Critical success factors in introducing performance measurement metrics for small and medium-sized enterprises (SMEs)

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Abstract: The rapid pace of technological advancement and the effect of globalisation have led to far-reaching modifications in the way business is conducted worldwide. Public and private enterprises alike have recognised effective performance measurement systems as a way to gain competitive advantage. This paper addresses the challenges faced by small and medium-sized enterprises (SMEs) in selecting an appropriate performance measurement system to gauge actual performance against their goals and objectives. The literature review was conducted by content analysis and the validity of the findings was tested by a survey on 50 SMEs in Nigeria. The results were analysed using the statistical package for social sciences. The paper had initially proposed six critical success factors that ought to be considered in the introduction of performance measurement systems in SMEs - these were derived from the extant literature. However, results of the empirical evidence suggest that the extant literature on performance measurement from developed economies do not align with findings from developing economies. Based on the findings, a new set of four critical success factors for a performance measurement system in SMEs of developing economies was proposed. These are believed to be better suited to the context of the SMEs and considered essential for them to benchmark their performance successfully against set goals and objectives.

Keywords: critical success factors; performance measurement systems; SMEs.

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1 Introduction

The importance of performance measurement has gained increasing recognition in recent years (Bititci et al., 2012). Accelerated technological developments and the impact of globalisation have necessitated drastic changes to the way business is conducted and managed worldwide (Bititci et al., 2012). Both public and private enterprises have realised the need to effectively measure and monitor the enterprise's performance in both financial and non-financial parameters (Cocca and Alberti, 2010). Inclusive and effective performance measurement systems are essential for gaining competitive advantage and continuously adapting to the dynamic environment in which small and medium-sized enterprises (SMEs) operate. The cliché '*what gets measured gets attention*' has been widely alluded by scholars like Neely (2002), Kaplan and Norton (2007) and Bititci et al. (2012). Furthermore, a performance measurement system has to be dynamic, modifiable and adaptable to fit the current circumstances of the organisation (Cocca and Alberti, 2010).

Private businesses mostly consist of SMEs. SMEs are considered the bedrock of developing economies (Bannocks, 2005). These enterprises, as a sector, are the largest employers of labour and contribute significantly to the economies of most countries (Apulu and Ige, 2011). Effective and efficient management of SMEs is critical to ensure their sustainability as they operate differently from large corporations (Montazemi, 2006). Large corporations have the financial, human capital and expertise to procure and implement complex performance measurement systems and ensure their relevance to the company's short- and long-term goals (Garengo et al., 2005).

Conversely, SMEs are usually not governed by quantitative metrics and a measurable performance or reporting system (Apulu and Ige, 2011). SMEs worldwide are characterised by inadequate resources and lack of managerial expertise (Cocca and Alberti, 2010; Garengo et al., 2005; Sousa and Aspinwall, 2010). This situation does not augur well for SMEs as they, more than large corporations, have to be flexible and react to market forces in order to forestall extinction (Albayrak and Gadatsch, 2012).

The objective of this paper is to proffer critical success factors (CSFs) in introducing performance measurement metrics in SMEs. The paper proposes these factors as vital in the choice, implementation and deployment of any performance measurement metrics within SMEs in order to guarantee the success.

2 Theoretical foundation

In view of the vital role that SMEs play in national economies, there has been increased interest and attention to the research literature regarding their management in the last two decades. Research in this area has identified a number of potential pitfalls in the ability of the owner-manager to make sound business decisions (Bannocks, 2005). This is disconcerting considering how many people in the economy are dependent on the growth, profitability and sustainability of SMEs (Apulu and Ige, 2011). The importance of ensuring a balanced parameter to check the effectiveness of performance against set goals and objectives within SMEs has brought to the fore the issue of performance measurement and how this can be implemented successfully.

Furthermore, secondary literature has shown that most of the performance measurement systems employed by large corporations are unsuitable for SMEs as their operating environment is characteristically less complex and less resourced than large corporations (Cocca and Alberti, 2010; Garengo et al., 2005; Hudson et al., 2001). Thus, the need for a structured system for the purpose of decision-making provides the background for the adoption of a performance measurement system in SMEs.

2.1 Performance measurement

Traditionally, performance measurement has been described as a balanced and dynamic system that is able to support the decision-making process by gathering, elaborating and analysing information (Neely, 2002). Garengo et al. (2005) define performance measurement as the process of quantifying the efficiency and effectiveness of action. The role of performance measurement metrics in the SME is vital as it clearly defines the goals, controls and expected outcomes regarding work processes undertaken in the enterprise (Bititci et al., 2012).

