

How organizational culture influences performance measurement systems in SMEs

PMSs in SMEs

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Abstract

Purpose – Literature highlights the impact of culture on managerial processes in general and the performance measurement system (PMS) in particular. However, understanding how organizational culture (OC) influences the PMS remains a challenge, especially in SMEs as in these companies the studies are very limited. The purpose of this paper is to investigate how OC influences PMSs in manufacturing SMEs.

Design/methodology/approach – To achieve the above purpose, a case study approach has been adopted. Four manufacturing SMEs with heterogeneous OC were investigated by means of companies' documents reviews, participant observations and semi-structured interviews. A conceptual framework based on the competing value framework proposed by Cameron and Quinn (1999) and the PMS typology proposed by Garengo (2009) has been used to investigate the impact of OC on PMS.

Findings – According to the results, OC has a huge impact on PMS in manufacturing SMEs. The dimensions of “internal/external focus” influence strategy formalization, monitoring of the external environment and performance review. The “flexibility/control” dimensions influence the adoption of the balanced (or unbalanced) set of performance measures a company uses.

Originality/value – This paper contributes to clarifying how OC influences PMSs in manufacturing SMEs. Moreover, the study of interplay between flexibility/control dimensions and internal/external dimensions supports the identification of three theoretical propositions and four PMS types related to the four different OCs identified by Cameron and Quinn (1999).

Keywords Performance measurement, Organizational culture, Small and medium enterprises, Performance management systems

Paper type Research paper

1. Introduction

Performance measurement systems (PMSs) are widely recognized as being crucial for the management of any business (Bourne *et al.*, 2018). They bring improvements in the form of organizational efficiency and effectiveness (Neely *et al.*, 1995) and facilitate better communication with employees, testing the effectiveness of existing strategies and motivating employees (Kaplan and Norton, 1996; Beer and Micheli, 2018). However, PMSs are not without problems. According to Bourne (2005), numerous PMS initiatives fail and failures are diverse and different in nature. These issues led Franco-Santos and Bourne (2005) to ask the question “Why are some organisations better able to manage through measures than others?” and suggesting a set of process and context factors influencing efficient PMS use. Among those important factors, particular attention was given to organizational culture (OC).

As highlighted by the literature, previous studies (Allaire and Firsirotu, 1984; Fontaine and Richardson, 2003) have empirically shown that organizational values and beliefs significantly influence the differences in management practices. Moreover, OC has been recognized as a source of sustaining competitive advantage (Barney, 1991) and it has been



empirically proven to play an important role in sustaining competitive organizational performance (Fey and Denison, 2003; Zheng *et al.*, 2010; Mohamad *et al.*, 2013). Despite the significant influence of OC on the management of organizations, particularly SMEs (Garengo and Bititci, 2007), studies investigating the impact of this factor on PMSs are limited (Jwijati and Bititci, 2015).

The oldest contribution goes back to Lebas and Weigenstein (1986) who underline the important role played by a “strong” culture in management control. Several years later, Bititci *et al.* (2004, 2006) rigorously investigate several case studies and assert a dyadic influence between OC and the PMS. Meanwhile, on the one hand, other authors go further with their analysis and suggest different OC types promoting PMS implementation and use. For instance, Bourne *et al.* (2002) state that the “paternalistic culture” was mandatory at the beginning for PMS implementation. Assiri *et al.* (2006), in turn, describe a culture stimulating participation and involvement of all employees as one of the main factors enhancing a successful implementation of PMS. For De Waal and Counet (2009), to have a better implementation and use of PMS, a culture focusing on continuous improvement is required. At last, Najmi *et al.* (2012) link PMS implementation to a “specific” OC; however, they do not provide any clear definition of what type of OC they refer to. On the other hand, several studies investigate, further, the relationship between OC and PMS using a different organizational framework, namely, the competing value framework. For example, Henri (2006) witnesses a relationship between OC types as suggested by Cameron and Quinn (1999) and the diversity of measurement and nature of use of PMS. Tuan (2010), in turn, points out the positive impact of specific cultures such as adhocracy and market on performance measurement. Finally, conforming to Mohamad *et al.* (2013), control values are found to be stronger than flexible values to promote greater adoption of diverse performance measures.

Subsequent to the findings above, it is generally agreed that OC has an impact on the PMS. However, empirical investigations are considered still limited. Survey-based research methods have been the predominant method used (Assiri *et al.*, 2006; Henri, 2006; Tuan, 2010; Mohamad *et al.*, 2013); this has been criticized by Harrison and McKinnon (1999) as ineffective in capturing the culture impact of subjects. Few papers are theory-based research (Lebas and Weigenstein, 1986; Najmi *et al.*, 2012), most of them are limited examples of in-depth and case study based, particularly in the context of SMEs. As the literature points out, small enterprise is different from the big company and we cannot simply look at the needs of SMEs by making small what was big (Garengo and Biazzo, 2012). Thus, in order to fill the research gap, this paper investigates the following research question:

RQ1. How does OC impact the PMS in SMEs?

The remainder of this paper is organized as follows. After a synthetic overview of the theoretical background of the OC and PMS, a conceptual framework is identified to graphically represent the investigated relationship. Afterwards, we present the methodology of the study and the findings, followed by a discussion of the theoretical and practical implications.

2. Theoretical background

In order to answer the above research question, How does OC influence the PMS in SMEs?, a literature review on PMSs and OC was carried out, using a systematic approach and the main evidence is synthesized in two main subsections. The first subsection introduces the concept of OC by providing a definition, briefly presenting various organizational cultural measurement frameworks and describing and justifying the choice of the competing value framework. The second subsection supplies an overview of PMSs, describing the historical evolution and highlighting the main PMS dimensions.

2.1 Organizational culture and competing value framework

Plenty of literature highlights the key role of OC in increasing competitiveness, productivity and profits in all organizations (Cameron and Freeman, 1991; Prasanna and Haavisto, 2018). This leads top managers to comprehend new ways and methods to manage and change OC. Deshpande and Webster (1989, p. 4) define OC as a set of “shared values and beliefs that help individuals understand organizational functioning” as it “provides them with the norms for behaviour in organizations.” Thus, OC can be described as a set of “shared values” and “way of working” for individuals in organizations (Schein, 1996; Gallear and Ghobadian, 2004).

For measuring OC, Chatman and Jehn (1994) assert that it is challenging to develop a strong set of culture dimensions which can describe OC. In fact, no single instrument affords a valid measure of a wide set of generic cultural dimensions (Chatman and Jehn, 1994). In most organizations, a significant challenge is whether they know what their culture is and whether it is the appropriate culture to support their strategy. For determining and identifying the type of culture in organizations, numerous frameworks and methods have been developed to assess and describe OC such as the Organizational Culture Inventory (Cooke and Lafferty, 1987), Mackenzie’s (1995) Culture Questionnaire, the Corporate Culture Questionnaire (Walker *et al.*, 1996), the Organizational Culture Survey (Glaser *et al.*, 1987) and the competing values framework (CVF) (Cameron and Quinn, 1999).

