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An Exploratory study on Performance Management System (PMSs) in SMEs

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Abstract

Several important changes that have taken place in recent years have created a favourable context for the implementation of Performance Measurement Systems (PMSs) in SMEs. Performance measurement systems (PMSs) are considered as a means to gain competitive advantages and continuously react and adapt to external changes. In recent years, literature has shown that performance measurement systems (PMSs) could play an important role in supporting managerial development in small and medium size enterprises. In this paper, the literature on performance measurement in manufacturing SMEs is reviewed, have analyzed characteristics and determinants of performance measurement that affects SMEs. The information used in this study, gathered using a systematic literature review approach. From the literature, shortcomings in the performance measurement systems are highlighted and the many factors that seem to constrain PMSs in manufacturing SMEs are defined, e.g. lack of financial and human resources, wrong perception of the benefits of PMS implementation, short-term strategic planning.

Keywords: Performance Measures, Small to medium-sized enterprises, Performance Measurement Systems

Introduction

Several important changes that have taken place in recent years have created a favourable context for the implementation of Performance Measurement Systems (PMSs) in manufacturing SMEs. Since the middle of 80s, companies emphasized the growing need of controlling production business processes. Companies have understood that for competing in continuously changing environments, it is necessary to monitor and understand firm performances. Measurement has been recognized as a crucial element to improve business performance (Sharma et.al, 2005). The classical approach to performance measurement, as described by the Sink and Tuttle model (Sink and Tuttle, 1989), claims that the performance of an organizational system is a complex interrelationship between six performance criteria: effectiveness, efficiency, quality, productivity, innovation and profitability (Rolstadas, 1998).

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Neely et al. (2002), defined Performance Measurement System is the set of metrics used to quantify the efficiency and effectiveness of past actions" and "it enables informed decisions to be made and actions to be taken because it quantifies the efficiency and effectiveness of past actions through the acquisition, collation, sorting, analysis and interpretation of appropriate data". A PMS is a balanced and dynamic system that is able to support the decision-making process by gathering, elaborating and analyzing information. Furthermore they highlight that a PMS can be examined at three different levels: the individual measures of performance; the performance measurement system as a whole; the relationship between the PMS and the environment within which it operates. The need for companies to align their performance measurement (PM) systems with their strategic goals is well documented in the literature (Kaplan, 1983; Eccles, 1991; Gregory, 1993). Although extensive research has been carried out to investigate the needs and characteristics of PMSs in large organizations, there is a distinct lack of published research on issues related to SMEs (Hudson et al., 2000). Storey (1994) SMEs exhibit distinct characteristics that differentiate them from the majority of their larger counterparts. Small and large firm are fundamentally different from each other in three central aspects: uncertainty, innovation and evolution; literature underlines that the central distinction between large and small firms is the greater external uncertainty of the environment in which the small firm operates, together with the greater internal consistency of its motivations and actions (Storey 1994; Welsh and White1981). PMSs should support SMEs to manage uncertainty, to be innovative in their products and services, and to sustain evolution and change processes. An increasing competitive environment, the proneness of growing in dimension, the evolution of quality concept, the increased focus on continuous improvement and the significant developments in information and communication technologies are the most important changes in recent years that have created a favorable context for the implementation of PMSs in SMEs, particularly in the manufacturing sector (Garengo et al., 2005). The evolution of the competitive environment and propensity to grow in dimension has led to the need for organizational development in these companies (Boldizzoni and Serio, 2003). If a PMS does not focus exclusively on financial aspects, it can play a key role in supporting a rational approach to

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growing complexity and qualitative improvement in SMEs.

The paper is organized as follows. The second section gives details about research methodology use for the study. In the third section the literature is reviewed to identify the main general features of PMS and analyses the tools available in literature for PMS assessment in general and in the context of SMEs in particular. Furthermore, the most important characteristics of SMEs along with the main weaknesses of their current PMSs are reviewed. Finally, the paper ends with some conclusions and directions for future research.