Based on a plethora of academic writing on performance measurement, the following characteristics of a performance measurement system are deduced (Bititci et al., 2012; Cocca and Alberti, 2010; Tenhunen et al., 2002; Garengo et al., 2005; Neely, 2002):

1 Well-articulated and purposeful in nature - The measurement processes should be unambiguous about what is being measured and be relevant to the SME's business.

2 Measures should be simple and easy to use - Measures should be such that stakeholders and employees can understand and follow through with minimal complications.

3 A performance measurement system should establish a link between operational processes and strategic goals - The purpose of each operation in helping the SME to achieve its strategic goals must be clear.

4 A performance measurement system should provide timeous and accurate feedback - Deviations from the strategic goal of the SME must be identified in time. Additionally, changing dynamics in SME's operating environment must be tracked by the system.

5 It must have the ability to challenge the strategy and question the status quo - A dynamic performance measurement system must be able to question the why and how of the SME's strategic goals.

6 It must be reflective of the business process and encompass the interests of all stakeholders crucial to the success of the SME such as suppliers, customers and employees.

7 Performance measurement should focus on specific deliverables with a clear emphasis on improvement of business processes.

The implementation of a performance measurement system presupposes that the SME is involved in carrying out repeated, well-articulated and documented processes to meet the goals of the business (Thorpe et al., 2009; Garengo et al., 2005). A performance measurement system for SMEs must take a holistic view of the enterprise, with the full realisation that all the processes are tailored towards achieving better quality, productivity and profitability for the SME while entrenching it for growth and expansion (Agostino and Arnaboldi, 2013; Kaplan and Norton, 2007; Neely, 2002).

2.2 Performance measurement metrics in SMEs

Due to the peculiar structure of the management, financing and size of SMEs, most of the performance measurement models in use by large corporations cannot be put to effective use in SMEs because SMEs generally lack the skills, financial ability and expertise to implement complex performance measurement metrics (Sousa and Aspinwall, 2010). Some of the traditional challenges regarding the adoption of effective performance measurement metrics documented in early literature include inadequate time for the owner-manager to attend to non-core operational activities that are not directly impacting production (Tenhunen et al., 2002); the failure of the SME to develop a holistic approach to the crafting of performance measurement metrics due to a lack of understanding of strategic matters impacting the enterprise (Garengo et al., 2005); poor documentation of the SME's corporate vision and strategies, and only the owner-manager knows the vision and strategies in most SMEs (Tenhunen et al., 2002). The three factors outlined above are confirmed in the recent literature on the subject of performance measurement within SMEs (Bititci et al., 2012; Biazzo and Garengo, 2012; Albayrak and Gadatsch, 2012).

Although some authors argue that the performance measures adapted by large corporations are unsuitable for SMEs (Cocca and Alberti, 2010; Hudson et al., 2001), empirical studies carried out by Albayrak and Gadatsch (2012) suggest that the core elements employed by large corporations can be adapted for SMEs. The authors argue that the major difference in adapting the model used by large corporations lies in the design of performance measurement being adapted. The designs must be lean and the toolkit must consist of functions which directly address the SME's strategic and operational goals (Albayrak and Gadatsch, 2012). Similarly, Biazzo and Garengo (2012) argue that the adaptation of established metrics to SMEs is achievable, provided the enterprise carefully crafts the performance measurement metrics in a way that directly reflects their own strategic goals and objectives. The basic elements of a performance measurement system for an SME must include the following:

1 Performance indicators to be measured must be financial and non-financial. It has become widely acknowledged that the traditional practice of measuring a company's performance based solely on financial metrics is no longer an effective way to determine a company's health (Kaplan and Norton, 2007). The balanced scorecard has been broadly recognised as a useful tool in this regard.

2 Performance indicators must be based on a sound strategic plan which is actionable in the context of adapting enterprise. This element presupposes that the management must only adapt a measure if it can be proven that its elements will produce actions which will in turn enhance the enterprise's performance (Tenhunen et al., 2002).

3 Measures must be matched to the enterprise's context. The relationship between performance indicators must be clearly aligned to the operating context of the SMEs. The adaptation of performance measures must also align with the enterprise's overall goals and objectives (Flapper et al., 1996).

As stated earlier, most SME owner-managers do not have the requisite financial capacity to recruit the best skills. It is therefore crucial that a performance measurement system for SMEs is devoid of complexities and a labyrinth of decision-action steps. In essence, a performance measurement system for SMEs should encompass the consideration of the three elements discussed above. It should also be clearly defined by the measurement metrics in place at the enterprise.

