ASSESSING THE IMPACT OF PERFORMANCE MEASUREMENT SYSTEMS IN NORTHERN NIGERIA SMALL BUSINESSES

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Abstract

Small and Medium-Size Enterprise (SME) growth is on the rise in some of the world's wealthier economies, resulting from their role play in job creation and revenue generation, through tax for local and central governments. Many SME practitioners around the world, mostly from the low and middle income countries, are mounting pressures on their governments to increase their involvement and support for the SME sector to help maintain its pace. This study aims to evaluate the impact of Performance Measurement System implementation in SMEs; it was carried out with the purpose of assessing whether PM Systems contribute positively or otherwise in SME growth. The outcomes of the study are intended to increase understanding of the impact PM Systems have on SMEs. This study employed questionnaires as a primary method for data collection.

Keywords: Impact of, PM Systems, Northern Nigerian, SMEs

Introduction

The growth of many SMEs in many countries around the world is on the increase and is essential for monetary and employment generation (Beck, Demirguc-Kunt, and Levine 2005a). Due to these factors, many countries have started to stimulate SME growth, while many are finding ways to stimulate SMEs to realize innovation (Zandi 2008). Ruminating too much into SME innovation will deviate from the key focus for this study. However, the study's main focus is to access the impact of PM System's in SMEs. Preceding studies carried out by (Biazzo and Bernardi, 2003; Garengo et al. 2005a) indicate that PM Systems play key supporting roles towards SMEs growth, while several other studies do not take into account the size of the organisation (Hudson et al. 2001). Nevertheless, there are some indications within the literature that suggest the basis of the problem,

illustrating the misconceptions the benefits of performance, shortage of resources, lack of strategic planning and excessively technical orientation (Barnes et al. 1998; Hudson et al. 2001).

Based on these factors, this study aims to extend current knowledge and understanding of the impact PM System's implementation can have on SMEs, and the characteristics of such systems to explore their growth.

Therefore, the study will strive to embrace the outcome through three key objectives while addressing the research question of what impact PM Systems have on SME; hence, the research objectives are; (1) to explore PM Systems evolution stages through a literature review (2) to outline specific factors that influence PM System implementation in SMEs (3) barriers affecting PM System implementation in SMEs, while addressing the outcome based on findings involving primary and secondary sources.

Literature Review

The reviewed literature for this study is outlined in four sections: the first briefly looked at the SME definitions and adoption of one as unique for the study; the second explored PM System evolution stages and effects on SMEs; and the third section reviewed specific factors that influence PM System's implementation in SMEs. The fourth examined the barriers affecting PM System's implementation in SMEs to determine progression for growth.

The SME Classifications

This study will first highlight the world classifications of SMEs and subsequently use only the Nigerian definitions of SMEs as they are viewed as significant for this study.

The SME's have a broad spectrum of definitions that countries and organisations determine and set the criteria as guidelines to define SMEs based on head count, assets and annual turnover.

The World Bank defines SMEs as those businesses or enterprises with a maximum of 300 employees and having an annual turnover of $15 million with assets.

Similarly, the definition of SMEs is generally classified into micro, small and medium based on volume of turnover and overall workers employed. According to Ayaggari et al., (2003) SME definitions vary from country to country, and context. Such classification and context in Britain, USA and Canada is defined in terms of annual turnover, numbers of employees, paid up capital and industry (Joseph and Michael 2013).

In Nigeria, SMEs are generally defined as businesses with an asset base of N5 million and not more than N500 million (excluding land and buildings) with employees of between 11 and 200 (CBN 2001).

The PM System Concept

Implementing a successful measure and management of those measures to achieve organisational performance has been a major challenge facing business managers over the years (Pun and Sydney 2005). The problem is attributed to lack of acceptable definition of PM Systems within the literature. A review conducted by Franco-Santos et al. (2007) further established this position and key characteristics of PM Systems, and also clarifies that every definition highlights various perspectives, features, processes and concepts of the system. One such definition came from Neely et al. (1996), who branded PM System as a set of metrics used to quantify the efficiency and effectiveness of organisations actions. They also claimed that a PM System can be examined in three stages: (stage 1) the individual measures of performance; (stage 2) the PM System as a whole and (3) the relationship between the PM System and the environment in which it operates.