Since its introduction as a model for understanding organizational effectiveness (Quinn and Rohrbaugh, 1983), the CVF has shown promise as an effective tool for analyzing and understanding complex management issues (Denison and Spreitzer, 1991). Quinn and Kimberly (1984) have extended the framework to examine OC for the first time. Subsequently, many studies have been developed on OC based on this study, such as Denison (1990) and Cameron and Freeman (1991). The CVF has been used to investigate organization forms (Quinn and Hall, 1983); organization life cycles (Quinn and Cameron, 1983); leadership roles (Quinn, 1984); organizational climate (Zammuto and Krakower, 1991) supporting both effective theoretical and empirical analysis (Zeitl *et al.*, 1997; Twati and Gammack, 2006; Henri, 2006; Naor *et al.*, 2008; Zu *et al.*, 2010). These high impact studies support the validity and reliability of the CVF framework.

The competing value framework employs two dimensions, defining four types of OC. The first dimension is the flexibility-control dimension that depicts two contrasting orientations, one represents flexibility and spontaneity and the other represents stability and control. Some organizations are effective if they are changing, adaptable and organic, whereas other organizations are effective if they are stable, predictable and mechanistic. The second dimension is the internal-external dimension that represents the focus of the organization and if this focus is internal or external to the organization (Cameron and Quinn, 1999). That is, some organizations are more effective if they have harmonious internal characteristics, while others are more effective if they focus on interacting or competing with others outside their boundaries (Denison and Spreitzer, 1991). Based on those dimensions, Cameron and Quinn (1999) discern between four types of OC named market, adhocracy, clean and hierarchy (as shown in Figure 1(a)).

2.2 Performance measurement system

Since the mid-1980s, the focus on traditional financial measures which are internal and historical based have been criticized by numerous academics; therefore, increasing attention has been given to the study of PMSs (Neely, 1999). Most of these studies emphasize the change from accounting and static approaches to multidimensional and dynamic approaches taking into consideration the whole organization (Garengo *et al.*, 2007). As a result, a number of frameworks, models, methodologies, tools and techniques have been developed to facilitate the development of balanced and dynamic PMSs (Bititci *et al.*, 2000)

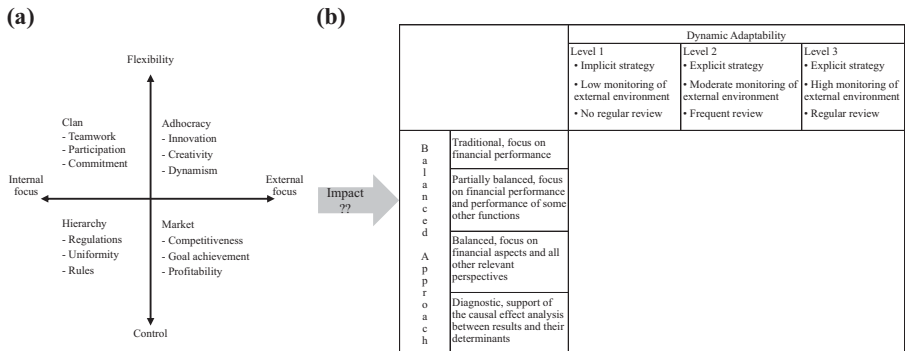


Figure 1. Conceptual framework **Notes:** (a) The competing value framework (Cameron and Quinn, 1999); (b) PMS typology (Garengo, 2009 adapted)

such as: the performance measurement matrix (Keegan *et al.*, 1989), performance pyramid system (Lynch and Cross, 1991), balanced scorecard (Kaplan and Norton, 1996), integrated PMS (Bititci *et al.*, 1997) and performance prism (Neely *et al.*, 2002). In fact, Neely (1999) underlined that, from 1994 to 1996, more than 3,600 articles were published on performance measurement, which was described as a revolution.

This evolution could be synthesized in the PMS definition, i.e., the balanced and dynamic system that is able to support the decision-making process by gathering, elaborating and analyzing information (Neely *et al.*, 2002; Garengo *et al.*, 2005). The literature underlines the use of different approaches to balance: balance between internal and external measures (Keegan *et al.*, 1989), financial and non-financial measures (Kaplan and Norton, 1992) and balancing measures related to all different organizational levels (Lynch and Cross, 1991). According to Lynch and Cross (1991) a PMS should be dynamic and has to be modified according to circumstances so that performance measures remain pertinent (Cocca and Alberti, 2010). Therefore, a PMS should include systems for reviewing measures and objectives and monitoring external and internal environment to warrant a quick response to changes in internal and external contexts (Bititci *et al.*, 2000; Garengo *et al.*, 2005; Garengo and Biazzo, 2012). Consequently, performance measurement activities help to enhance pre-defined objectives and strategies (Garengo, 2009).

According to Kennerley and Neely (2002), few organizations appear to have systematic processes in place for maintaining a dynamic and balanced PMS. In fact, the ability to maintain an updated PMS is a challenge for every firm, especially SMEs, which have to be highly flexible and reactive to changes in the competitive context while being characterized by lack of resources and managerial expertise (Garengo *et al.*, 2005; Cocca and Alberti, 2010). Furthermore, small and medium companies focus on operational and financial performance and often only measure the performance of single aspects such as different elements of the lead time, delivery precision and quality levels (Garengo and Biazzo, 2012), thus balanced models are rarely used (Garengo *et al.*, 2005). SMEs still do not perceive the need for balanced models, as proposed by Kaplan and Norton (1996), even though some SMEs use indicators of customer satisfaction, internal processes and training (Garengo *et al.*, 2005). Adapting Garengo's (2009) framework the PMSs could be classified considering two main dimensions, i.e., dynamic adaptability and balance within an organization. As shown in Figure 1(b), with regard to dynamic adaptability, the PMS should include activities such as: formulating strategy, monitoring external environments and reviewing performance (Bititci *et al.*, 2000; Garengo *et al.*, 2005; Garengo and Biazzo, 2012). In the conceptual framework, dynamic adaptability is seen as a continuum spanning from level 1 to level 3.

At level one, the business does not have a clear vision or associated mission and values nor does it intend to develop any (Bititci *et al.*, 1997; Bourne *et al.*, 2002), there is no clear plan as to how the business goals and objectives will be delivered by the existing organization (Garengo *et al.*, 2005), there is little or no understanding of the external environment and such information is not fed into the business (Garengo, 2009). Performance data are generally reported to leaders only, and usually not reviewed or looked at until there is a problem (Bititci *et al.*, 2013). At level two, the organization has a defined vision, mission and values but these may not be wholly aligned (Kotler and Armstrong, 1991), there is a strategic implementation plan which reflects the goals of the organization but it is not necessarily achievable, certain key external factors are considered by the organization but, whilst they are useful, they are not comprehensive (Bititci *et al.*, 2011). The reporting frequency of performance measures is more regular with the use of visual methods; performance data are accessible to managers who collaborate with leaders by having regular operational reviews. The third level is concerned with a clear vision of the future and purpose for the organization which reflects its values (Bititci *et al.*, 2011), a formulated and achievable strategy implementation plan for delivering the business goals and objectives (Martinez and Kennerley, 2005; Bititci *et al.*, 2011), regular scanning of the external environment to identify factors that may impact upon the organization (Bititci *et al.*, 2000), regular data reporting using different visual methods with access to managers and employees, and regular operational and strategic reviews using performance reports and displays (Bititci *et al.*, 2015).