Research methodology

The research presented in this paper is specifically concerned with the following point: Which are the various performance measurement systems approach and diffusion and specific characteristics of performance measurement (PM) in SMEs and also focused on are current approaches of performance measurement systems appropriate for SMEs? An initial literature survey was undertaken to establish the status of current knowledge in the area of performance measurement systems for SMEs. This literature survey revealed that while there has been increased attention on performance measurement systems but current literature is inadequate in respect of the specific SME context. The research purely emphasized on exploratory base, study of the research approach may be conceptualized in more detail as two stages: (I) the major dimension of PMS; and (II) the analysis of current PM approaches.

SME Characteristics & Performance Measurement Systems (PMSs) in SMEs:

Despite the recognized heterogeneity of SMEs, there appears to be a consensus from researchers in this field that many SMEs share a number of general characteristics (Hudson et al., 2001). All the characteristics have been grouped into two main categories: external environment and internal environment. External environment represents the context in which the organization operates and the factors essentially outside the control of organizational members. It is divided into two main subcategories: market and customers. Internal environment includes the factors which are inside the company or under the managers' control, like the resources, both human and financial, and the way they are managed.

In fact, external environment in which SMEs operate is highly competitive, turbulent and uncertain markets (Garengo et al., 2005). Usually they do not have control or influence over the market and

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thus they need to adopt a reactive approach and adapt to market changes (Hudson, 2001). Since SMEs rely on a limited customer base, they are usually closer to the customers and have the possibility to develop more personal relationships with them (Hong and Jeong, 2006). However this sometimes forces the development of deferential relationships with their customers and SMEs are often subservient to their larger counterparts (Hudson, 2001). From an internal point of view, all the authors highlight scarcity of resources as one of the main problems and typical characteristic of SMEs (Singh et al., 2008). The term "resources" is considered both in terms of personnel, including also managerial time, and financial stability and security. In addition also skills are limited, not only among staff (Singh et al., 2008), but also owner-managers often do not have enough managerial expertise or organizational capabilities and this implies poor strategic business planning and human resource management (Pansiri and Temtime, 2008). Even though size represents a weakness in terms of available resources, on the other side, it favours a flat organizational structure with lack of bureaucracy and this has a positive impact on flexibility, adaptability and rapidity in responding to the changing environment (Garengo et al., 2005).

The increasing importance of continuous improvement has led many researchers to point out that PMSs might actually be needed to support continuous improvement processes (Atkinson and Waterhouse 1997; Barnes et al. 1998; Lynch and Cross 1991; Maskel 1989; Neely et al. 1996, 2000). The classical approach to performance measurement given by Sink and Tuttle, 1989, claims that the performance of an organizational system is a complex interrelationship between six performance criteria: effectiveness, efficiency, quality, productivity, innovation and profitability. To address this need a number of frameworks and processes (approaches) for the development of PM systems have emerged. The most popular of these is the balanced scorecard (Kaplan and Norton, 1992), which emphasizes a balance between the use of financial and non-financial measures to achieve strategic alignment. McAdam and Kelly, (2002), there is a general belief that performance evaluation models developed for large organizations can be applied to small and medium enterprises (SMEs) either without modifications or with minute changes. This belief is based on the assumption that large organizations being highly complex, models developed for them will be robust enough to address the complexities of small organization too. However, while