Kerssens-Van Drongelen and Fisscher (2003) also described a PM System as a system where reporting takes place at 2 levels; this involves: the organisation as a whole, reporting to external stakeholders and within the organisation, between managers and their subordinates.

Also, Forza and Salvador (2000) define PM Systems as an information system that supports managers in the performance management process mainly fulfilling two primary functions: (a) as an enabler for structuring communication between all organisational units and (b) one that enhances collection, processing and delivering of information on people's performance, activities, processes, products and business units.

Based on the preceding discussions, therefore, PM Systems can be observed in different levels, i.e. the PM System as a whole; the individual measures of performance and the relationship between the PM System and the operating environment.

Consequently, researchers used Wettstein and Kueng's (2002) theory to outline the dimension and stages as an important element where PM System results can be tracked in an organisation (see table 3).

Table 3 A Three-Stage Maturity Model for PM System

Dimension	Maturity level 1	Maturity level 2	Maturity Level 3
Scope of Measurement	Specifically on financial performance indicators	Measured financial performance indicators and few other financial are measured in addition.	Both financial and non-financial performance indicators are measured in a balanced way.
Data Collection	Manually gathered relevant performance data	Performance data are collected manually and operational IT systems	Fully automated performance data are collected through IT systems
Storage of Data	Stored most	Relevant performance	Stored most

	performance in paper format	data are stored in local PCs. Most	performance data centrally integrated with the IS
Communication of Performance Results	Disseminate performance results on an ad-hoc basis usually to upper and middle management.	Performance results are disseminated regularly and sometimes also to operative levels.	Performance results are disseminated regularly to all hierarchical levels and also to external stakeholders.
Use of Performance Measures	Used performance data mainly for internal recording.	Performance data are used mainly for checking improvements and examining abnormalities from targets.	Used performance data mainly for decision making and supporting.
Quality of Performance Measurement Processes	The measurement processes are not defined.	Process measurement are documented and standardised for specific metrics, and measurement frequency is regular.	Measurement processes are documented and standardised for all metrics. A person is designated to collect and report the data
Targets setting	Set no target level for the metrics.	Target levels are set for some metrics.	Target levels are set for all metrics. The maturity

Source: (Adapted from Wettstein and Kueng 2002)

PM System's results can help to track and enable collecting results on an organisation's performance, link communications between internal and external stakeholders, enhance manager's tactical and strategic decision-making, and facilitate organisational learning (Hudson et al. 2001).

Exploring the evolution of PM Systems over time is a key objective for this study; therefore it is necessary to identify the main characteristics of a PM System and the dimensions of measures in SMEs, which Wettstein and Kueng (2002) describe as an evolutionary pattern of PM Systems with five components for the enhancement of PM System and operational.

The five components are; people, procedures, data, software and hardware. Similarly, outlining definitions of PM Systems is necessary to help highlight the significance of PM Systems and its evolution over time.

The Performance Measurement System Characteristics in SMEs

There has been very little research conducted on PM Systems in SMEs (Garengo et al. 2005), apart from in Australia where the Commonwealth Scientific and Industrial Research Organisation (CSIRO) was established. Its formation was to actively engage in PM Systems and SME related research (Barnes et al. 1998). Few other countries that are engaged in similar PM Systems and SMEs related research include Australia, Finland, United Kingdom and Demark (Laitinen 2002; Rantanen and Holtari 2000; Bititci et al. 2000; Jarvis et al. 2000; Collis and Jarvis

2002; Hvolby and Thorsontenson 2001). Garengo et al (2005) previously identified these countries as mentioned and illustrated how inactive PM Systems research in SMEs is at the present time, although the precise comparison in data is not available in the literature due to the context in which the research was conducted.

Given the earlier criticism of PM Systems for having only a financial measures approach, strategic PM Systems were subsequently developed to overcome this criticism (Kaplan and Norton 1993). These changes represent the evolution of PM Systems (Neely 1999). Many studies carried out over the years outlined the characteristics of strategic PM Systems (Hudson et al. 2001). Hence, strategic PM Systems are therefore divided into two: dimension of performance, where measures are derived from, and the characteristics that display the measures (Hudson et al. 2001). Apart from the categorisation of PM Systems by Hudson et al. (2001), previous researchers failed to indicate precise features of the PM Systems development processes for clearer understanding of its successful implementation, therefore, making the existing approaches slightly difficult. This issue was subsequently addressed through process methodologies that can be applied to PM System development.

