considering that it is the integrative use of BSC that delivers synergistic benefit of improving organizational performance (Zahoor& Sahaf, 2018; Oyewo et al, 2021), the extent of integration

among the BSC perspectives was analyzed. Measurement of the extent of usage of each perspective, which formed the basis for computing the overall BSC usage index. The four perspectives were linked as covariates, and the interrelationship was assessed using SEM (maximum likelihood estimation method). Result of the analysis is presented in Figure 2 and Table 8.

**Figure 2: Level of Integration among BSC Perspectives**




**Key**: Financial = Financial perspective; Customer = Customer perspective; Process = Internal business process perspective; Product = New product development perspective

**Table 8: Structural Equation Analysis Result on the Level of integration among BSC Perspectives**

| | Coef. | Std. Err. | z | P>\|z\| | [95% Conf. Interval] | |
|---|---|---|---|---|---|---|
| cov(Financial,Product) | -.0253328 | .0232529 | -1.09 | 0.276 | -.0709076 | .0202419 |
| cov(Financial,Customer) | -.0001849 | .0013143 | -0.14 | 0.888 | -.0027609 | .0023911 |
| cov(Financial,Process) | -.0027737 | .0050937 | -0.54 | 0.586 | -.0127572 | .0072098 |
| cov(Product,Customer) | -.003051 | .0164308 | -0.19 | 0.853 | -.0352549 | .0291528 |
| cov(Product,Process) | .0984652 | .0643135 | 1.53 | 0.126 | -.0275869 | .2245174 |
| cov(Customer,Process) | .0082286 | .0037032 | 2.22 | 0.026** | .0009704 | .0154867 |

***p value significant at 5%*

Result in Table 8 shows that the level of integration among the perspectives is weak and not statistically significant in all cases except the interaction of customer and internal business process (cov= .0082286, $p = 0.026 \leq .01$). The lack of interaction among the perspectives confirms that the BSC framework is not used in an integrated manner, which could be responsible for the low impact of BSC usage on organizational effectiveness.

### 4.4.3 Usage Rate of the Balanced scorecard

Result from the analysis of BSC usage rate is presented in Tables 9a and 9b.

**Table 9a: Usage Rate of BSC**

| Range of index | Interpretation | N | % | Cum % | Range | Mean | SD |
|---|---|---|---|---|---|---|---|
| ≤ 1.99 | Very Low | 39 | 37.5 | 37.5 | | | |
| 2.00 – 2.99 | Low | 19 | 18.3 | 55.8 | | | |
| 3.00 – 3.99 | Moderate | 9 | 8.7 | 64.4 | 1-5 | 2.63 | 1.590 |
| 4.00 – 4.49 | Extensive | 16 | 15.4 | 79.8 | | | |
| 4.50 –5.00 | Very Extensive | 21 | 20.2 | 100.0 | | | |
| | Total | 104 | 100.0 | | | | |

In Table 9a, 39 (37.5%) firms use the BSC to a very low extent, 19 (18.3%) to a low extent, 9 (8.7%) to a moderate extent, 16 (15.4%) apply it extensively, and 21 (20.2%) utilize it very extensively. Also, the proportions of extensive users (16 + 21 = 37 representing 35.6%) are less than the non-extensive users (39 + 19 + 9 = 67, representing 64.4%). The Mean usage rate of 2.63 is equivalent to 52.6% on the 5-point measurement scale. The SD of 1.590 confirms that the dispersion in the overall usage rate is pronounced. Additional analysis of the population Mean using four various M-estimators is presented in Table 9b.

**Table 9b: M-Estimators for Usage Rate of BSC**

| | Huber's M-Estimator | Tukey's Biweight | Hampel's M-Estimator | Andrews' Wave |
|---|---|---|---|---|
| SMA usage index | 2.29 | 2.36 | 2.45 | 2.36 |

The various M-Estimators, used to explore the characteristics of the population, show that the sample average ranges from 2.29 to 2.36 (Table 9b). This is consistent with the Mean of 2.63 (Table 9a). Drawing from the results in Tables 9a and 9b, the usage rate of BSC as an IPM tool is adjudged low. Thus, the inability of BSC usage to contribute appreciably to organizational effectiveness is attributable to the lack of integration and shallow usage of BSC as an IPM tool.