A balanced approach is concerned with what companies are measuring; it focuses on multidimensional aspects and causal relationships (Garengo, 2009) and is seen as a continuum ranging from traditional to diagnostic. In traditional systems, the focus is only on financial aspects (traditionally called “management control systems”). Partially balanced systems focus on both financial performance and the performance of other functions that are considered to be key functions for the competitiveness of the organization. In balanced systems many of the measurements involved are non-financial. Diagnostic systems include a balanced set of measures with a clear awareness of causal relationships (Garengo, 2009).

3. Research design

Using a social constructionist paradigm, qualitative exploratory theory building research was carried out (Easterby-Smith *et al.*, 2002). In the empirical investigation, a multiple case studies approach was performed (Eisenhardt, 1989; Meredith, 1998). This choice was supported by two main explanations. Even if the literature recognizes the impact of OC on managerial practices in general (Zheng *et al.*, 2010; Wang *et al.*, 2011), and PMS in particular (Bourne *et al.*, 2002; Bititci *et al.*, 2006; Henri, 2006), the studies available do not support the design of a theoretical framework to assist in the understanding of the impact of OC dimensions on PMS (Barratt *et al.*, 2011). Moreover, as widely described in the literature (Yin, 2014; Eisenhardt and Graebner, 2007; Barratt *et al.*, 2011) multiple case studies favor the collection of data from multiple sources and a depth of understanding of the investigated issues. The overall research design supporting the collection of data and their analysis is described below.

3.1 Conceptual framework

As shown in the previous section, knowledge around how OC influences PMSs is scarce (Jwijati and Bititci, 2015); however, the two research streams identify two existing frameworks that could support the empirical investigation (Figure 1). Since the study adopts the competing value framework as a reference model, the research model will investigate the impact of the four types of OC (i.e. clan, adhocracy, hierarchy and market) in terms of how they can foster dynamic adaptability in a PMS and balance within

an organization. Thus, the impact of OC on PMSs will be determined by comparing the dynamic adaptability level and the balanced approach in the different OCs.

3.2 Case study selection and data collection

Four independent manufacturing SMEs were selected as units of analysis. Service firms were not included because both literature and practices have proven that their approach to PMS adoption and use is different (Fitzgerald *et al.*, 1991; Garengo and Sharma, 2014). As this research paper does not aim to establish any country-related differences, all the selected SMEs were located in the same country, and managed by indigenous managing directors. The selected organizations have different OCs in order to cover the four culture types described by Cameron and Quinn (1999).

A research protocol was developed to gather data in a coherent and consistent way (Eisenhardt, 1989; Yin, 2014; Easterby-Smith *et al.*, 2004) to cover issues related to PMS and OC. One researcher moved on-site to interview general and middle managers, each separately. The length of each interview, which depended on achieving the aim of the research and answering each question, ranged from 1 to 3 h. In line with Yin's (2014) writing, the researchers carried out empirical investigations paying particular attention to the richness of data collected, methodological rigor and the trustworthiness of the investigators, to ensure data saturation (Glaser and Strauss, 1967).

Qualitative assessment of the companies' culture and PMS was accomplished through document review, participant observations and semi-structured interviews. Document review included company site and documents afforded by the organization. Participant observation comprised sitting in meetings with top management and their staff. Interviews with managers were used to obtain input concerning roles and responsibilities within the organization and the practices they carried out in developing and formalizing strategy, monitoring the external environment and measuring and reviewing performance in a semi-structured style. It should be mentioned that, in addition to companies' documents and participant observations, the OC assessment instrument, supported by the competing value framework, was used in order to support the identification of each organization's culture. The instrument is composed of six parts, each part consisted of four descriptions matched to the definitions of the four culture forms. Interviewees were asked to distribute 100 points for each part depending on how alike the descriptions were to their organization. The interviews were recorded and subsequently transcribed in local languages (French and Arabic) which are the languages employed in each company.

3.3 Data analysis

We used Eisenhardt's (1989) work on building theory from qualitative case studies. Three phases were used in obtaining the final conclusions. The first step involved within-case analysis, the second step involved cross-case analysis and coming to the propositions after numerous iterative attempts of analyzing data. The third phase involved comparing propositions with the existing literature.

First, a within-case analysis was carried out and the empirical data of each case study was synthesized in Tables I–IV. We used the PMS characteristics previously described and the OC to organize the empirical data and synthesize the main evidence. Moreover, in order to favor a better understanding of the investigated SMEs in each case description we added some interviewees' quotes with the most interesting statements. To ensure anonymity, the firms were identified by the suffix "M" and the numbers 1–4. Afterwards, to support the cross-case analysis, the main evidence from all cases was synthesized and organized in Figure 2 to find the type of relationships that exist between OC in the different companies and the PMS characteristics.

M1		
Dimensions	Observations	Comments
Organizational culture	The relationship between superiors and subordinates is independently built and open The middle management has a decision-making power and it is involved in the definition of the strategy M1 business is based on innovation and agility	External focus: high Control: low Dominant OC type: adhocracy
Dynamic adaptability	Mission, vision, values and strategy are clearly defined and formalized. A detailed five-year plan is elaborated and formalized The external environment is regularly scanned, the analysis is clear and formalized Performance reports are accessible. Performance measures are regularly reviewed (daily, weekly, monthly, annually) at different levels (operational and strategic)	Level 3
Balance approach	Performance measures include finance, process, customer, continuous improvement and learning Measures are balanced, with causal relationships to strategy clarified	Diagnostic

Table I.
Summary of
M1 findings

M2		
Dimensions	Observations	Comments
Organizational culture	Company has a high hierarchy organizational structure. The relationship between top management and middle management is formal Decision-making power is centralized Decisions are only taken by the general manager without the involvement of the middle management M2 business is based on technical excellence in products and operational processes	External focus: low Control: high Dominant OC type: hierarchical
Dynamic adaptability	Company has recently defined its vision, mission and values. Annual production master plan is developed and formalized (absence of strategic business plan) Absence of systematic and global monitoring of the external environment Performance measurement reports are not accessible. Performance measures are reviewed as needed (not systematic)	Level 1
Balance approach	Performance measures include financial and internal processes performance measures An absence of interaction between the strategic vision and performance measures	Partially balanced

Table II.
Summary of
M2 findings

4. Empirical findings

As described in the previous section, plenty of data were empirically collected on OC and PMS. Most of the firms are family businesses, partly owned and managed by a family member (see company M2, M3 and M4). Decision-making and managerial power are concentrated in the management directors' hands (except M1 where we witnessed middle management interference). The collected data are synthesized below.

Until 2010, M1 had been a subsidiary of a multinational specialist in the manufacturing of different types of batteries. Then, the company was bought by Moroccan shareholders and underwent a transition phase from 2010 to 2012. Keeping the same business, the

Table III.
Summary of
M3 findings

		M3	
Dimensions	Observations		Comments
Organizational culture	The relationships between management and employees are formal Decisions are taken only by leaders M3 is a customer and results-oriented business		External focus: high control: high Dominant OC type: market Levels 2-3
Dynamic adaptability	Company has clear and formalized vision, mission, strategy and values. A detailed five-year plan is elaborated and formalized The external environment analysis is systematic and subcontracted to the Moroccan association of the textile and clothing industry Performance reports are accessible; visual methods are used. At the operational level, performance reviews are undertaken daily. At the strategic level, reviews take place as needed		
Balance approach	Performance measures include financial, customer and internal processes measures Lack of understanding of the causal relationship between strategy and performance measures		Partially balanced

Table IV.
Summary of
M4 findings

		M4	
Dimensions	Observations		Comments
Organizational culture	The relationship between top management and middle management is based on trust. Organizational structure is low hierarchy Though decisions are taken only by leaders, there is a friendly and paternalistic culture M4 has a business based on excellent expertise and high flexibility and responsiveness		External focus: low Control: moderate Dominant organizational culture type: clan
Dynamic adaptability	The company's vision, mission and business plan are not formalized There is no systematic and global monitoring of the macro environment. A SWOT analysis was carried out as part of the balanced scorecard project, but the analysis is not systematic Performance reports are accessible but not systematically communicated. Performance reviews are not systematic		Level 1
Balance approach	M4 has a BSC. The use of financial, customer, internal process and learning and growth measures prevail		Balanced

company had to manufacture its own battery, make its place in the market and, above all, face the competition and globalization of this market. The top management is composed of highly qualified executives with a high-risk appetite.

