

Performance Measurement System (PMS) In Small Medium Enterprises (SMES): A Practical Modified Framework

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Small and medium-sized enterprises (SMEs) play a crucial role in the Malaysian New Economic Policy (NEP). The SMEs mostly operate in a fiercely competitive environment and; therefore, it is important to ensure that business is practiced more efficiently and effectively. It is believed that performance measurement tools can help to identify weaknesses, clarify objectives and strategies, and improve management processes. While many theories on performance measurement and performance management have been developed for large organizations over the past two decades, few have been tailored for SMEs. In addition, research highlights that these tools are difficult to adapt for SMEs. This paper aims to review the literature of performance measurement systems of SMEs, and in doing so, develop a new modified performance measurement system framework that is able to effectively measure SMEs performance, especially in a competitive environment.

Field of Research: Management Accounting, Performance Measurement, Small-Medium-sized Enterprises.

1. Introduction

In the Malaysian New Economic Policy, SMEs play a critical role. SMEs have long been recognized as the backbone to any economy as they have been an important generator of employment and growth. For example, in Malaysia, SMEs account for about 99% of total business establishments and contribute to 31% of the nation's Gross Domestic Product (GDP) (SME Annual Report 2009/10). Despite their significant role in the economy, previous studies have detected various problems faced by SMEs, which affect their profitability and growth. The Malaysian government also feels that SMEs may not be performing as well as they could be.

Hashim (1999) discovered that the recurring problems of SMEs included a lack of capital and credit facilities; shortage of skilled workers and raw materials; inadequate infrastructure; lack of managerial, marketing and technical expertise; and limited applications of new technology. In addition, external environmental factors, such as fast changing technology, competition, economics, socio-cultural and international factors, also have a significant effect on the success and failure of SMEs. Increased competition, dimension growth, continuous improvement and also significant development in information technologies are all reasons why performance measurement systems (PMS) in SMEs should be designed in an applicable manner. Therefore, although the need of an appropriate PMS to measure SMEs performance is apparent, different problems cause firms to experience difficulty in implementing such systems.

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Jamil & Mohamed

Furthermore, Davila (2000) suggested that an informal approach to the coordination and control of a firm's activities becomes harder and costlier as the firm grows and that formalizing these management activities would become vital for future growth. This is particularly related to SMEs as they are said to act as incubators for the creation of larger firms. However, as discovered by Yusoff & Norzima (2000), many Malaysian SMEs lack a documented strategy and proper techniques to formulate strategy, develop plans, control activities or measure performance. Most choose to increase sales or exports as their objectives albeit these are just ideas in their heads. In addition, most companies do not have long-term strategies, which is quite alarming considering the country's plan to become an industrialized nation in just less than twenty years. By having an effective PMS, weaknesses, clear objectives and strategies and also management process can be identified and improved.

Nowadays, companies, including SMEs, are competing in globalized and turbulent markets. In order to compete in continuously changing environments and sustaining their competitive advantage, it is very crucial that they understand and monitor their company's performance. This makes PMS one of the key issues for SMEs in their day-to-day management (Hudson *et al.*, 1999). The ability for keeping the PMS continuously updated is a challenge for every firm, but particularly for SMEs, which need to be extremely flexible and reactive to market changes while being characterized by a lack of resources and managerial expertise (Cocca & Alberti, 2010; Garengo *et al.*, 2007; Hudson *et al.*, 2001). An effective PMS is important to assist organizations to improve business performance.

However, to develop an effective PMS assessment tool for SMEs, it is necessary to identify which characteristics of PMS enable the company to effectively and efficiently measure and manage its performance. As found in previous research, many theories on performance measurement and performance management have been developed for large organizations over the past two decades, and which are really hard to adapt for SMEs. Apparently, the need to further develop this area for SMEs has now emerged. Therefore, rather than attempting to 'reinvent the wheel' there is value in assessing the existing PMS developed for large firms to determine their applicability to SMEs in Malaysia.