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SMEs are similar to large organizations in some ways, they are significantly dissimilar in other ways. Antony et al (2010) analyze the following variable like, innovativeness, competitiveness, creativeness, effectiveness, productiveness, efficiency and profitability and try to find out the consolidated value of the variables for obtaining organizational performance and excellence. The seven variables were measured for the whole organization and for work units separately. The model refinement of that approach in that it allows measurement of performance and excellence separately. Hudson et all', 2001, identified the Critical characteristics of performance measures with the help of extensive literature as follows; Clearly defined with an explicit purpose (Globerson, 1985; Neely et al., 1996), Relevant and easy to maintain (Maskell, 1989; Lynch and Cross, 1991), Simple to understand and use (Maskell, 1989; Lynch and Cross, 1991;Neely et al., 1996), Provide fast and accurate feedback (Globerson, 1985; Dixon et al., 1990), Stimulate continuous improvement (Lynch and Cross, 1991; Maskell, 1989). Some of the literature suggests that SMEs may be differentiated from larger companies by a number of key characteristics. These are generally described (Addy et al., 1994; Burns and Dewhurst, 1996; Ghobadian and Gallear, 1997; Appiah-Adu and Singh, 1998; Berry, 1998; Marri et al., 1998; O'Regan et al., 1998; Haywood, 1999) as: Personalised management, with little devolution of authority, severe resource limitations in terms of management and manpower, as well as finance, reliance on a small number of customers, and operating in limited markets, flat, flexible structures, high innovatory potential, reactive, informal, dynamic strategies.

The ability of keeping the PMS continuously updated is a challenge for every firm, but particularly for small and medium-sized enterprises (SMEs), which need to be extremely flexible and reactive to market changes while being characterized by lack of resources and managerial expertise (Garengo et al., 2007; Hudson et al., 2001). Implementing a PMS could support the decision making processes in SMEs and help them improve their management processes and strategic control (Barnes et al. 1998; Bhimani 1994; Hudson et al. 2001; Tenhunen et al. 2001). In addition, SMEs tend to have poor strategic planning and do not fully understand what their critical success factors are (Greatbanks and Boaden 1998). The process of designing a PMS forces a company to do strategic planning, and implementing and using it highlights the gaps between the company's current performance and its objectives.

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Consequently, the PMS helps the company set future objectives and plan any necessary improvement processes (Tenhunen et al. 2001). Very little empirical and theoretical research has been carried out on PM in SMEs. The countries where a lot of research has been carried out on PM for SMEs are Australia (Barnes et al.1998), where a specific organization has been created to support the development of PMSs for SMEs.

An explicit of study of various literatures shows some common characteristics of performance measurement system in SMEs. i.e. the companies that do start performance measurement projects rarely continue on to the last phase because of the lack of time available for non-operational activities and the poor involvement of the entrepreneurs or top managers in the PM project (Tenhunen et al. 2001). Some of study also indicates that SMEs either do not use any PM model or they use models incorrectly. Even if general models were applied correctly, they would be inadequate for the particular characteristics of SMEs: 'the small enterprise is different from the big company; you cannot simply look at the needs of SMEs by turning your binoculars upside down and making small what was big' (Marchini 1995). For example, some authors who have assessed the implementation of the Balanced Scorecard in SMEs conclude that this model is not suitable for SMEs (Hvolby and Thorstenson 2000; McAdam 2003). Performance measurement implemented in SMEs rarely has a 'holistic approach'. The studies by Barnes et al. (1998) and Rantanen and Holtari (2000) highlight the fact that SMEs do not usually implement integrated PMSs, and that they are not aware of the existence of integrated PMS models. Furthermore, since small companies focus on operational and financial performance, balanced models are seldom used. In fact, innovation, human resources, work atmosphere, R&D and training are rarely measured (Addy et al. 1994; Chennell et al. 2000; Hudson et al. 1999). SMEs do not take advantage of the implementation of the PMS to introduce strategic planning. Moreover, performance measures usually focus on past activities. In other words, the aim is to gather information to support the control activities rather than the forecasting and planning processes. There are many factors that influence performance measurement system implementation in SMEs i.e. lack of human resources, managerial capability, limited capital resources, little attention towards the formalization of process and misconception of performance measurement (Garengo et al., 2005). All these factors underline the differences

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between SMEs and big companies and the need for a different approach to PM in SMEs.