Performance Measurement Systems Development Process

There is a need for organisations to adequately assess and identify the internal requirements for the effective development of a PM System (Hudson et al 2001). This means appraising the current system to identify areas of deficiency for adequate improvement. Bourne et al. (2000) states that for the PM System to be useful, a process is required to help identify how an organisation might be attracted to its implementation, such as the process participants and management team. These are the strategic processes of a PM System which Armstrong and Baron (1998) described as an integrated approach aiming to deliver successful outcomes in an organisation by improving performance, capabilities and team-work.

Armstrong and Baron further advised that the process development must be effective for its accomplishment. Similarly, Harrington (1991) also identifies six categories that strengthen the success of a PM System's development process for organisations to consider achieving its performance mission. Those six categories are:

Effectiveness: outline the scale by which the process output conforms to requirements, while underlining if the right approach has been taken.

Efficiency: a series of developments indicating the level which the process produces the needed output at lowest cost.

Quality: determining and meeting customers' requirements, expectation and satisfaction.

Suitability: establishing whether a unit of work was correctly done on time, also to help to set of suitable criteria in meeting customers' requirements.

Productivity: enables both labour and capital employed to be measured against the target outcome.

Safety: internal scrutiny of the organisation practices; whether it is a healthy environment for the employees and customers.

The development process identified by Harrington (1999) is deemed essential for strategic PM Systems; other effective processes were also identified by various others, such as:

Tangen (2004) identified a PM progression map and developed a flowchart that consists of nine steps split into three segments as: (a) emphases on finding an appropriate and useful set of measures; (b) concerned with how each individual performance measure is designed and; (c) focuses on the actual implementation of the results from the previous two segments.

Hudson (2001) identifies point of entry, participation, procedure and effective management that require structure and relevant content to deliver effective value for SMEs

Slack et al (1998); identified nine golden rules for effective PM Systems implementation in SMEs. Bititci et al. (1997) Identifies integrity and deployment as key characteristics of an integrated PM System for SMEs, and Smith & Tanfield (1989) identified key principles of PM System involving senior management support, clear and precise objectives, team work and support, set time and objectives.

Applying these theories to the PM Systems development process will enable effective implementation and will also help to identify areas that require improvement; strategy alignment is equally necessary as a procedure for identifying SME strategic objectives and maintaining a new PM System. In addition, other key principles were also identified for an effective PM System development process. These included conceptualising the content regarding performance measure characteristics and appropriate dimensions because of Hudson et al. (2001)

PM System Development Process Requirements

Before any model for assessing the PM System can be developed, it is essential to first categorize what constitutes best practice for a PM System and classifying a list of typical features of a system that SMEs can use for measures and management of their performance. The earlier literature reviewed a list of PM System general requirements which were highlighted.

However, SMEs also present some different characteristics that distinguish them from large enterprises (Garengo et al. 2005). This implies

that the SME's performance measurement processes and tools do differ from that of large organisations. Hence, the PM Systems requirements identified have to be adapted accordingly to meet the needs of the SMEs characteristics (Garengo et al. 2005; Cocca and Alberti, 2009). From this stand point, the PM Systems process requirements in SMEs are grouped into three categories according to (Cocca and Alberti, 2009).

The categories are:

Performance measures

SMEs should have these key elements: derived from strategy, link operations to strategic objectives, be plain and simple, its purpose should be clearly defined, encourage continuous improvement, be applicable and easy to maintain, easy to collect and provide the necessary feedback, monitor the current and plan for future performance, encourage integration, classified formula and data source.

PM Systems *as a whole*

SMEs should also include the following key elements: all stakeholders, flexible, rapidly changeable and maintainable, balanced this includes internal/external and financial and non-financial easy to implement and use, to run, strategically aligned, linked to reward system with an integrated information system.