The purpose of this paper is to review the literature of PMS in SMEs to gain insight into developing a modified model of PMS in SMEs for the purpose of aiding improved performance in SMEs. The modified PMS developed in this research is a holistic and integrated model that has not yet been widely studied with regard to SMEs. In addition, this paper also investigates the role of PMS and management control system (MCS) in translating the SMEs' sustainable strategies into action and, as such, provides useful suggestions for a PMS model to measure the performance of SMEs.

2. Literature Review

2.1 Small Medium-sized Enterprises (SMEs)

In the real world, there have been various definitions of SMEs to serve a specific purpose for the respective scholars and establishments. In developed countries such as the United States and the United Kingdom, both quantitative and qualitative criteria have been used to define a SME. A literature review indicated that the

Jamil & Mohamed

number of employees working in one enterprise or establishment tends to be one of the main criteria used in size-categorization of SMEs. Malaysia has adopted the same definition given by three main international agencies, i.e. the World Bank (1984), the United Nations Industrial Development Organization (1985) and the Asian Development Bank (1990), which categorize SMEs as follows: (1) small-sized firms employing less than 50 workers; (2) medium-sized employing between 50 and 199 workers; and (3) larger sized firms employing 200 employees and above.

The Ministry of International Trade and Industry (MITI) (2005) has redefined SMEs in the manufacturing sector to include companies with larger operating capacity, as follows: (1) a small-scale firm is a company "with less than 50 full-time employees, and with an annual turnover of not more than RM10 million"; (2) a medium-scale enterprise is a company with between 51 and 150 employees, and with an annual turnover of between RM10 million and RM25 million".

According to the SME Annual Report 2007, the SMEs in Malaysia can be categorized into three broad sub-sectors: (1) General Business Sector – which is mainly involved in construction, wholesale and retail trade, transport and storage, business services and activities, and providing services, such as hotel and restaurant businesses; (2) Manufacturing Sector – with major activities of processing and production of raw materials such as food, textile, wood, chemicals, petroleum, rubber, plastic, metallic and nonmetallic materials, and transport equipment and agriculture; and (3) Agricultural Sector that includes agricultural producers and natural product producers of rubber, padi, oil palm, coconuts, cocoa, pepper, tobacco, livestock timber, fish, fruits, and vegetables. Hashim (2000) reported that the manufacturing sector has emerged as the most important sector for SMEs in terms of the tempo of growth and hence, their contribution to the national income.

Ahmad (2007) implied that there was a need to more closely examine the internal factors that may contribute to a firm's success, without ignoring the environmental factors that may also affect the firm's performance. She quoted from Longenecker et al. (1991) who argued that when a firm failed to achieve the desired outcome, this was often attributed to the actions or inactions of the top management, in particular, in creating a clear vision and direction, to adopt changes, to develop effective strategies, poor forecasting and planning, poor decision making and failure to have a clear understanding of the business, the sector, and the specific industry. Therefore, establishing a set of competencies would be crucial for the success of SMEs.

2.2 Performance Measurement in SMEs

According to Neely *et al.* (2002), PMS area balanced and dynamic system, which give a holistic view that uses different measures and perspectives. The various measurements and perspectives are tied together and continuously monitor the internal and external context of organizations. Despite the extensive research that has been carried out to investigate the needs and characteristics of PMS in large organizations, there is a scarcity of published research relating to SMEs (Hudson *et al.*, 2001). Basically, PMS models and frameworks are designed to support management in measuring their performance, analyzing and improving their performance through better decision making. Tatichi *et al.* (2008) mentioned that SMEs have used financial measurement tools such as ROI, ROE, and ROCE, which are basically used by large firms. Particularly, it is important to remark on the

Jamil & Mohamed

evolution of focusing on performance from a financial perspective to a non-financial perspective (Tatichi *et al.*, 2008).