Moreover, these factors could be useful in the study of the dimensions of PMSs for SMEs. From the SME characterization, this section describes the principal characteristics and dimensions of an "ideal" SME performance measurement system that facilitate in designing of an appropriate performance measurement practice.

Table I: Critical Dimension of Performance Measurement Systems Tools

Dimension	References
Derived From Strategy	Skinner, 1971; Bierbusse and Siesfeld 1997; Kaplan and Norton 1996; Nanni et al. 1992; Schneiderman 1999; Lynch and Cross 1991; Meekings 1995; Neely et al. 2002
Strategy Development	Dixon et al. 1990; Feurer and Chaharbaghi 1995; Bititci 1997; Bourne et al. 2000; Tonchia 2001; Neely et al. 2002; Suwignjo et al. 2000
Focus on Stakeholders	Atkinson and Waterhouse, 1997; Bititci 1994; Kanji 2002; Neely et al. 2002; Sharman 1995; Barnes et al. 1998
Balance	Lynch and Cross 1991; Kaplan and Norton 1992; Hvolby and Thorstenson 2000; Tenhunen et al. 2001
Dynamic Adaptability	(Bititci et al. 2000; Bourne et al. 2000; Dixon et al. 1990; Eccles and Pyburn 1992; Fortuin 1988; Ghalayini and Noble 1996; Ghalayini et al. 1997; Lingle and Schiemann 1996; Lynch and Cross 1991; Maskel 1989; McMann and Nanni 1994; Neely et al. 2000; Wisner and Fawcett 1991
Causal Relationships	Lynch and Cross 1991; Bititci et al. 2000; Neely et al. 2000
Depth and Breadth	Neely et al. 2000; Dickinson et al. 1998; McAdam 2000
Clarity and Simplicity	Globerson 1985; Neely et al. 2000; Hussein et al. 1998; McAdam 2000

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Analysis of PMS Models from various literatures

Chow et al. (1997), in there research present the application of Balance Scorecard to small companies. The model consist indications for management to design a scorecard to fix the needs of the small and medium size company. Using Multi-perspective dimension analysis they proposed to four different typologies of firms. But the framework proposed is not clearly structured, and consequently application is subjective. Chennel, et. al. (2000), using case study approach developed "Organizational Proposed Measurement" (OPM) for SMEs. The proposed system is in the dissemination phase and it has to be tested yet. An indicator for performance measurement in SMEs model focuses more on performance management rather than performance measurement. The model proposes only few financial indicators and that not makes is balance measurement. Hudson et al. (2001), specifically focused on improvement of quality through effective performance measurement in SMEs. They emphasized on incremental and iterative performance with simple, clear and well define steps for implementation. It uses a case study to investigate whether the process identified is appropriate within a SME context. With case study approach, also discuss the critical characteristics of performance measures and critical dimension of performance measures. The failure of the case study has allowed the gap analysis between the theoretical model and the PM system, which resulted in a greater understanding of SMEs. But model is too strategic oriented and requires too many resources for application, little short-term benefits and the model is not enough dynamic and flexible. Integrated Performance Measurement System (IPMS) (See Bititci, 1994, 1995), model is mainly intended as a general tool for measuring and improving performance without any special reference to the type of industry. The model consist major dimension of performance measurement. All the above PM models summarize critical points for SMEs performance measurement however, little empirical evidence currently exists which describes current PM practice in SMEs or which evaluates the appropriateness of current processes within this context.

Conclusion:

Using a literature review, this study described the characteristics of performance measurement in SMEs and the main factors influencing performance measurement in these companies. Our research showed that, even though the literature highlights the importance of using PMS in SMEs, very few companies carry out performance management. It is found that significant gap between theory

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and practice: the theory underlines the importance of PMS in SMEs in supporting the development of managerial systems, but little research focusing on performance measurement in SMEs is available. The literature claims that there is a need to carry out further research on PMSs in both large companies and SMEs. Many models for SMEs have been proposed, but little empirical research has been carried out to assess their effectiveness.

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