The performance measurement process

Should also include the following key elements:
continuous evaluation of existing PM Systems, regular target setting, management commitment, long and short-time commitment, communication and information sharing, and IT infrastructure support.

Finally, these listed requirements have been identified as the key process elements for effective performance measures and process as in SMEs. As SMEs often experience limited resources, the performance should be real, straightforward and easy to collect, or else the invested time, effort and resources would not achieve the anticipated benefit

Research methodology

Survey Instrument

Primary data was collected through quantitative research technique with the use of a structured questionnaire as the survey instrument. The survey instrument is comprised of questions relating to three main constructs, the extent of PM Systems implementation and SMEs performance. The study adopted the Kohi and Jaworski (1990) framework that has shown significance influence on business performance and market

orientation and is broadly discussed in literature. The research used a nominal scale for descriptive response comprising of **yes** or **no** in each variable from the sampled SMEs.

The scale development derives from the work of Harrington (1999) with the aim of identifying the categories that strengthen the success of PM System development process for SMEs to achieve its performance aspirations. The justification for this approach lies in the pilot study conducted for necessary pre-test and modifications. The surveys collaborated to perceive SME motivations for implementing PM Systems, and the impact on growth and facilitating organisational learning described by (Hudson et al 2001).

The sample

This study identifies an SME as one with asset base of N5 million and not more than N500 million (excluding land and buildings), with employees of between 11 and 200. A cross sector survey was conducted with a target population of SMEs from a list obtained through small business directory and cooperate affairs commission data base.

Data collection

The data collection for this study was carried out through a self-administered questionnaire sent to 300 SMEs across all business sectors within the Northern Nigeria region. According to the National MSMEs collaborative survey 2010, the number of SMEs in Nigeria is at 17,284,671 with total employment put at 32,414,884; the sample frame consists of this numbers since there is official figure available of SMEs operating in the Northern Nigeria including Abuja.

This study focused on cross sector SMEs for a broader view and assessment of the growth resulting from PM System implementation and a generalisation of results. SME owners and managers were requested to complete the questionnaire. These were people that were in a position to implement PM Systems and monitor progress over time. The response received clearly indicated that majority of the respondents were in fact SME owners and managers in senior positions capable of implementing change in the business.

The overall responses were 114 representing 38 % (114/300), which was considered satisfactory for subsequent descriptive analysis.

Measurement

Measures of organisational performance were derived from a number of literatures searches on previous studies involving several key indicators that help predict future performance. These indicators included corporate and

operational measures like delivery performance, flexibility, quality, lead time, information and technology, research and development, benchmarking and innovation (Lynn et al., 1997; Beamon, 1999; Digalwar and Sangwant 2007; Maskell 1999). Identification of organisational performance measures was done through indicators based on managers and proprietors perceptions on implementation of PM System and various measures to achieve their business aspirations. A nominal scale for descriptive response from the sampled population ranging from (yes) or (no) was used**,** the construct and scale development were based on non- financial and effectiveness indicators which includes, information storing and retrieval, expert review and opinion, delivery, value created and added, defect rate, customers complaint, employees job satisfaction, monitoring competitors' products and services.

Usually, the internal measures are employed to measure business performance and enhance communication between the organisation and stakeholders. Wong (2005) also revealed some of the factors that can influence the knowledge management; this includes information technology (IT) and leadership as vital element for accomplishment. While performance measurement is traditionally seen as having only financial measures, other emerging models and tools such as quality management and marketing stress the use of multiple indicators (Des and Robinson 1984).

Garengo et al., (2005) argue that SMEs focus more on operational and financial aspects of their performance, such as level of quality and delivery indicator. Therefore, a multidimensional performance measure is suitable to ascertain the level of efficiency obtained through a PM System implementation. This study uses overall responses from the sampled SMEs to determine if PM Systems contribute positively or otherwise to SME growth.

Results, Analysis

Descriptive Statistical Analysis

This study used categorical variables to rank the SME responses of (yes or no) with an N value for the number of respondents with percentage representation for ease of understanding the overall respondents for each rank. From the 114 SMEs samples collected that are implementing PM System are illustrated in tables1-5 out of those that believes that the PM System has actually helped them achieve growth and efficiency and those that believe otherwise on PM System implementation. The results in tables 1 to 5 demonstrate descriptive responses from the sampled SMEs.