Top management have defined and formalized a clear mission, vision and values and an effective business plan with the collaboration of the function managers. The implementation of policy and strategy is linked to the process activities and monitored with different performance measures (finance, operational processes, people competences (or intangible assets) and continuous improvement). In M1 environmental analysis is essential in order to implement the innovation strategy. Thus, the company systematically analyzed its internal and external environment using different managerial tools (SWOT, PEST and risk analysis). It has a strong partnership with all the stakeholders. It analyzes their role and needs periodically. Moreover, in order to systematically monitor the competitive

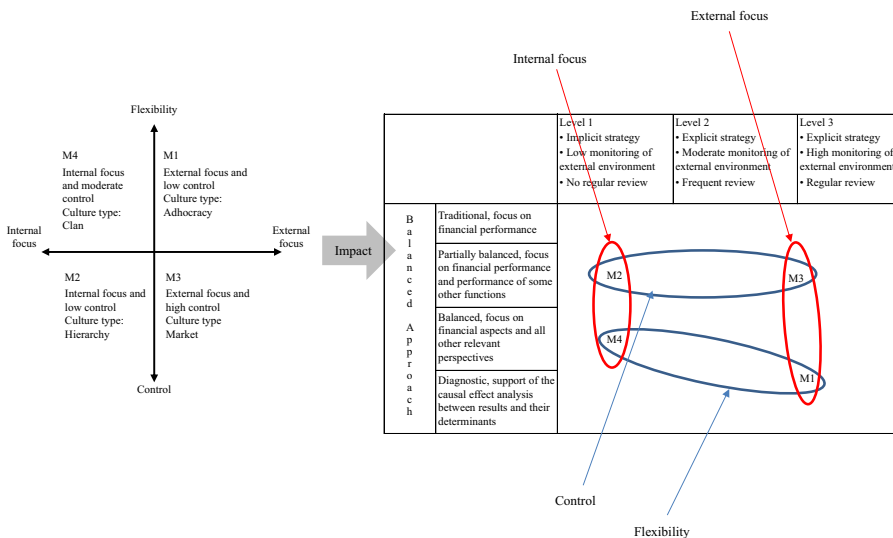


Figure 2.
The impact of organizational culture dimensions on PMS

environment, M1 benchmarks its products with its main competitors. Performance reviews are held at different levels. The first level is the management board that reviews factual performance vs targets in their monthly meetings. Operational level performance reviews are systematic, 1 h meetings, undertaken daily, in an open forum, in the presence of all departmental managers or their representatives together with some employees:

Everything that is strategic in our business is analyzed in relation to our positioning, by what we sell on the same markets for export and also in the Moroccan market. (Industrial manager)

The performance operational reviews are exposed on whiteboards; periodically, the company communicates its performance results to all stakeholders. The aim of measurement is to permit top management and managers to take well-informed decisions, communicate organizational objectives, favor continuous improvement and engage employees.

M2 is a family business founded in 1987, specializing in the manufacture and marketing of household items. The company is owned and managed by an entrepreneur who is also general manager. The company is the leader in its sector due to the absence of official and structured companies.

Recently, M2 engaged an external consulting firm to develop its vision, mission and values; however, there is no formalized strategy. The strategy is implicit and is in the mind of the general manager. The focus on the short term (annual action plans) generates management control disconnected with the company's vision. Annually a production master plan is defined by the leaders (general manager and sales director) by calculating the sales forecasts on the basis of two parameters: sales history and expected demand projections. Then, a plan is established to predict master production; the plan summarizes the projected workload for diverse departments and managers receive their departments' targets progressively. Technical excellence in products and operational processes is perceived as the only critical factor by the general manager. Thus, all the efforts are on internal operational activities to the detriment of the analysis of external factors that impact the business which explains the absence of a systematic and global monitoring of the external environment and a focus on market research and analysis by product. The quality management system is the main system used in M2 to measure performance, it is designed

to provide the general manager with a panoramic picture of the organization using financial and internal process measures.

The general manager usually starts the working day by reviewing the reports and discussing these with the pilots of the processes that have prepared them; the discussion could be by phone or face-to-face depending on the need. One-to-one performance reviews occur between the management director and manager(s), since the owner wants to keep information protected. The information is not shared between managers due to the managing director's directives against data sharing between departments. The aim of performance measurement is to control, monitor and take decisions:

There is a centralization of the decision-making power, there is the middle management that is drowned in the operations without any decisional power, the responsible is here, he manages the equipment, he manages the daily operations problems without being able to take decisions, it is imperative to return to the general manager for any decision. (Manager)

M3 is a relatively new company, founded in 2012, specializing in men's ready-to-wear suits, structured jackets and high-end trousers, 100 percent export oriented and employing 230 people. The company's head is the owner/manager who has a large experience in the textile domain but with no formal management education. M3 is a family business, and the shareholders are the owner's son and daughter.

Since 2007, the global economic crisis has severely affected the textile sector in Morocco. Moreover, this sector remains relatively fragile because of its high dependence on subcontracting and its excessive concentration on the Spanish and French markets. In order to overcome the situation, the general manager founded the company and began by designing a business plan, mission and vision statements with the assistance of an external consulting firm. Everything related to macro environment analysis, national and international competitor analysis and market research externalized to the Moroccan association of the textile and clothing industry; the company is very careful to its customers, the claims and satisfaction of customers are systematically analyzed:

We are part of "l'AMITH", (Moroccan association of the textile and clothing industry.) The members meet periodically to discuss different items. The association principal role is promoting and developing the textile sector. To do so, the association has several missions, among others: the promotion of partnerships at a national and international level, trade shows, market research, competition analysis, benchmarking and sourcing. All members of the association benefit from surveys and data from studies carried out. (General Manager's reply when asked about monitoring of the external environment)

Performance measures include financial, customer and internal processes. To review performance, various formal and informal meetings occur at different levels and for different reasons, such as quality meetings, production meetings, board meetings, etc. Board meetings are undertaken as needed while at the operational level meetings are held daily. During performance review meetings, managers who have not achieved their set of objectives are asked to clarify causes behind such inability. The purpose of the top management in this measurement is to take informed decisions and focus employees toward company policies and targets. To communicate performance results, reports and visual management are used.

M4 is a private company, founded in 1997, specializing in manufacturing and general applications of aluminum for construction. The company is a family business; two brothers who are experienced engineers with substantial engineering backgrounds head the company. The OC is friendly and based on trust:

Transparency and integrity, the Islam values. (General Manager's reply when asked about the company values)

M4 is known in the national market for the high quality of its products, excellent expertise and high flexibility and responsiveness. However, its managerial practices are rather archaic.