Based on Garengo *et al.* (2005), there are eight previous PMS models that have been widely used and discussed in the literature. The models considered are six of the most popular generic models; i.e. those which make no reference to company size, developed in the last 15 years, and two PMS models created specifically for SMEs. Garengo *et al.* (2005) summarized these PMS models as below:

1. Performance measurement matrix (Keegan, *et al.*, 1989).
2. Performance pyramid system (Lynch & Cross, 1991)
3. Performance measurement system for service industries (Fitzgerald, *et al.*, 1991)
4. Balanced Scorecard (Kaplan & Norton, 1992, 1996)
5. Integrated performance measurement system (Bititci, *et al.*, 1997)
6. Performance Prism (Neely, *et al.*, 2002).
7. Organizational Performance measurement (Chennell *et al.*, 2000)
8. Integrated Performance measurement for small firms (Laitinen, 1996, 2002)

Even though, from the literature, there is evidence that SMEs already have PMS models in place, Manville (2006) stated that, to date, there are still significant barriers in the implementation of these systems in the SME context.

For example, the Performance Measurement Matrix helps a company define its strategic objectives and translate these objectives into performance measures using a hierarchical and integrated approach. A two-by-two matrix combines cost and non-cost perspectives with external and internal perspectives. While, the performance pyramid system is a pyramid built on four levels, integrating the links between corporate strategy, strategic business units and operations.

The performance measurement system for service industries is also called the Results and Determinants Framework. The framework consists of two types – results and determinants. The measures related to results are competitiveness and financial performance, while the measures related to determinants of those results are quality, flexibility, resource utilization and innovation. The Balanced Scorecard (BSC) emphasizes the linkage of measurement with strategy (Kaplan & Norton, 2001). The BSC has four different perspectives – financial, customer, internal business and innovation and learning. The BSC gives a holistic view of the organization by simultaneously looking at the four perspectives, thereby enabling companies to track financial results while simultaneously monitoring progress in building capabilities and acquiring the assets needed for future growth.

An integrated performance measurement system is defined by Bititci *et al.* (1997) as an information system that enables the performance management process to function effectively and efficiently. This model underlines two main facets of the performance measurement system: Integrity and Deployment. Integrity refers to the ability of the performance measurement system to promote the integration of various areas of business; and deployment refers to the deployment of business objectives and policies throughout four levels where the higher level becomes a stakeholder of the lower level. The Performance Prism (Prism) reflects the growing importance of

Jamil & Mohamed

fulfilling stakeholders, i.e. shareholders, investors, customers, employees and suppliers requirements. In the Prism, there are five distinct but linked perspectives of performance identified that prompt the following questions for organizations to address when defining a set of performance measures: stakeholder satisfaction – who are our key stakeholders and what do they want and need; strategies – what strategies do we have to put in place to satisfy the wants and needs of these stakeholders; processes – what critical processes do we need to operate and enhance these processes; capabilities – what capabilities do we need to operate and enhance these processes; and stakeholder contribution – what contributions do we require from our stakeholders if we are to maintain and develop these capabilities.

Organizational Performance measurement was developed specifically for SMEs and is based on three principles: Alignment, i.e. the selected performance measures support the alignment between people's actions and company strategy; Process thinking, i.e. the measurement system makes reference to the process of monitoring, control and improvement systems; and Practicability, i.e. at any level in the company there is a consistent process for identifying measures that should be considered and for ensuring the quality and suitability of data. Integrated Performance Measurement for Small Firms is specifically designed for SMEs. It is based on seven main dimensions of measures, classified as two external dimensions (financial performance and competitiveness) and five internal dimensions (costs, production factors, activities, products and revenues) that are connected by a causal chain. The internal dimensions are used to monitor the whole production process, and the external dimensions are used to monitor the company's position in its competitive context.

Analyses of these models show that performance measurement must be aligned with strategy (BSC, Results and Determinants, Performance measurement Matrix, Performance Prism, Performance pyramid) and have multi-dimensional measures (BSC, Results and Determinants). The multi-dimensional measures are particularly important and help to overcome the limitations of traditional performance measurement systems that only focus on the financial dimension.