The results in table 1 show how the SMEs responded to the variables questions regarding value creation within the organisation, the N value and percentage represents the overall view. 44.7% of the sample SMEs do not

believe that PM Systems help creates value; while 55.3% did believe that PM Systems creates value for their business.

Table1 SME Responses on Create/Added Value to Product/Services

	Mean	N	Std. Deviation	Std. Error of Mean	% of Total Sum	% of Total N
No	61.16	51	31.477	4.408	47.6%	44.7%
Yes	54.54	63	34.238	4.314	52.4%	55.3%
Total	57.50	114	33.053	3.096	100.0%	100.0%

Also, table 2 illustrates overall responses on storage and retrieval of information. 56.1% of the sampled SMEs do not believe that PM System enhances the storage and retrieval of information in their organisation, while 43.9% believe otherwise; that PM Systems help their organisation in storing and retrieval of information.

According to Gunasekaran et al. (2004), performance measures enhance the organisation's decision making and guide them through turbulent times, track progress against strategy and identify areas for improvement. Therefore, information management is essential to tracking business progress and decision making in involving immense competition within the sector.

Table 2 SME Responses on Management of Storage/Retrieval of Information

	Mean	N	Std. Deviation	Std. Error of Mean	% of Total Sum	% of Total N
No	60.92	64	33.685	4.211	59.5%	56.1%
Yes	53.12	50	32.027	4.529	40.5%	43.9%
Total	57.50	114	33.053	3.096	100.0%	100.0%

On the other hand, table 3 further highlight similar responses from the sampled SMEs on how they managed internal measures like the defects and steps taken to reduced customers complaints as crucial measures for improving performance. 67.5% the sample SME do not believe that the PM Systems helped with this issue, and 32.5% of the sampled SMEs believe that PM System have helped them to overcome this problem successfully.

Table 3 SME Responses on Managing Defect Rate & Customers Complaints

	Mean	N	Std. Deviation	Std. Error of Mean	% of Total Sum	% of Total N
No	57.10	77	35.079	3.998	67.1%	67.5%
Yes	58.32	37	28.816	4.737	32.9%	32.5%
Total	57.50	114	33.053	3.096	100.0%	100.0%

Similarly, table 4 below shows more responses from the sampled SMEs indicating how they responded to employee’s satisfaction and improvement; 69.3% do not believe that PM System's implementation lead employee’s satisfaction and improvement, while 30.7% believe that PM

System implementation lead to employees satisfaction and process improvement in their organisations.

Finally, table 5 also indicates how SMEs responded to monitoring competitor's products and services, of which 42.1% of the sampled do not believe that PM System implementation helped them to monitor their competitors, and 57.9% believe that PM Systems have helped them to monitor their competitor's products and services.

Table 4 SME Responses on Employee Satisfaction and Improvement

	Mean	N	Std. Deviation	Std. Error of Mean	% of Total Sum	% of Total N
No	57.35	79	33.574	3.777	69.1%	69.3%
Yes	57.83	35	32.323	5.464	30.9%	30.7%
Total	57.50	114	33.053	3.096	100.0%	100.0%

Table 5 SME Responses on Monitoring of Competitors Products/Services

	Mean	N	Std. Deviation	Std. Error of Mean	% of Total Sum	% of Total N
No	59.21	48	32.320	4.665	43.4%	42.1%
Yes	56.26	66	33.767	4.156	56.6%	57.9%
Total	57.50	114	33.053	3.096	100.0%	100.0%

These responses illustrate how the SMEs evaluate various measures employed to enhance business performance. According to Wall et al., (2004) individual measures are an effective way of examining business performance as it gives rise to comparison across the business and context. Also, Hashim (1999) disclosed that SMEs are faced with recurring problems such as shortage of capital, raw materials and skilled workers, limited technical expertise, new technology and innovations. These factors give more grounds for SMEs to implement a strategy for growth such as an applicable PM System (Hashim 1999).