There are a number of factors in favour of the SME which does implement a performance measurement system. Sousa and Aspinwall (2010) argue that an SME has the ability to innovate more easily and faster than a large corporation due to the flat managerial structure. The owner-manager does not have an intricate check and balance reporting system and can easily adapt to new changes (Sousa and Aspinwall, 2010). The introduction of performance measurement metrics should therefore serve the SME in arriving at sound business decisions that will fuel the ability to innovate and also produce processes that can aid the SME's efficiency and effectiveness (Broadbent and Weill, 1998).

A number of authors have attempted to provide guidelines and frameworks to assist SMEs in implementing performance measurement metrics (Albayrak and Gadatsch, 2012; Bititci et al., 2012; Garengo et al., 2005; Neely, 2002; Tenhunen et al., 2002). These scholars have presented frameworks with due consideration for the peculiar nature of SMEs. Nonetheless, it is opined that there are CSFs to be considered before an SME embarks on adapting and implementing a particular performance measurement metric within the SME. These CSFs form an important link between the SME's strategic goals and the performance measurement metrics that are conditional to successful decision-making in the SME context.

3 Methodology

The literature review for this paper was done through a content analysis of the extant literature regarding performance measurement in SMEs. Krinpendorff's six steps of content analysis were followed in deriving the initial set of six CSFs. This was followed by the collection of empirical data through a quantitative survey instrument, which was distributed to 50 SMEs in Nigeria. The data collection was conducted to ascertain the relevance and applicability of the six CSFs derived from the extant literature to SMEs operating in sub-Saharan Africa. Thereafter, the data were analysed through statistical package for social sciences (SPSS). The outcome of the survey resulted in the derivation of a new set of CSFs which were deemed more relevant to the context of SMEs in developing economies.

3.1 Content analysis

Content analysis refers to a method of systematic exploration of textual data for patterns and structures with the intention of identifying the important features inherent in a given construct (Billore et al., 2013). The purpose of the exercise is to enable the researcher to decipher meanings, to a certain degree of scientific precision, and be able to make inferences from the meanings and characteristics of the message (Vitouladiti, 2014). The technique of applying content analysis to make valid inferences from text is gaining increasing popularity in both qualitative and quantitative research (Billore et al., 2013). The initial set of CSFs proposed in this study was derived from the extant literature by utilising the six steps of content analysis outlined by Krinppendorff (2004). The steps involved are

1 **Unitising** - A systematic approach of delineating the relevant text applicable to the content under investigation. This was done by reviewing mainly the literature whose focus was on performance measurement within SMEs.

2 **Sampling** - The process of drawing a realistic sample of texts from the entire population as it is impossible to perform a content analysis on the entire relevant population. The selected sample should achieve the same purpose and yield the same result as the entire population of text. A sample was selected from the range of available literature on performance measurement based on the frequency of citation, relevance of empirical study of SMEs, and the focus on the challenges encountered while implementing performance measurement within SMEs.

3 **Coding -** The process of stratifying similar contexts in sampled texts into the same units of analysis in order to deduce meaning. This was done in this paper by categorising similar constructs to deduce meaning, which culminated in the initial six CSFs presented in this study.

4 **Reducing** - The process of reducing the stratified data into manageable units in order for the results to be presented efficiently. The empirical evidence in this study was analysed by using SPSS. This ensured the grouping of related concepts into same units of analysis in order to decipher meaning.

5 **Inferring** - The process of enunciating the meaning, reference and inference to be drawn from the data and the attendant thoughts or constructs these inferences provoke. As stated earlier, the inferences drawn from content analysis of both secondary and primary literature form the CSFs proposed at the conclusion of this study.

6 **Narrating** - The final step is writing up the results of the five steps above in a way that answers the research question at hand. The narrative stage must ensure that the inferences drawn from data are outlined in concise, clear language that directly addresses the research question. In this paper, the narration is done as CSFs. The narrative also presents an opportunity to further explore the topic in future research (Krinppendorff, 2004).