Summary of results on test of hypotheses is reported in Table 10.

**Table 10: Summary of Results from Hypotheses-Testing**

| Hypothesis | Proposition | Decision |
|---|---|---|
| H1 | There will be significant difference in the usage intensity of BSC on the account of organizational factors | **Accept** |
| H2 | Foreign-affiliated firms are likely to apply the BSC intensely in comparison to local firms | **Accept** |
| H3 | Firms with specialist skills in management accounting are likely to witness intense application of BSC in comparison to firms with no specialist skills. | **Accept** |
| H4a | Firms pursuing a prospector strategy are likely to apply BSC intensely when compared with firms following a defender strategy | Reject |
| H4b | Firms deploying a Build strategy are likely to apply BSC intensely in comparison to firms following Harvest strategy. | Reject |
| H4c | Firms pursuing a focus strategy are likely to apply BSC intensely in comparison to firms deploying cost-leadership and differentiation strategies | Reject |
| H5 | The relative benefits of BSC, over traditional performance evaluation measures, in enhancing organizational effectiveness will significantly affect its usage rate among firms. | **Accept** |

## 5. DISCUSSION OF FINDINGS

Result shows that of all the three variables examined as predictors of BSC usage (affiliation to foreign entity, availability of specialist skills, and business strategy), the strongest predictor is the availability of specialist skills (odds ratio of 37.249, $p < .05$). The positive and statistically significant coefficients of organizational lifecycle and size (Table 7) provides empirical evidence that matured and large-sized organizations have a higher propensity to implement management accounting innovations as suggested in literature (e.g., CIMA, 2009; Ahmad & Zabri, 2015)

The emergence of the presence of specialist skills as the strongest predictor reinforces the submission of scholars that the availability of qualified personnel is a key driver of the vibrancy of management accounting system (e.g., Haldma & Laats, 2002; Ismail & King, 2007; CIMA, 2009). The acceptance of H1, H2 and H3 reiterates the relevance of the contingency theory in explaining variation in the uptake of management accounting innovations in organizations. Result also shows that organizations affiliated to foreign entities have a greater propensity to apply BSC. Entities affiliated with foreign consulting firms have the tendency to extensively apply BSC because the practice of deploying management accounting innovation to improve organizational performance may stem from the culture of organizations in their networks. Social network and linkages among internationally connected organizations within the same system promote the uptake of the behavior of those organizations, and as a result, members linked in a social system have a tendency to adopt an innovation (Aarons, Hurlburt & Horwitz, 2011; Abdo & Aldrugi, 2012). Furthermore, international organizations face more competitive pressures and may have a greater propensity to adopt BSC to improve their overall competitiveness (Khandwalla,1972; Solomons & Spross, 2011).

Result also shows that firms pursuing defender strategy are more likely to extensively utilize BSC than prospector-strategy firms. This result corroborates submission in literature that defenders have a greater propensity to use strategy-orientated management accounting techniques than prospectors (e.g., Cinquini & Tenucci, 2007; Fowzia, 2011) but controverts Gosselin's (1997) and Hendricks et al.' s (2004) observation that prospector firms have greater propensity to adopt innovative management accounting systems in comparison to defenders. Statistical significance evinced by strategic pattern implies that the result from this study supports application of Miles & Snow's (1978) business-strategy typology. There is no statistically significant difference in BSC usage intensity among firms based on strategic mission and strategic positioning typology, thus hypotheses H4b and H4c are rejected.