The last two models were purposely developed as performance measurement in SMEs. However, literature claims that it is still vague as to whether these two models comply with the needs of SMEs. This is also supported by Rantanen & Holtari (2000), as, in reality, this type of measurement is not widely implemented by SMEs and they are not even aware of the existence of an integrated PMS model.

2.3 Management Control System (MCS)

Hilton (2009) explained that management accounting plays a broader role in organizations by providing a framework and tools for planning and management control. He listed five major objectives of management accounting to include:

- a. providing information for decision making and planning;
- b. assisting managers in directing and controlling operational activities;
- c. motivating managers and other employees toward the organizational goals;
- d. measuring the performance of activities, subunits, managers and other employees within the organization; and

Jamil & Mohamed

- e. assessing the organization's competitiveness by working with other managers to ensure long term survival.

Various conceptualizations of MCS have been discussed by previous researchers. For example, Chenhall (2003) conceptualized MSC as a broader term that covers the management accounting system and other controls such as personal and clan controls. He also noted that the term organizational control was sometimes used to refer to controls built into activities and processes, such as statistical quality control and just-in-time management.

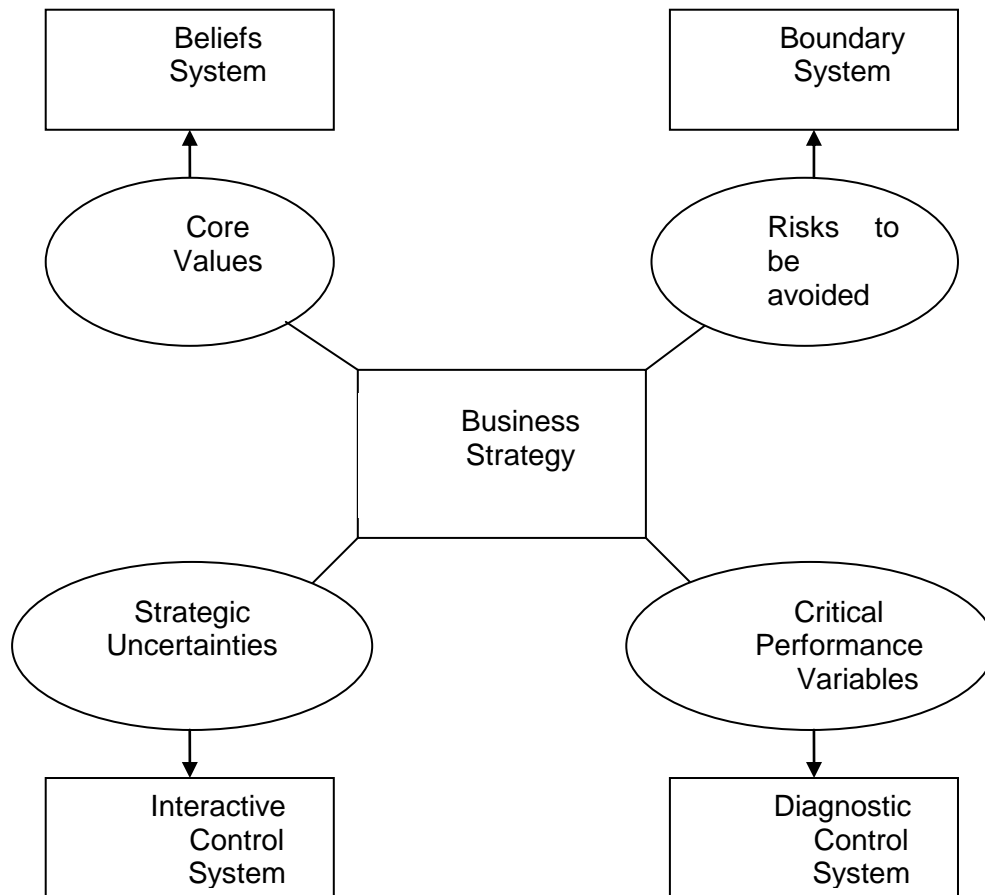
Prior to that, the management control system has been defined by Simons (1994) as "the formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities". Concisely, control is a policy or procedure that facilitates an organization to ensure that its goal and objectives are met. This is achieved by setting a standard, receiving feedback on actual performance and taking corrective action whenever actual performance deviates significantly from the planned performance. In doing so, the control actually creates conditions that motivate the organization to achieve desirable or predetermined outcomes (Fisher, 1998).