3.2 Data collection and analysis

A quantitative research instrument was used to collect data from SMEs in Nigeria in order to confirm or refute the six CSFs found in the extant literature. It is believed that this can be achieved with a small sample of SMEs as an effective sample size is one that adequately addresses all areas of the research question being interrogated (Creswell, 2014; Marshall and Rossman, 2008). A total of 50 questionnaires was distributed to SME owner-managers in various sectors of the Nigerian economy. A random sampling method was employed to determine the respondents and to ensure that the results regarding the performance measurement metrics in the enterprises are representative of the population of SMEs (Creswell, 2014). The survey comprised a total of 30 Likert-type five-point items (1 = strongly disagree and 5 = strongly agree) questions, with each section consisting of five questions which address each specific CSF. The data were analysed using the IBM SPSS (Pallant, 2013). The objective was to conduct a confirmatory factor analysis test on the dataset in order to test the components found in extant literature regarding performance measurement CSFs. The Cronbach alpha test for reliability (Cronbach, 1971), Bartlett's test of sphericity (Bartlett, 1954), and the Kaiser-Meyer-Olkin (KMO) (Kaiser, 1974) measure of sampling adequacy were used to test the suitability of the data for factor analysis, after which a principal component analysis test was conducted and the findings were presented.

3.3 Validity and reliability

It is important to evaluate the quality of data interpretation in a research study of this nature. This is done by examining the reliability and validity of the research findings. These two attributes constitute a crucial test of trustworthiness for the credibility of the research (Miles and Huberman, 1994). For the purpose of this paper, the validity and reliability of the findings are entrenched and inherent in the method of reviewing the scholarly articles on performance measurement in SMEs. A review of the papers used for this exercise was based on how often they were cited in the academic community, and the availability online as shown on the search engines namely Google Scholar and EBSCOhost. Further testing of reliability of the findings from the extant literature was done by primary data collection and analysis with the aid of the SPSS package. The conclusions drawn from this study are therefore generalisable in the context of SMEs which are planning to implement performance measurement in their enterprises in Nigeria.

3.3.1 CSFs based on the extant literature

A review of frequently cited literature on performance measurement within the SME context was done (Appendix A). Appendix A is a brief summation of the most frequently cited literature on performance measurement within the SME context. The table highlights the key recommendations of cited authors on what should constitute the formula for a successful performance measurement system in the SME context. However, we posit that there are other CSFs which should be in place before an SME adopts a particular performance measurement system. The six CSFs proposed in the next section of this paper were derived after an assessment of the challenges faced by SMEs in the process of adapting a performance measurement system to measure actual performance against set objectives.

4 CSFs in introducing performance measurement metrics in SMEs

CSFs are the limited number of areas in which satisfactory results will lead to success and better competitive performance for the SME. Rockart (1979) argued that a CSF is that area which the enterprise must 'get it right' in order to ensure the success of the enterprise (Rockart, 1979; Finney and Corbett, 2007). These are areas of activity to which management must pay constant and careful attention (Rockart, 1979). CSFs are directly relevant to the mission and strategic goals of the SME.

The proposed factors below are the CSFs for the implementation of a performance measurement system for SMEs. If these factors are correctly implemented in an SME, it is theorised that the SME will be able to achieve the desired outcome of positioning themselves more competitively.

4.1 Mapping of performance measurement KPIs to SME goals

The first CSF relates to the mapping of performance measurement to the goals of the SME. Key performance indicators (KPIs) are quantifiable measures which help an enterprise to define and measure progress towards the achievement of enterprise goals (Reh, 2011). According to Reh (2011), KPIs must reflect the enterprise's goals, and they must be crucial to an SME's success and be quantifiable. For a performance measure to aid the process of scientific decision-making in an SME, the owner-manager must map the KPI of performance measures to the articulated strategy of the enterprise. As stated earlier, most SME owner-managers are not skilled in management practices nor strategic planning (Apulu and Ige, 2011). Also, the challenge of keeping the business running with minimal resources constitutes a drawback for SMEs; hence they do not feel the need to carefully craft KPIs.

It is proposed that SME owner-managers commit to articulating their KPIs (both strategic and operational) in writing. This must be done before commencing the deployment and implementation of performance measurement metrics for the enterprise. The advantage of this methodological approach is that the exercise will compel the owner-manager and other stakeholders to take a critical view of the SME's strategic goals and objectives. Loopholes and gaps inhibiting a synergy between the two linked elements can be immediately identified and dealt with.

Effective KPIs are current and futuristic, not historical in nature (Parmenter, 2007). This will ensure that the SME conveys with clarity the direction of the SME to all staff and other stakeholders. All daily activities and processes will then reflect the SME's direction and strategic goals.

4.2 Performance measurement must be customer focused

The adapted performance measurement metric must be centred on the SME's customers. Every performance measurement KPI must have its validity tested by how it translates into better customer/stakeholder satisfaction. Meeting the customers' needs should be a common denominator in every performance measurement system; the process must be driven from the position of creating value for the customer. The intrinsic value of a performance measurement system rests on its ability to highlight the deficiencies in an enterprise's current system, hence the importance of setting customer satisfaction is at the base of every performance measurement system (Beaver and Jennings, 2002).