Although one strategy sub-dimension (strategic mission) significantly accounts for BSC usage intensity, the inability of the other two strategy variables (strategic mission and strategic positioning) to significantly determine BSC usage suggests that the activities of manufacturing firms in Nigeria are not strongly driven by market orientation. Market orientation is a philosophy in which the management of the activities of an organization is primarily geared towards satisfying

customers' needs (Jaworski & Kohli, 1993; Walker, Boyd, & Larreche, 1998). Market-oriented organizations seek to create superior value for customers in an effective and efficient manner (Narver & Slater, 1990). Organizations with deeper level of commitment to market orientation may be expected to apply the BSC more intensely to improve customer experience, as the non-financial BSC measures are geared towards ensuring customer satisfaction (Guilding & McManus, 2002; van Iwaarden, van der Wiele, Williams & Dale, 2006). Given that various strategy typologies emphasize varying degree of market orientation—and business strategy affects the selection and usage intensity of management accounting techniques (Cadez & Guilding, 2012)—it would have been expected that BSC usage would differ considerably across the strategy taxonomy. However, this seems not to be the case, pointing to possible homogeneity in the approach to customer orientation in the firms. Manufacturing companies in Nigeria still adopt a push-it-to-the-market approach (i.e., production characterized by little or no regard for customers' demand, taste and fashion) rather than a pull-in-through philosophy characterizing modern day manufacturing (Ku, Mustapha & Goh, 2010). Government protectionism policy shielding local manufacturers from international competition through import-substitution has further contributed to the reluctance of manufacturing companies in Nigeria to adopt modern management accounting techniques (Dipak & Ata, 2003). The reluctance to adopt modern management accounting techniques by manufacturing companies may be inapplicable to the service industry characterized by high level of competition and government deregulation (Demirkan & Delen, 2013; Lim, Kim & Maglio, 2018). It may, therefore, not be surprising that business strategy does not strongly determine BSC usage in the case of manufacturing companies. To recap, if manufacturing companies were pursuing dissimilar business strategy emphasizing varying degree market orientation, it is possible that BSC usage would have differ significantly across the business strategy types.

The strongest considerations driving the adoption speed of BSC as an IPM tool are financial stability and the importance of customer feedbacks. This result empirically validates relative advantage as an innovation characteristic affecting the adoption of an innovation (Rogers, 2003; Wisdom, et al., 2014). The recurring appearance of financial stability as both the strongest driver of BSC adoption speed (Table 5c) and one of the perspectives with very high level of importance (Table 6) reveals that the adoption and usage of BSC as a performance measurement tool is strongly driven by the desire to improve financial performance. Firms conventionally measure

performances using financial metrics, and as such, it may have been expected that the financial perspective will be high-ranking. This finding supports the submission of scholars that the financial perspective is still the most dominate measure among the four perspectives (e.g., Ahmad, Abolfazl & Hadi, 2014).

The emergence of customer-related factors (i.e., taking feedback from customers seriously and sustaining customer relationship) as notable determinants of BSC adoption speed (Table 5c) suggests that firms recognize the criticality of customer satisfaction and the usefulness of the BSC in improving customer satisfaction. This argument is corroborated by the high importance attached to customer satisfaction and service quality (Table 6). Although it is commendable that financial stability and customer satisfaction drive BSC adoption, the low rating recorded by the other factors suggests that the performance measures in the BSC framework are not used in an integrative manner. However, considering that it is the integrative usage of BSC that delivers benefits (Zahoor & Sahaf, 2018), it is important to accord all the BSC perspectives equal importance. The need for such an integrative approach is buttressed by the result in Table 7 in which the impact of BSC usage on organizational effectiveness is low due to lack of integration among the BSC perspectives (Figure 2, Table 8) and shallow usage rate of BSC as an IPM tool (Tables 9a and 9b). The low usage rate of BSC as an IPM tool as observed by the current study is consistent with the findings of other studies (e.g., Rigby, 2003; Hendricks et al., 2004;). Overall, the result suggests that the BSC, like other innovative management accounting techniques, is applied at a rudimentary level by organizations in Nigeria.