Later, Simons (1999) suggested the levers of control framework for studying the implementation and control of business strategy. This framework is derived inductively from case studies of more than one hundred companies. This framework also suggests four basic levers to control business strategy, which are beliefs systems, boundary systems, diagnostic control systems and interactive control systems. Beliefs systems are used to inspire and direct the search for new opportunities, and are related to the core values. Boundary systems are related to the risks to be avoided, and are used to set limits on opportunity-seeking behavior. Diagnostic control systems are concerned with critical performance variables, and organizations can use them to motivate, monitor and reward the achievement of specified goals. Interactive control systems that focus more on strategic uncertainties, and organizations can use them to stimulate organizational learning and the emergence of new ideas and strategies. Figure 1 illustrates the elements of the levers of control framework.

Referring to Figure 1, in order to control business strategy, organizations should be able to integrate four levers of control, i.e. beliefs systems, boundary systems, diagnostic control systems and interactive control systems (Simons, 2000 p301). In other words, an organization should use these four levers of control together to get the maximum benefit because the effectiveness of these levers in implementing strategy does not prove to be successful if used separately.

Figure 1: Levers of Control Framework

Source: Simons, 1999, p7



According to Flamholtz & Randle (2000) MCS is important for organizational growth as they liberate top managers' attention from processes that could be controlled by exception and provide them with information when their informal network is overloaded. They further added that the need for formal management tools is most visible in the population of small growing firms when companies move from an informal management approach to a more formal one as the firms grow. Recent research supports this focus and indicates that the emergence of MCS is more important for organizations moving through their growth stage (Moore & Yuen, 2001), when coordination and control problems cannot be solved through informal interaction (as happens during the birth stage). MCS then emerged to formalize this learning by codifying routines and liberating management attention from repetitive tasks.

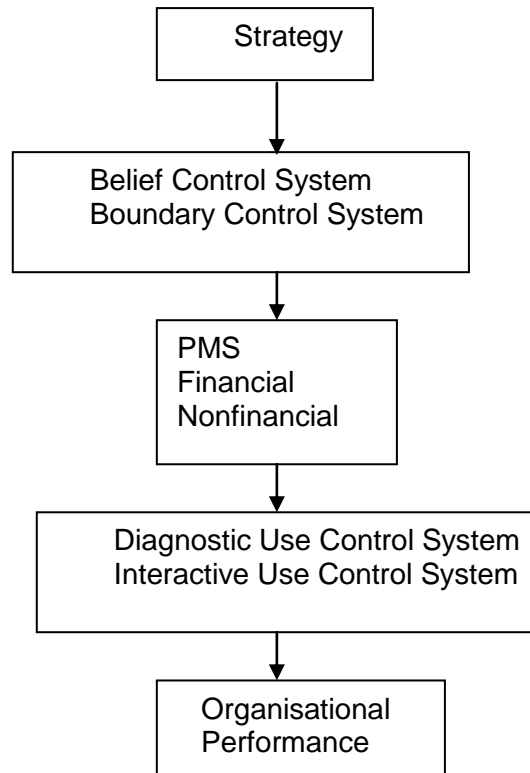
Kober, *et al.* (2003) stated that it was generally recognized in the contingency theory that in order to enhance performance, there should be a match between an organization's MCS and its strategy. By extension, the contingency framework suggests that when strategy changes, the MCS also changes. Contingency theory also argues that there is no universally appropriate control system applicable to all situations. As such, the appropriateness of different MCS mechanisms is contingent on the circumstances surrounding the organization. While a number of strategic typology frameworks have been advanced in the literature, this paper uses the Miles and Snow (1978) strategic typology framework as the foundation.