Biazzo and Garengo (2012) alluded to this factor in the proposition of a circular approach of adapting the balanced scorecard to SMEs.

4.3 Process ownership by SME owner-manager

The owner-manager must be the greatest advocate of the performance measurement system (Parmenter, 2007). He or she must create the time to monitor and evaluate the progress of the team in the implementation and subsequent use of the measurement tools within the SME in order to achieve optimal and accurate results. The owner-manager's expectations must be based on the agreed performance measurement metrics of each aspect of the enterprise's business processes (Parmenter, 2007). Furthermore, the onus is on the owner-manager to appoint a key staff member to drive performance measurement in-house and report on deviations from the strategic goals of the company (Albayrak and Gadatsch, 2012). The owner-manager also needs to put a mechanism for intervention in place in order to address glitches that may arise from the implementation of the performance measurement system in a structured manner.

4.4 Tailored set of metrics for measuring performance

Unlike large corporations whose processes and measurement metrics are based on standard metrics, the SME owner-manager runs a peculiar business (Biazzo and Garengo, 2012). The owner-manager has to design a set of measuring metrics that are meaningful and critical for his business success. A generic model may result in the SME measuring the wrong attributes at right time or right attributes at the wrong time in the SME's lifecycle (Wong, 2005). This in turn will negatively affect the ability of the owner-manager to make informed decisions towards achieving the goals and objectives of the enterprise. In essence, an SME cannot simply adapt any performance measurement system using balanced scorecard, performance prism and other measurement systems due to their wide acceptance in large corporations; the choice of a performance measurement system must be based on its suitability to the operating environment, dynamics of operations and the customer base of the SME (Albayrak and Gadatsch, 2012).

4.5 IT infrastructure to drive the measurement process

A performance measurement system needs the proper IT infrastructure to actualise the processes that will be measured. Availability and adequacy of the right resources to fund the SME's business remain a primary concern for most SMEs (Bannocks, 2005). The onus is on the owner-manager to ensure that he has in place the right technological artefact to implement and sustain a performance measurement system (Olaitan and Flowerday, 2016; Agostino and Arnaboldi, 2013). The key to the correct implementation of a performance measurement system is the staff of the SME. Although SMEs do not have funding, liquidity or investor backing enjoyed by large corporations (Cocca and Alberti, 2010), there must be a plan for continuous training in harnessing the IT infrastructure available towards the end of achieving the strategic goals of the SME (Sousa and Aspinwall, 2010).

4.6 Continuous assessment and realignment of measurement metrics

According to Parmenter (2007), many SMEs treat performance measurement projects as part of an existing workload. The owner-manager rarely pays the required attention nor dedicates the right human and material resources to guarantee a desired outcome truly representative of how well the SME is working towards the goal of achieving its target according to the strategy.

To forestall this, it is recommended that the owner-manager appoint a facilitator to drive performance measurement system processes within the SME. The facilitator must possess a sound knowledge of the causal relationship between all the different elements of the business: internal/external and financial/non-financial (Cocca and Alberti, 2010). He also has the responsibility of communicating this to other team members. The facilitator must have the delegated authority of the owner-manager to assess the progress made on every level of the enterprise. According to Biazzo and Garengo (2012), the successful implementation of a performance measurement system such as the balanced scorecard in an SME requires the dedication of a project leader/owner who will ensure that the right metrics are adapted or tailored to the SME's peculiar business needs and operating environment. Table 1 is a summary of six CSFs already discussed.

Table 1 Summary of the critical success factors for performance measurement metrics in SMEs

CSF	*Description*	*Motivation*
1. Mapping of performance measurement KPIs to SME goals	The adoption of KPIs for measuring performance must be directly linked with the SME's strategy and goals	Mapping of performance measurement KPIs to SMEs strategy will ensure the accuracy and effectiveness of measurement metrics
2. Performance measurement must be customer focused	The ultimate goal of performance measurement is to derive value from IT processes. The SME will apply the value derived from IT to achieve greater customer satisfaction and earn their loyalty and continuous patronage	Customers are the reason for the SME's existence. IT governance and performance measurement system must ultimately result in winning more clients while retaining existing clients
3. Process ownership by SME owner-managers	It is critical for the owner-manager to take ownership of the processes involved in PM. He must be able to drive, sell and maintain momentum on the chosen performance measurement system, ensuring all stakeholders understand the relevance to business success	The success or failure of a performance measurement system depends on how committed the owner-manager is to the implementation process. He will influence staff positively if he models commitment to the PMS processes with his actions
4. Tailored set of metrics for individual SMEs	SMEs have peculiar needs and challenges depending on the insight and strategic management capability of the owner-manager Generic metrics for measuring performance in an SME may not be adequate in ensuring optimal allocation of the SME's human and material resources	SMEs operate in a distinctive environment. Standardised metrics are unsuitable for SMEs, hence the need to develop and implement a performance measurement system based on the strategic goal and peculiar need of the SME