Discussions

Summary of findings

In order to establish the impact of PM System's contributions to the growth of Nigeria SMEs, the study embarked on finding the views of SME managers on various internal process measures employed to enhance business performance. The study first highlighted the fundamental issues found in the reviewed literature by exploring the PM System's evolution stages and effects on SMEs, followed by a review of specific factors that influence PM System's implementation in SMEs, and then further explored the barriers affecting PM System's implementation.

Tables 1-4 presented the responses from the sampled SMEs indicating how they answered specific questions regarding PM Systems implementation with other internal measures employed to enhance

performance. Descriptive statistics were used to demonstrate SMEs views on measures, as percentage representation help to shed more light on what is used and what is not that has a direct impact on SMEs performance.

Table 1 indicates whether SMEs think that PM System added value to their products and services to customers as significant to gaining competitive advantage over competitors. This line of questioning and answers gives rise to benchmarking in a competitive environment. Similarly, information management helps organisations to appraise their performance through customers feedbacks, warranties, sales and after sales services offered by the organisations and should be managed effectively and review regularly.

The response on defect rate, customer's complaints, and employee's satisfaction are crucial in determining how the SMEs are performing. It is vital and closely relates to quality practices and management in an organisation. Lack of employee satisfaction usually has a detrimental effect on organisational performance as key stakeholders of that organisation, customers complaints must and should be given a priority with satisfaction. There should be a feedback system in place to help ensure that customers are happy with the services for future patronise.

The findings also show some of those SMEs that don't believe in the PM Systems,. This is shown by the fact that **no** answers are higher than the **yes** answers in some of the measures employed by the SMEs. This can be linked to several factors such as management related issues, lack of finances for execution and lack of knowledge of the benefits organisations can derive from PM System implementation. On the other hand, within the context of SMEs, it illustrates that PM Systems have a significant impact on SME performance. However, the uniqueness of the system rests within SME capability such as resources for its execution, training and management of its day to operations to achieve the business aspirations.

According to Kraipornsak (2002) SMEs have a significant advantage in relation to structure as they facilitate a closer communication line, speedy decision-making practices and faster implementation, greater idea generation within their operations, fewer interest groups with cohesive culture. Many of the SMEs also have simple structure that encourages flexibility with instant feedback and quick response to customer's needs than larger organisations (Kraipornsak 2002). These factors and structural settings enhance SMEs mind-set, decision making and leadership which encourages change initiatives with sound knowledge. It also inspires enactment of measures to achieve the required aspiration.

Conclusion and implications

This study has demonstrated that implementation of measures does enhance an organisation's performance; attempts have also been made to address PM System characteristics, the development process and requirements that are significant to SME adoption and implementation. The argument lies on the fact SMEs need a PM System specifically designed for SME requirements and needs as outlined in some of the literature highlighted in this study. The study also discovered as shown in table 1-5 that many of the SMEs also initiate various measures to enhance their performance, such as resources, managerial competences, training and the scale which many operate. On the other hand, it also signifies acknowledgement that many do not embrace measures as strategy to improve performance. Generally the study has gained insights through data collection and method used as a permissible approach primarily to guide and authenticate the outcome as truly a SMEs views on implementing a PM Systems, and that a PM System does have positive effect on SMEs performance.

Managerial implications

Based on the results of data collected, this study has some implications for SMEs and managers, as a PM System is generally viewed as change management which requires an integrated process for implementation to help a sustainable result. The process is seemingly seen as implementations for the SMEs as follows:

- Must realise that organisation's strategies should be aligned with business vision and mission and develop policies with respect to the strategic mission for accomplishment.
- Business performance heavily depends on team work within the organisation to achieve the desired outcome, encouragement is required from cooperate and operational level, change of attitudes and behaviour is desirable to direct measures for needed outcome.
- Innovation, cost and quality might have less priority by some managers, whereas they constitute significant aspect of business progression that require incorporation and embrace as part of the business process.
- Satisfaction for employees and customers, motivation and commitment are core competences for organisational managers and constitute significant aspect of performance and business outcome.

These study findings indicate that implementation of PM Systems that are being efficiently managed does significantly enhance organisational performance, and further helps to align organisation strategy in accordance with the business mission and vision. Finally, application of performance

framework will further offer the prospect to substantiate its application and effectiveness that gives rise to enhance and improve the framework.

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