3. Proposed Framework – Performance Measurement and Management Control Framework

Due to the complexity and diversity of the management system in SMEs, it requires an urgent need to have a better framework of PMS in order for the SMEs to gain advantage and be able to continuously react and adapt to external changes. The causes that contribute to the failure of SMEs to operate better PMS stem from their internal incapability, such as the lack of a documented strategy, lack of financial and human resources and the owner's ineffective behavior. However, a good strategy would not work without an effective implementation. This is where an appropriate PMS would play a role in guiding the use of strategy. Traditionally, the models of PMS were more horizontal, process-oriented and focus on stakeholder needs. Even though, the models are established (e.g. balanced scorecard), due to the limited knowledge and expertise, they are not fully utilized in the context of Malaysia (Adam, 2000). The existing PMS models were designed primarily for use in a medium to large company context. However, according to Storey (1994), SMEs have distinct characteristics that differentiate them from the majority of their larger counterparts. Hudson *et al.* (2000) suggested that there is a need to establish the relevance of existing PMS approaches for SMEs and to identify an appropriate process for the design and implementation of strategic PMS. Therefore, the present paper aims to propose a modified PMS framework that combines both performance measurement and management control for use by SMEs. The suggested framework is illustrated in Figure 2.

The proposed model integrates the beliefs and boundary control system in strategy and translates the strategy into action by using the diagnostic and interactive control system as a dimension to measure performance. Based on previous literature, many researchers suggested that PMS must be aligned with organizational strategy (see for example Fitzgerald *et al.*, 1991; Kaplan & Norton, 1996; Otley, 1999; and Simons, 2000). The beliefs control system is important to communicate an organization's core values to inspire people to search for new opportunities or ways to serve customer's needs based on the core values (Simons, 1999). The beliefs system can inspire people in an organization to achieve organizational goals. The boundary control system focuses on the behavior of all employees in an organization. The aim of boundary control is to maintain an employee's commitment to pursue organizational goals and search for new ideas within the prescribed acceptable area. The business strategy will be translated into different dimensions of measures consisting of financial and non-financial. The diagnostic control system is used by management to evaluate the implementation of the organization's strategy by focusing on critical performance variables, which are the ones that can determine the success of strategy implementation and, at the same time, can conserve the management attention through the use of management by exception (Simons, 1999 and 2000). The interactive control system includes management practices that allow employees to interact with each other so as to assimilate new information and to keep up with changes in the market and technological conditions. This can stimulate double loop learning in which the search, scanning and communication process allows the emergence of new strategies (Simons, 1999; 2000).