Table 1 Summary of the critical success factors for performance measurement metrics in SMEs (continued)

CSF	*Description*	*Motivation*
5. IT infrastructure to drive the PM processes	There is a need for the enterprise to have in place the right IT artefacts that would drive the processes for performance measurement. The enterprise must also be able to manage and mitigate risks	Performance measurement systems are enabled by IT. The SME must have the resources and trained staff to implement performance measurement metrics
6. Continuous assessment and realignment	The SME must continue to monitor the implemented PMS to ensure it is aligned to enterprise goals and strategic direction. The SME also needs to assign the responsibility of arresting deviations from strategy to a team member of the SME	Deviation from performance measurement metrics can lead to wrong decision-making in IT governance. The performance measurement metrics must be constantly monitored and when necessary, adjusted to be in tandem with the SME's goals

The CSFs discussed in Table 1 were derived from a critical review of the relevant literature on the challenges faced by SMEs in the adoption of performance measurement systems. A quantitative survey was employed to test the validity of the six CSFs proposed above. The next section presents the analysis of the survey results to confirm or refute the validity of the proposed CSFs.

5 Data analysis

A total of 30 items from the questionnaire was found relevant to the study. The Cronbach alpha reliability test was conducted on the questionnaire findings and it showed a 0.902 result, which is above the required average of 0.701. This confirms the reliability of the research instrument and that the data can be generalised. Table 2 details the result of the test.

Table 2 Cronbach's test of reliability

Reliability statistics		
Cronbach's alpha	*Cronbach's alpha based on standardised items*	*No of items*
0.902	0.901	30

The next stage of data analysis was to determine the appropriateness of the results for factor analysis, which is the most appropriate test to underscore the reliability and relevant of the CSFs derived from the extant literature. First, a KMO test was analysed. The values for each of the 30 items were more than 0.48. Additionally, the value of the test statistic for sphericity based on a Chi-square transformation of the determinant of the correlation matrix was large (736.933) and the associated significant level was small (0.000). The results show a strong statistical significance. Table 3 shows the results of the KMO and Bartlett's tests.The data were thereafter subjected to principal component factor analysis with rotated component matrix. The aim of the exercise was to identify a

number of factors that show the relationship among sets of interrelated variables in the proposed CSFs using principal component factor analysis.

Table 3 KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		0.486
Bartlett's test of sphericity	Approx. Chi-Square	736.933
	df	435
	Sig.	0.000

The data was thereafter subjected to principal component factor analysis with rotated component matrix. The aim of the exercise was to identify a number of factors that shows the relationship among sets of interrelated variables in the proposed CSFs using principal component factor analysis. Table 4 describes the findings, which is discussed thereafter.

Table 4 Rotated component matrix[a]

	Components					
	1	*2*	*3*	*4*	*5*	*6*
Q15	0.740					0.414
Q12	0.712				0.328	
Q14	0.663	0.317				
Q25	0.622	0.320				
Q2	0.597				0.351	
Q21	0.572	0.327				0.438
Q17	0.568		0.408			
Q13	0.526	0.389		0.422		
Q1	0.473	0.401			0.311	
Q28	0.452				0.413	0.317
Q26		0.860				
Q24		0.817				
Q6			0.863			
Q7			0.820			
Q8			0.649			
q30a		0.335	0.609			
Q10	0.333			0.747		
Q16				0.743		
Q11		0.462		0.568		
Q22		0.388		0.494		
Q27				0.490	0.438	0.413
q23a		0.353		0.433	0.415	

Table 4 Rotated component matrix[a] (continued)

	Components					
	1	*2*	*3*	*4*	*5*	*6*
Q5					0.775	
Q9		0.426			0.540	
Q3	0.465		0.400		0.513	0.314
Q29		0.402			0.495	0.366
Q20						0.694
Q19						0.657
Q18		0.327			0.308	0.443
Q4						0.421

[a]Extraction method: Principal component analysis; Rotation method: Equamax with Kaiser normalisation.