The strategy is somewhat implicit and only the leaders know the strategic objectives. Major strategic orientations are reflected in short-term objectives and development axes with operational decisions. Its commercial performance is reflected through a good mastery of the customer portfolio. Though there is a friendly OC, decisions are taken only by leaders.

M4 has an internal focus with the absence of formal and systematic analysis of the external environment (except a SWOT analysis which was carried out as part of a balanced scorecard project). To review performance, informal and face-to-face meetings are undertaken as needed. Performance reports are accessible; however, we witnessed an absence of visual management. For measuring performance, M4 has recently implemented a balanced scorecard. Performance measurement in M4 mainly aims to support leaders in the decision-making process.

In order to support cross-case analysis, the empirical evidence previously presented is synthesized in Figure 2. Overall, organizational culture appears to have an influence on PMSs. Moreover, it seems that the impact is more linked to OC dimensions (i.e. internal/external focus and flexibility/control). Regarding dynamic adaptability, one OC dimension seems to have a significant influence, i.e., internal/external focus. When the focus is tending toward internal, general managers prefer to keep strategy and strategic objectives in their minds, they tend to use informal and irregular performance reviews and focus on technical and operational excellence. However, when the focus tends toward external, the strategy is clear and explicit, performance reviews are frequent and the external environment is systematically monitored. With regard to a balanced approach, the flexibility/control dimension seems to have the most significant influence. When the company tends toward control, general managers prefer to use financial and internal process measures; on the other hand, when the company tends toward flexibility, the use of balanced measures prevails.

5. Discussion

The empirical research shows the high impact of OC (in term of dimensions, i.e., internal/external focus and flexibility/control) on the PMS that supports the definition of the theoretical framework below (Figure 3). The main evidence is synthesized, below, in three theoretical propositions.

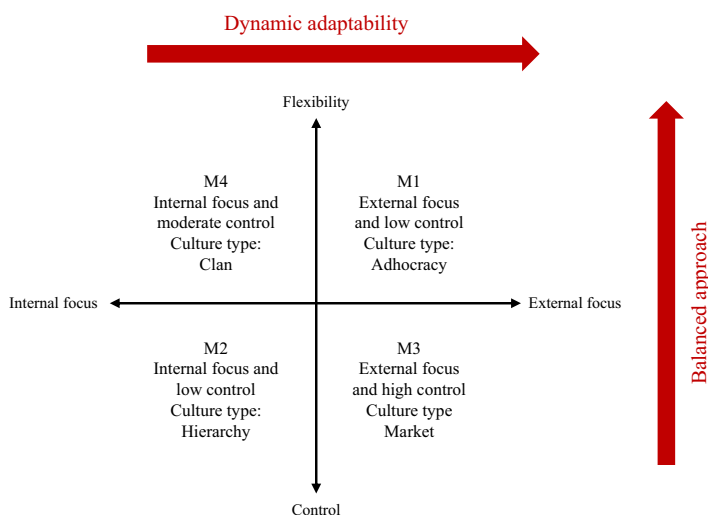


Figure 3.
The impact of organizational culture on PMS: a theoretical framework

As stated in the literature, in SMEs, internal orientation is highly diffused (Garengo *et al.*, 2005) and consistent with the prevailing attention to short-term performance (O'Regan and Ghobadian, 2004). The prevalence of short-term priorities leads to short-term vision and an absence of strategy formalization, which creates a managerial control poorly related to company strategies (Brouthers *et al.*, 1998; Tallon *et al.*, 2000; Ates *et al.*, 2013). The SMEs' focus on technical aspects and operational processes emerged from a conviction that the only critical success factor of competitiveness is the technical excellence and production process. Therefore, the managerial efforts are on the internal activities at the expense of the analysis of external factors affecting the business (Ates *et al.*, 2013; Garengo *et al.*, 2005; Hudson *et al.*, 2001).

The empirical evidence is consistent with the above literature. The findings suggest that the OC with high internal focus leads to performance measurements with an implicit strategy and short-term orientation. As shown by the study of cases M2 and M4, the centralization of decision-making power, along with the technical excellence in product and/or operational processes, favors a poor formalization of strategy/policy and a lack of regular performance review. All managing directors' efforts are involved only on internal operational activities. The informal interactions with customer and competitors prevail. Any form of systematic and formalized analysis of the macro environment and stakeholders is absent as it is perceived as not necessary to sustain competitive advantage. The relationship between the internal focus dimension and PMS can be summarized in the following proposition:

- P1.* SMEs with a prevailing internal focus tend toward a PMS with implicit strategy, emphasis on internal operational activities and an absence of a regular performance review.

According to O'Regan and Ghobadian (2004), external orientation leads to focus on long-term performance. Externally oriented SMEs effectively analyze their competitive position; they regularly scan the economic and business status along with the overall technological trends. Moreover, they use systematic meetings with the whole company and they usually use different forms of internal customer/employee and supplier networks (Daft *et al.*, 1988; Day and Schoemaker, 2005; Martin *et al.*, 2009; Ates *et al.*, 2013). As shown by cases M1 and M3, when the company focus is tending toward the external, the strategy is well formalized and long-term oriented. The two companies with high external orientation systematically analyze macro environments and customers' needs and they create a strong partnership with all their stakeholders in order to sustain their performance. Furthermore, the external focus favors the frequent strategic objectives and performance measures review. The relationship between the external focus dimensions and PMS can be summarized in the following proposition:

- P2.* When the external focus dimension prevails, the company strategy and the strategic process are formalized. Strategic objectives and performance reviews are frequently reviewed using information collected by analysis of the external environment.

As Henri (2006) underlines, firms with a flexible culture are associated with "greater diversity" of performance measures compared to control culture firms. According to Gosselin (2005), firms with a high delegation of authority culture seem to have more emphasis on the adoption of a balanced set of performance measures. As highlighted by Malina and Selto (2001), firms with an external focus need a set of comprehensive measures in order to capture adequate information for managing innovation and creativity and support the operation of flexibility values. Thus, an exclusive emphasis on financial measures is not enough to support the decision-making process since they are limited in focus, historical in nature and, in several cases, incomplete (Hoque and James, 2000; Jusoh *et al.*, 2008; Mohamad *et al.*, 2013).

The empirical evidence collected by the four cases underlines the impact of flexibility/control dimensions on the type of measures used by SMEs. As shown by cases M2 and M3, the prevalence of the control dimension pushes the use of the financial and internal process measures. Conversely, where flexible cultures prevail, companies perceive the need to adopt a balanced set of performance measures (see cases M1 and M4). This leads to the definition of the third proposition, below:

- P3. SMEs tending toward a control dimension use mainly financial and internal process measures while SMEs tending toward a flexibility dimension perceive the need to implement a balanced set of performance measures.

Moreover, analysis of the empirical data shows a relationship between OC type and PMS, that confirms and extends the Jwijati and Bititci (2015) research. As shown in Figure 4, the four types of OC push the adoption of four different types of PMSs named high developed, steady, competitive and friendly PMS (Figure 4).

In highly developed PMS (case M1), performance information is openly shared using different tools and the results are systematically communicated. Performance measures are balanced and carefully developed. The external environment is carefully monitored and PMS is systematically updated and reviewed. These practices are compatible with adhocracy cultures, dynamic and entrepreneurial in nature.