Figure 2: Modified Framework



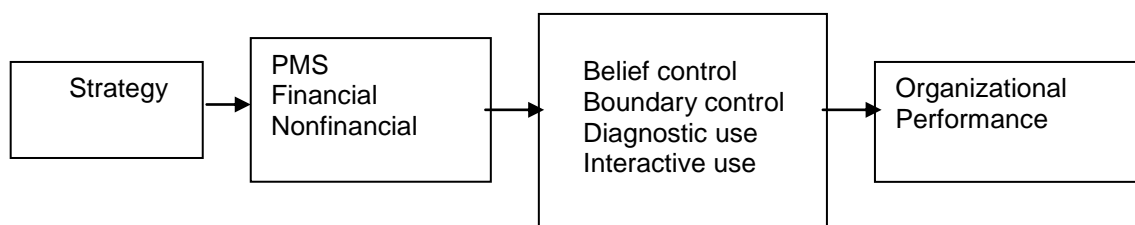
The proposed model integrates two elements – measurement and management. A performance measurement system is the set of metrics used to quantify the efficiency and effectiveness of past actions (Neely *et al.*, 2002). Performance management is a strategic and integrated process that delivers sustained success to organizations by improving the performance of the employees and by developing the capabilities of individual contributors and teams (Armstrong, 2000). The proposed model suggests that PMS measures must be linked to organizational strategy and consist of financial and non-financial indicators. This is consistent with prior literature that suggests that a good PMS must be balanced with multi-dimensional measures (see for example Fitzgerald *et al.*, 1991; Kaplan & Norton, 1996; Simons 2000). In this model, we argue that to be effective, the PMS must be linked with strategy, mission, vision and control. The management should regularly monitor and review the performance results and evaluate the changes in markets through diagnostic and interactive control systems. Through these feedback and feedforward control systems it can help to improve a company's efficiency and also identify new opportunities. SMEs need to identify their business strategy, develop mission, vision and boundary control. Business strategy can be translated into action by identifying performance indicators based on the company's critical success factors. The mission and vision guide employees and can inspire them to achieve organizational objectives. According to Simons (1999) commitment means believing in organizational values and being willing to make an effort to achieve the company's goals. Therefore, the goal commitment can lead to improved corporate performance. In addition, the boundary control system can motivate employees to search for new ideas or opportunities within the prescribed acceptable area (Marginson, 2002). Thus, if well implemented, this system can avoid the potential risks and, in turn, improve the organizational performance.

The variables in the proposed model are based on the suggestions in the literature. For example Cocca & Alberti (2010) highlighted that characteristics for good PMS are as follows:

- Derived from strategy.
- Link operations to strategic goals.
- Simple to understand and use.
- Clearly defined/explicit purpose.
- Stimulate continuous improvements/right behavior.
- Relevant and easy to maintain.
- Easy to collect.
- Provide fast, accurate feedback.
- Monitoring past performance.
- Planning future performance.
- Promote integration.
- Defined formula and source of data.

The proposed model can be tested empirically, as shown in Figure 3. Strategy can be an antecedent variable that influences the design of PMS. The independent variable is the PMS, and the management control system elements – beliefs, boundary, diagnostic and interactive can be tested as mediating variables. The dependent variable is organizational performance and the possible indicators are financial indicators, such as profit, sales growth and non-financial performance such as customer satisfaction, market share and service quality.

Figure 3: Hypotheses Testing of Modified Framework



4. Conclusion

This paper reviews the literature of PMS in SMEs by highlighting the needs for PMS to integrate the elements of control in PMS. SMEs differ from larger businesses such as in the number of employees, capital and management knowledge. SMEs have to improve and develop their performance to survive and achieve their goals and objectives.

Given the importance of the management of performance, and the accepted need for a non-traditional approach to measurement (with a consideration of non-financial as well as financial measures), a number of integrated business performance measurement systems have been developed (Gadd, 1995). The various frameworks focused on information related to the multiple dimensions of the various internal/external drivers and the non-financial/financial results, depending on size, nature, structure and also strategic direction. As mentioned by Hashim (2011), the criteria to measure performance may vary from business to business, industry to

industry and country to country. It is clear that using the same performance measurement approach for all firms is inappropriate due to complex variations that impact on the way they operate.

Therefore, this paper attempts to address the various performance measurement frameworks and proposes a modified framework that can be used in SMEs. The main argument is that SMEs require a PMS specifically designed and tailored to their characteristics and needs. In line with this, this paper reviews and analyzes eight current models of PMS in the literature. It is found that the similar characteristics of these models show that PMS must be aligned with strategy and consist of multi-dimensional measures. It is also found that the missing link in the current models is the integration between measurement and management. Thus, this paper proposes a modified framework that integrates these two elements – measurement and management. The framework uses levers of control as a way to manage the performance and measurement is based on a company's critical success factors. The design of PMS must also be tailored according to the company's strategy. The application of the framework in the real world will offer the possibility to verify its applicability and effectiveness and also provide an opportunity to refine and improve the framework.

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Jamil & Mohamed

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Jamil & Mohamed

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