6 Discussion

Based on the 30 questions that were loaded into the SPSS package, the relationships of the concepts for each CSF was apparent in the way they 'clustered' together (Pallant, 2013). Factor loading ranged from 0.314 to 0.860. However, for the purpose of this study, only factor loadings greater than 0.400 were considered relevant to the objective of this study. The rationale for choosing factor loading greater than 0.400 is based on the belief that the relationship between the attributes is only strong enough to derive a CSF if the factor loading is sufficiently high (Pallant, 2013). An analysis of the data reveals a different set of interrelationships amongst the concepts than were found in the extant literature. The findings are discussed below:

CSF 1: Mapping of performance measurement KPIs to SME goals - The data showed a strong link in only two factors of CSF, namely specific set of measurable KPIs and basing decision-making on the goals of the enterprise. Other factors which loaded on this CSF were predominantly on CSF 4: Process ownership by SME owner-manager. Additional factor loading was also discovered in CSF 6: Continuous assessment and realignment of measurement process, implying that these were the factors important in the mapping of performance measurement with the goals of the enterprise.

CSF 2: Performance measurement must be customer focused - Two factor loadings are identified in the data regarding the second CSF. The data reveal that SME owner-managers consider it important that internal staffs are trained to do the work of ensuring the clientele and are contented. The CSF also correlated with the result that the owner-manager is an expert in his field of endeavour. This also found support in the literature by Albaryk and Gadatsch (2012) and Parmenter (2007) alluding to the importance of the SME owner-manager being able to understand the processes available, how to measure the goals and therefore how to support the customer. To this end, it is conjectured that customer focus is interpreted in line with subject matter expertise and adequate staff training as the basis of measuring an enterprise's customer focus rather than continuous process improvement and innovative solutions being introduced into the market place.

CSF 3: Process ownership by SME owner-manager - This CSF found strong support in the data relating to value creation, innovation and an enterprise's continuous drive to meet customer expectations as more relevant and credible with regard to ownership of performance measurement processes (CSF 2), hence this factor has been renamed as value creation in the context of the client's needs. This is due to the fact that these factors are shown to be more important to respondents than factors identified in extant literature by Biazzo and Garengo (2012) and Albayrak and Gadatsch (2012).

CSF 4: Tailored set of metrics for measuring performance - Only one factor found correlation in the data analysed. The data confirmed that well-known performance measurement metrics can be adapted in the context of SMEs. The data revealed that the choice of IT, a detailed strategic plan and realignment of enterprise goals were considered more important factors in tailoring the measurement metrics to gauge performance in SMEs. The CSF is thus considered as more suited to a merger under CSF 6 which speaks to the continuous assessment and realignment of the performance measurement process.

CSF 5: IT infrastructure to drive the measurement process - Only one of the factors found in the literature correlated with the factors loading under this CSF. Data analysis showed that most SME owner-managers consider IT as too expensive. However, owner-managers believe they have an adequate process in place to manage performance and that the enterprise has the requisite maturity to develop its own set of performance measurement metrics in line with available IT infrastructure. Respondents also placed more emphasis on the balancing of measurement metrics as financial and non-financial parameters. The finding thus renders the CSF redundant in the context of the SMEs investigated and has been removed as a CSF as the factor analysis test confirms that it is not considered as critical to performance measurement.

CSF 6: Continuous assessment and realignment of measurement process - This CSF loaded three very strong factors under CSF 4, with each of the three of factors returning a total average score of 0.598. It is thus considered CSF 6 is not a relevant CSF in the implementation of an effective performance system in SMEs.

7 Summary of findings

The analysis of empirical data in this study has revealed that the some of the components of the CSFs found in extant literature do not align with empirical findings according to the factor analysis test done on SPSS within the Nigerian context. Recurring themes of value creation, innovation and equipping SME staff to create contentment for the client are some of the emergent themes which found support in the data analysed. Therefore, based on the findings, we contend that the factors which are critical for successful performance measurement in SMEs are dependent on the context of the SME. Data analysed from SMEs across 9 sectors of the economy in Nigeria show a new set of components that are perceived as critical to effective performance measurement in SMEs, with a few of the factors identified in extant literature being relevant but loading as factors under different CSFs from the ones originally identified. We argue that the results prove that existing literature, which is mostly from developed economies, cannot be tailored to performance measurement adoption within SMEs in developing economies.