In steady PMS (case M2), financial and internal process performance measures are used. Performance reviews are not systematic and take place as needed. Performance information is not shared between managers due to the management director directives against data sharing between departments. This implies certain compatibility with formality, stability and predictability values that characterize the hierarchical culture.

In competitive PMS (Case M3), financial, customer, and internal process performance measures are adopted. Performance data are openly shared using different tools. In performance reviews, managers who do not achieve the objectives are asked to clarify the causes behind their inability, the purpose of the top management in this measurement is to

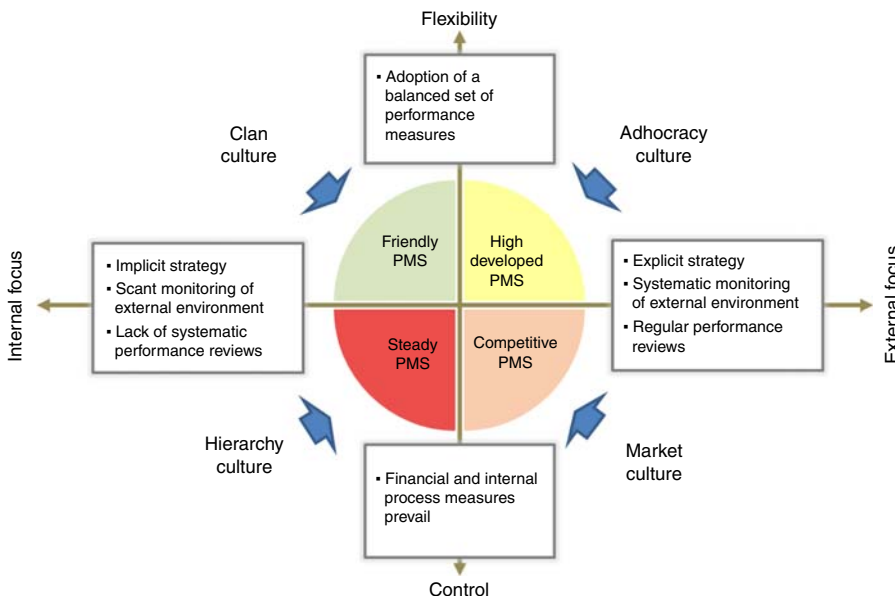


Figure 4. PMS around organizational cultures

focus managers in company's targets and policies. These practices are compatible with market culture values such as goal-achievement and competitiveness.

In friendly PMS (case M4), balanced measures are used and performance data are accessible. PMS is used to achieve the company's objectives without intruding on employees' performance. Such practices fit with clan culture values, which provides an extended family and an environment based on trust.

6. Conclusion

Our study enhances the body of knowledge by providing theoretical contributions and practical implications regarding the impact of OC on performance measurement and management. From a theoretical standpoint, this paper extends previous literature (Bititci *et al.*, 2006, 2004; Henri, 2006) and highlights the influence of OC dimensions on PMS represented by three theoretical propositions. Moreover, the data show the impact of the four culture types identified by Cameron and Quinn (1999) on PMS, supporting the definition of the four main types.

This study also has important implications for management practices. Globalization, innovation and high customer demand oblige firms to face more challenges and to excel along all performance dimensions (Neely *et al.*, 2002; Cocca and Alberti, 2010; Ates *et al.*, 2013). SMEs focusing internally have a short-term view and focus on operational processes to the detriment of external issues such as competition, horizon scanning and strategic marketing positioning. Thus, it is compulsory for SME managers to be aware that neglecting external communication and scanning of the external environment may affect their business (Garengo *et al.*, 2005; Ates *et al.*, 2013; Hudson *et al.*, 2001). Furthermore, in order to effectively manage PMS adoption, managers should be aware of their company's values before designing and using a PMS. For instance, in companies with higher external orientation and flexibility, the development of a more mature PMS with increased dynamic adaptability together with a well-developed, balanced approach may be easier than in SMEs where control dimensions prevail.

This study is subject to potential limitations. First, the empirical evidence is based on four case studies. Additional research would be interesting to test the theoretical propositions by using quantitative methods. Second, the study involves only Moroccan manufacturing SMEs. Future research would be useful to investigate analogies and differences between SMEs located in developing and developed countries. Third, even if the impact of OC on the PMS is identified, further research could be useful to better define the characteristics of the four PMS types.

References

- Allaire, Y. and Firsirotu, M.E. (1984), "Theories of organizational culture", *Organization Studies*, Vol. 5 No. 3, pp. 193-226.
- Assiri, A., Zairi, M. and Eid, R. (2006), "How to profit from the balanced scorecard: an implementation roadmap", *Industrial Management and Data Systems*, Vol. 106 No. 7, pp. 937-952.
- Ates, A., Garengo, P., Cocca, P. and Bititci, U. (2013), "The development of SME managerial practice for effective performance management", *Journal of Small Business and Enterprise Development*, Vol. 20 No. 1, pp. 28-54.
- Barney, J. (1991), "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17 No. 1, pp. 99-120.
- Barratt, M., Choi, T.Y. and Li, M. (2011), "Qualitative case studies in operations management: trends, research outcomes, and future research implications", *Journal of Operations Management*, Vol. 29 No. 4, pp. 329-342.