## 6. CONCLUSION

This study investigates the drivers and impact of BSC usage on organizational effectiveness in Nigerian manufacturing companies. The drivers were investigated from the two perspectives of the organizational factors affecting the usage intensity of the BSC, and the relative benefits of BSC determining the adoption speed. Result shows that the three organizational factors affecting BSC usage intensity are affiliation to foreign entity, availability of specialist skills, and business strategy (Strategic Pattern). The strongest predictor is however the availability of specialist skills (research objective one). The strongest determinants of the BSC adoption speed are the need for financial stability and importance of customer feedbacks (research objective two). The impact of BSC usage

on organizational effectiveness is positive, statistically significant but weak. The inability of BSC usage to contribute appreciably to organizational effectiveness is attributable to the lack of integration among the performance measures in the BSC framework and shallow usage rate of BSC as an IPM tool (research objective three). Although it is commendable that financial stability and customer satisfaction strongly drive BSC adoption speed, the low rating recorded by other factors related to product development, employee development and process improvement suggests that the performance measures in the BSC framework are not used in an integrative manner. This also confirms that the BSC, like other innovative management accounting techniques, is applied at a rudimentary level by organizations in Nigeria.

Drawing from the result that availability of specialist skills is the strongest predictor of BSC usage intensity, the practice of enmeshing the management accounting function with the general accounting / finance function should be discouraged. This will encourage the management accounting function to focus on its core mandate of providing support for the formulation and implementation of strategy through the application of externally-oriented and strategy-driven management accounting techniques as expected of a typical contemporary management accounting function. It becomes necessary to engage competent management accountants to man the management accounting function in order to realize the benefits imbued in deploying modern management accounting techniques.

Extensive usage of innovative management accounting techniques such as the BSC will also call for collaboration and organization-wide changes. To this end, getting the support of other departments is crucial. The performance dimensions of the BSC cuts across functional boundaries. The successful implementation of the BSC, especially its implementation at an advanced level, requires in buy-in other departments/ strategic business units (SBUs). To achieve this, management accountants must play their roles as change agents by creating awareness, providing orientation and facilitating the change process—this is expected to minimize resistance to change. Top management support is also critical in facilitating a smooth transition from traditional performance systems to IPM systems such as the BSC.

The justification for investing in IPM consists in its relative benefit of improving organizational effectiveness. It is counter-productive doing nothing about the feedbacks generated from an IPM system—such feedbacks are important in improving organizational competitiveness. To optimize

the benefits of an IPM system, organizations would have to institute mechanisms to ensure that feedbacks from performance evaluation exercises are acted upon. Business managers could make more use of IPM systems by viewing such feedbacks as triggers for areas needing improvement—appropriate strategies can be crafted to address such areas.

The current study contributes to knowledge by exposing the organizational factors and the relative benefits driving BSC adoption and usage in Nigerian manufacturing companies. It provides empirical evidence on why the BSC may not deliver optimal benefit of improving organizational effectiveness despite its popularity and potential as an IPM apparatus that can add value to organizations. The paper also adds to the scarce literature on integrated performance measurement in developing countries. This research is characterized by some limitations. The study drew samples from manufacturing firms located in Lagos, on the basis that Lagos State is the commercial hub of Nigeria, having a proliferation of manufacturing firms. The study did not disaggregate the manufacturing firms into industry types (e.g., electronics, food & beverage, metals, industrial goods, agriculture, etc.). Results may therefore not be generalizable to all manufacturing firms across industries within the manufacturing sector in Nigeria. Future studies may improve on these limitations by expanding the scope of study to manufacturing firms situated outside Lagos state. As the study concentrated on only manufacturing firms, future studies may investigate the subject in other sectors of the economy, including service firms. The BSC can be used as both a performance measurement and strategic management tool. This study investigated BSC as a performance measurement tool; future studies may investigate issues surrounding its usage as a strategic management apparatus.

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