We propose that the CSFs listed below are the most appropriate for implementing effective performance measurement in Sub-Saharan SMEs:

CSF 1: Mapping of performance measurement KPIs to SME goals - This CSF found support in the data, confirming the importance of having a specific set of KPIs and ensuring that every decision is aligned with the enterprise's goals. Albayrak and Gadatsch (2012) support this position and state that performance indicators must be lean and the toolkit must consist only of functions which directly address the strategic and operational goals of the SME. Garengo et al. (2005) also argue that performance measurement should be reflective of enterprise goals.

CSF 2: Value creation and innovation - This factor finds strong correlation across three of the initial six CSFs, suggesting that the creation of value for the enterprise and innovation should form the basis of enterprise goals and thus be the basis of measuring performance in SMEs. This position is further supported by the literature regarding SMEs in developing economies (Apulu and Ige, 2011). It is contended that value creation and innovation should replace customer focus and process ownership by SMEs as a more effective CSF in measuring performance in SMEs.

CSF 3: Tailoring available IT infrastructure to performance measurement activities - The data revealed that most SME managers consider IT as a capital intensive expense, therefore they are reluctant to procure new or additional IT infrastructure to drive performance measurement. This finding renders the original CSF 5 as found in the extant literature redundant, rather providing support for a choice of performance measurement metrics which existing IT infrastructure is able to support. This also aligns with the literature by Apulu and Ige (2011) and Bannocks (2005) which contend that SMEs are reluctant to spend copious amounts of money on IT unless it is directly connected to production.

CSF 4: Tailored set of metrics for measuring performance - Respondents contend that this CSF reflects both the process of designing metrics for measuring performance as well as the continuous assessment and realignment of such metrics as an SME continues to understand and exploit ways in which performance may be improved and processes strengthened. The data found support in the literature by Agostino and Arnaboldi (2013) and Thorpe et al. (2009), which contends that SMEs must have repeatable, well-documented processes in place to measure performance. This finding thus renders CSF 6 redundant in the context of developing economies.

8 Conclusion

The paper initially discussed six CSFs for a performance measurement system in an SME to be effective and accurate, which in turn empowers the owner-manager to make sound business decisions that will position the enterprise for competitive advantage. The six CSFs were thereafter tested for relevance by means of a quantitative survey. The results revealed that only four of the CSFs were relevant to SMEs in a developing economy, namely Nigeria where the study was carried out. These are, namely mapping of performance measurement KPIs to SME goals; value creation and innovation; tailoring available IT infrastructure to performance measurement activities; and tailored set of metrics for measuring performance. The survey revealed that the factors expounded in

the extant literature are more suited to SMEs in developed economies than the context of developing economies. The paper considers these four factors as crucial to the successful implementation of a performance system in the context of an SME in a developing economy.

9 Recommendations

It is recommended that further empirical research into the effectiveness of these CSFs be carried out with a larger sample of SMEs. Additionally, data collection across other developing economies will provide better insight into other possible factors not recognised in this study. It will also serve to identify the gaps in the recommended CSFs with regard to how practical they are in the SME context.

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Appendix A: Perspectives on performance measurement within SMEs

Author	*Perspective*
Bititci et al. (2012)	Performance measurement in SMEs remains challenged due to the unstructured nature of these enterprises and the contextual differences in the way SMEs operate. Business expansion, innovation and sustainability must be core elements of any adapted performance measurement system in an SME context
Biazzo and Garengo (2012)	A circular approach to performance measurement starting with the customer perspective, which focuses on operationalising the elements of each performance measure, is recommended. This will help to determine actual value towards the achievement of enterprise goals and align every measure accordingly
Albayrak and Gadatsch (2012)	Performance measurement used by large corporations can be tailored for SMEs. The performance indicators must be lean and the toolkit must consist only of functions which directly address the strategic and operational goals of the SME
Cocca and Alberti (2010)	Scalability and dynamism are critical elements for success in the adoption of performance measurement in SMEs
Garengo et al. (2005)	Performance measurement should be reflective of the goals and objectives of the enterprise, and must balance internal and external context relevant to enterprise success
Bititci et al. (1997)	An effective performance measurement process aligns with the enterprise's corporate and functional strategies and objectives
Tenhunen et al. (2002)	A strategic map is advocated in the formulation of the processes and activities necessary for the adoption of a performance measurement system which will aid the SME in achieving its goals and objectives
Flapper et al. (1996)	Each element of performance measurement should clearly indicate the relevance of the strategic and operational performance indicator to the achievement of the goals and objectives of the enterprise
Kaplan and Norton (2007)	The balanced scorecard is advocated as an effective and comprehensive tool in encapsulating the crucial elements to be considered in the adaptation of any performance measurement system