- Beer, H.A. and Micheli, P. (2018), "Advancing performance measurement theory by focusing on subjects: lessons from the measurement of social value", *International Journal of Management Reviews*, Vol. 20 No. 3, pp. 755-771.
- Bititci, U., Ackermann, F., Ates, A., Davies, J., Garengo, P., Gibb, S., MacBryde, J., Mackay, D., Maguire, C., van der Meer, R., Shafti, F., Bourne, M. and Firat, S.U. (2011), "Managerial processes: business process that sustain performance", *International Journal of Operations and Production Management*, Vol. 31 No. 8, pp. 851-887.
- Bititci, U.S., Carrie, A.S. and McDevitt, L. (1997), "Integrated performance measurement systems: a development guide", *International Journal of Operations and Production Management*, Vol. 17 No. 5, pp. 522-534.
- Bititci, U.S., Firat, S.U.O. and Garengo, P. (2013), "How to compare performances of firms operating in different sectors?", *Production Planning and Control*, Vol. 24 No. 12, pp. 1032-1049.
- Bititci, U.S., Turner, T. and Begemann, C. (2000), "Dynamics of performance measurement systems", *International Journal of Operations and Production Management*, Vol. 20 No. 6, pp. 692-704.
- Bititci, U.S., Garengo, P., Ates, A. and Nudurupati, S.S. (2015), "Value of maturity models in performance measurement", *International Journal of Production Research*, Vol. 53 No. 10, pp. 3062-3085.
- Bititci, U.S., Mendibil, K., Nudurupati, S., Garengo, P. and Turner, T. (2006), "Dynamics of performance measurement and organisational culture", *International Journal of Operations and Production Management*, Vol. 26 No. 12, pp. 1325-1350.
- Bititci, U.S., Mendibil, K., Nudurupati, S., Turner, T. and Garengo, P. (2004), "The interplay between performance measurement, organizational culture and management styles", *Measuring Business Excellence*, Vol. 8 No. 3, pp. 28-41.
- Bourne, M. (2005), "Researching performance measurement system implementation: the dynamics of success and failure", *Production Planning Control*, Vol. 16 No. 2, pp. 101-113.
- Bourne, M., Melnyk, S. and Bititci, U.S. (2018), "Performance measurement and management: theory and practice", *International Journal of Operations and Production Management*, Vol. 38 No. 11, pp. 2010-2202.
- Bourne, M., Neely, A., Platts, K. and Mills, J. (2002), "The success and failure of performance measurement initiatives: perceptions of participating managers", *International Journal of Operations and Production Management*, Vol. 22 No. 11, pp. 1288-1310.
- Brouthers, K., Andriessen, F. and Nicolaes, I. (1998), "Driving blind: strategic decision-making in small companies", *Long Range Planning*, Vol. 31 No. 1, pp. 130-138.
- Cameron, K.S. and Freeman, S.J. (1991), "Cultural congruence, strength, and type: relationships to effectiveness", *Research in Organisational Change and Development*, Vol. 5 No. 1, pp. 23-58.
- Cameron, K.S. and Quinn, R.E. (1999), *Diagnosing and Changing Organisational Culture*, Addison-Wesley, Reading.
- Chatman, J.A. and Jehn, K.A. (1994), "Assessing the relationship between industry characteristics and organizational culture: how different can you be?", *Academy of Management Journal*, Vol. 37 No. 3, pp. 522-553.
- Cocca, P. and Alberti, M. (2010), "A framework to assess performance measurement systems in SMEs", *International Journal of Productivity and Performance Management*, Vol. 59 No. 2, pp. 186-200.
- Cooke, R. and Lafferty, J. (1987), *Organisational Culture Inventory (OCI)*, Human Synergistic, Plymouth, MI.
- Daft, R.L., Sormunen, J. and Parks, D. (1988), "Chief executive scanning environmental characteristics and company performance: an empirical study", *Strategic Management Journal*, Vol. 9 No. 2, pp. 123-139.
- Day, G.S. and Schoemaker, P.J.H. (2005), "Scanning the periphery", *Harvard Business Review*, Vol. 83 No. 11, pp. 135-148.
- De Waal, A.A. and Counet, H. (2009), "Lessons learned from performance management systems implementations", *International Journal of Productivity and Performance Management*, Vol. 58 No. 4, pp. 367-390.

- Denison, D.R. (1990), *Corporate Culture and Organizational Effectiveness*, John Wiley and Sons, Oxford.
- Denison, D.R. and Spreitzer, G.M. (1991), "Organisational culture and organisational development: a competing values approach", *Research in Organisational Change and Development*, Vol. 5 No. 1, pp. 1-21.
- Deshpande, R. and Webster, F.E. Jr (1989), "Organizational culture and marketing: defining the research agenda", *The Journal of Marketing*, Vol. 52 No. 1, pp. 3-15.
- Easterby-Smith, M., Thorpe, R. and Lowe, A. (2002), *Management Research Methods*, Sage Publications, London.
- Easterby-Smith, M., Antonacopoulou, E., Simm, D. and Lyles, M. (2004), "Constructing contributions to organizational learning: Argyris and the next generation", *Management Learning*, Vol. 35 No. 4, pp. 371-380.
- Eisenhardt, K.M. (1989), "Building theories from case study research", *Academy of Management Review*, Vol. 14 No. 4, pp. 532-550.
- Eisenhardt, K.M. and Graebner, M.E. (2007), "Theory building from cases: opportunities and challenges", *The Academy of Management Journal*, Vol. 50 No. 1, pp. 25-32.
- Fey, C.F. and Denison, D.R. (2003), "Organizational culture and effectiveness: can American theory be applied in Russia?", *Organization Science*, Vol. 14 No. 6, pp. 686-706.
- Fitzgerald, L., Johnston, R., Brignall, T.J., Silvestro, R. and Voss, C. (1991), *Performance Measurement in Service Businesses*, CIMA, London.
- Fontaine, R. and Richardson, S. (2003), "Cross-cultural research in Malaysia", *Cross Cultural Management: An International Journal*, Vol. 10 No. 2, pp. 75-89.
- Franco-Santos, M. and Bourne, M. (2005), "An examination of the literature relating to issues affecting how companies manage through measures", *Production Planning and Control*, Vol. 16 No. 2, pp. 114-124.
- Gallear, D. and Ghobadian, A. (2004), "An empirical investigation of the channels that facilitate a total quality culture", *Total Quality Management and Business Excellence*, Vol. 15 No. 8, pp. 1043-1067.
- Garengo, P. (2009), "A performance measurement system for SMEs taking part in quality award programmes", *Total Quality Management*, Vol. 20 No. 1, pp. 91-105.
- Garengo, P. and Biazzo, S. (2012), "Unveiling strategy in SMEs through balanced scorecard implementation: a circular methodology", *Total Quality Management and Business Excellence*, Vol. 23, pp. 79-102.
- Garengo, P. and Bititci, U. (2007), "Towards a contingency approach to performance measurement: an empirical study in Scottish SMEs", *International Journal of Operations and Production Management*, Vol. 27 No. 8, pp. 802-825.
- Garengo, P. and Sharma, M.K. (2014), "Performance measurement system contingency factors: a cross analysis of Italian and Indian SMEs", *Production Planning and Control*, Vol. 25 No. 3, pp. 220-240.
- Garengo, P., Biazzo, S. and Bititci, U.S. (2005), "Performance measurement systems in SMEs: a review for a research agenda", *International Journal of Management Reviews*, Vol. 7 No. 1, pp. 25-47.
- Garengo, P., Nudurupati, S. and Bititci, U. (2007), "Understanding the relationship between PMS and MIS in SMEs: an organizational life cycle perspective", *Computers in Industry*, Vol. 58 No. 7, pp. 677-686.
- Glaser, B. and Strauss, A. (1967), *The Discovery of Grounded Theory*, Vol. 24 No. 25, Weidenfeld and Nicholson, London, pp. 288-304.
- Glaser, S.R., Zamanou, S. and Hacker, K. (1987), "Measuring and interpreting organisational culture", *Management Communication Quarterly*, Vol. 1 No. 2, pp. 173-198.
- Gosselin, M. (2005), "An empirical study of performance measurement in manufacturing firms", *International Journal of Productivity and Performance Management*, Vol. 54 Nos 5-6, pp. 419-437.
- Harrison, G.L. and McKinnon, J.L. (1999), "Cross-cultural research in management control systems design: a review of the current state", *Accounting, Organizations and Society*, Vol. 24 Nos 5-6, pp. 483-506.

- Henri, J.F. (2006), "Organizational culture and performance measurement systems", *Accounting, Organizations and Society*, Vol. 31 No. 1, pp. 77-103.
- Hoque, Z. and James, W. (2000), "Linking balanced scorecard measures to size and market factors: impact on organizational performance", *Journal of Management Accounting Research*, Vol. 12 No. 1, pp. 1-17.
- Hudson, M., Smart, P.A. and Bourne, M. (2001), "Theory and practice in SME performance measurement systems", *International Journal of Operations and Production Management*, Vol. 21 No. 8, pp. 1096-1115.
- Jusoh, R., Nasir Ibrahim, D. and Zainuddin, Y. (2008), "The performance consequence of multiple performance measures usage: evidence from the Malaysian manufacturers", *International Journal of Productivity and Performance Management*, Vol. 57 No. 2, pp. 119-136.
- Jwijati, I. and Bititci, U.S. (2015), "The impact of organizational culture on the design and use of performance management systems", paper presented at the 22nd International Annual EurOMA Conference, Neuchâtel, June 26–July 1.
- Kaplan, R. and Norton, D. (1992), "The balanced scorecard: the measures that drive performance", *Harvard Business Review*, January–February, pp. 71–79.
- Kaplan, R. and Norton, D. (1996), *The Balanced Scorecard*, Harvard Business School Press, Boston, MA.
- Keegan, D., Eiler, R. and Jones, C. (1989), "Are your performance measures obsolete?", *Management Accounting*, Vol. 70 No. 12, pp. 45-50.
- Kennerley, M. and Neely, A. (2002), "A framework of the factors affecting the evolution of performance measurement systems", *International Journal of Operations and Production Management*, Vol. 22 No. 11, pp. 1222-1245.
- Kotler, P. and Armstrong, G. (1991), *Principles of Marketing*, 5th ed., Prentice-Hall, Englewood Cliffs, NJ.
- Lebas, M. and Weigenstein, J. (1986), "Management control: the roles of rules, markets and culture", *Journal of Management Studies*, Vol. 23 No. 3, pp. 259-272.
- Lynch, R. and Cross, K. (1991), *Measure Up! Yardsticks for Continuous Improvement*, Blackwell, Oxford.
- Mackenzie, S. (1995), "Surveying the organisational culture in an NHS trust", *Journal of Management in Medicine*, Vol. 9 No. 6, pp. 69-77.
- Malina, M.A. and Selto, F.H. (2001), "Communicating and controlling strategy: an empirical study of the effectiveness of the balanced scorecard", *Journal of Management Accounting Research*, Vol. 13 No. 1, pp. 47-90.
- Martin, J., Martin, B. and Minnillo, P. (2009), "Implementing a market orientation in small manufacturing firms: from cognitive model to action", *Journal of Small Business Management*, Vol. 47 No. 1, pp. 92-115.
- Martinez, V. and Kennerley, M. (2005), "Impact of performance management reviews: evidence from an energy supplier", *Conference Proceedings of the EUROMA Operations and Global Competitiveness, Budapest, June*, pp. 19-22.
- Meredith, J. (1998), "Building operations management theory through case and field research", *Journal of Operations Management*, Vol. 16 No. 4, pp. 441-454.
- Mohamad, M.H.S., Ali, F. and Amir, A.M. (2013), "Role of organisational culture on performance measurement practice: the case of Malaysian manufacturing firms", *Afro-Asian Journal of Finance and Accounting*, Vol. 3 No. 4, pp. 297-318.
- Najmi, M., Etebari, M. and Emami, S. (2012), "A framework to review performance prism", *International Journal of Operations and Production Management*, Vol. 32 No. 10, pp. 1124-1146.
- Naor, M., Goldstein, S.M., Linderman, K.W. and Schroeder, R.G. (2008), "The role of culture as driver of quality management and performance: infrastructure versus core quality practices", *Decision Sciences*, Vol. 39 No. 4, pp. 671-702.

- Neely, A. (1999), "The performance measurement revolution: why now and what next?", *International Journal of Operations and Production Management*, Vol. 19 No. 2, pp. 205-228.
- Neely, A., Gregory, M. and Platts, K. (1995), "Performance measurement system design: a literature review and research agenda", *International Journal of Operations and Production Management*, Vol. 15 No. 4, pp. 80-116.
- Neely, A.D., Adams, C. and Kennerley, M. (2002), *The Performance Prism: The Scorecard for Measuring and Managing Business Success*, Prentice Hall Financial Times, London.
- O'Regan, N. and Ghobadian, A. (2004), "Short- and long-term performance in manufacturing SMEs: different targets, different drivers", *International Journal of Productivity and Performance Management*, Vol. 53 No. 5, pp. 405-424.
- Prasanna, S.R. and Haavisto, I. (2018), "Collaboration in humanitarian supply chains: an organisational culture framework", *International Journal of Production Research*, Vol. 56 No. 17, pp. 5611-5625.
- Quinn, R.E. (1984), *Applying Competing Value Approach in Leadership*, Managerial Work and Leadership: International Perspectives, Pergamon, New York, NY.
- Quinn, R.E. and Cameron, K. (1983), "Organisational life cycles and shifting criteria of effectiveness: some preliminary evidence", *Management Science*, Vol. 29 No. 1, pp. 33-51.
- Quinn, R.E. and Hall, R.H. (1983), *Environments, Organisations and Policymakers: Towards an Integrative Framework*, Sage, Beverly Hills, CA.
- Quinn, R.E. and Kimberly, J.R. (1984), "Paradox, planning, and perseverance: guidelines for managerial practice", in Kimberly, J.R. and Quinn, R.E. (Eds), *Managing Organizational Transitions*, Dow Jones-Irwin, Homewood, IL, pp. 295-313.
- Quinn, R.E. and Rohrbaugh, J. (1983), "A spatial model of effectiveness criteria: towards a competing values approach to organisational analysis", *Management Science*, Vol. 29 No. 3, pp. 363-377.
- Schein, E.H. (1996), *Organizational Culture and Leadership*, Jossey-Bass, San Francisco, CA.
- Tallon, P., Kraemer, K. and Gurbanaxi, V. (2000), "Executives' perceptions of the business value of IT", *Journal of Management Information Systems*, Vol. 16 No. 4, pp. 145-172.
- Tuan, L.T. (2010), "Organisational culture, leadership and performance measurement integratedness", *International Journal of Management and Enterprise Development*, Vol. 9 No. 3, pp. 251-275.
- Twati, J.M. and Gammack, J.G. (2006), "The impact of organisational culture innovation on the adoption of IS/IT: the case of Libya", *Journal of Enterprise Information Management*, Vol. 19 No. 2, pp. 175-191.
- Walker, H., Symon, G. and Davies, B. (1996), "Assessing organisational culture: a comparison of methods", *International Journal of Selection and Assessment*, Vol. 4 No. 2, pp. 96-105.
- Wang, D., Su, Z. and Yang, D. (2011), "Organizational culture and knowledge creation capability", *Journal of Knowledge Management*, Vol. 15 No. 3, pp. 363-373.
- Yin, R.K. (2014), *Case Study Research: Design and Methods*, 5th ed., Sage, Thousand Oaks, CA.
- Zammuto, R.F. and Krakower, J.Y. (1991), "Quantitative and qualitative studies of organizational culture", in Woodman, R.W. and Passmore, W.A. (Eds), *Research in Organizational Change and Development*, Vol. 5, JAI Press, Inc., Greenwich, CT, pp. 83-114.
- Zeitz, G., Johannesson, R. and Ritchie, J.E. Jr (1997), "An employee survey measuring total quality management practices and culture: development and validation", *Group and Organization Management*, Vol. 22 No. 4, pp. 414-444.
- Zheng, W., Yang, B. and McLean, G.N. (2010), "Linking organizational culture, structure, strategy, and organizational effectiveness: mediating role of knowledge management", *Journal of Business Research*, Vol. 63 No. 7, pp. 763-771.
- Zu, X., Robbins, T.L. and Fredendall, L.D. (2010), "Mapping the critical links between organizational culture and TQM/Six Sigma practices", *International Journal of Production Economics*, Vol. 123 No. 1, pp. 86-106.

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