

PERFORMANCE MEASUREMENT SYSTEM COMPATIBILITY WITH BUSINESS ENVIRONMENT

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Abstract

In order to analyze business environment and performance measurement system institutional theory was chosen and shows that institutional theory identifies internal and external environmental factors as institutional factors, according to which the behaviour of an organization could be disclosed and researched. This shows that according to institutional factors internal and external environment of organization could be recognized. The synthesis, comparative analysis methods of scientific literature which involves the generalization of theoretical propositions were applied for the analysis of performance measurement. The criterion list for identification of internal and external environment was systematized. Theoretical assumptions and hypothetical model of the structure and features of performance measurement system in different internal and external environment are developed. According to this aspect the compatibility between performance measurement and environment of organization was selected for further research, striving to summarize research results of other this field scholars and develop the model of performance measurement system compatibility with business environment.

Keywords: performance measurement system, institutional theory, compatibility, business environment.

JEL Classification: M40, M10.

Introduction

The last few decades changing and complex global business environment and growing competition stimulated growing attention to performance measurement. Performance measurement methods were widely adapted in different organizations (Muthiah & Huang, 2007; Taticchi & Balachandran, 2008, Taticchi, *et al.*, 2008) and this process stimulated attention of scholars and researches to performance measurement, growing new research in practical (Lämsiluoto & Järvenpää, 2008) and theoretical (Taticchi *et al.*, 2010) position. This stage influenced development of performance measurement as a separate object of management studies and individual discipline of science. Therefore in nowadays performance measurement is implied and analyzed as a wide and multifunctional process (Phusavat, 2009), combining the main indicators of performance (Yeung, Chan & Chan, 2008; Carlucci, 2010), which help to measure performance, to accomplish process of organization management, value creation (Lin & Shen, 2007) and improvement (Garengo, Nudurupati & Bititci, 2007; Jones & Kaluarachchi, 2008; Modell, 2009; Brudan, 2010). It is noticeable that importance of performance measurement was growing in changing and complex business environment and internal potential of organization (Sharma & Bhagwat, 2007; Mathur *et al.*, 2011), according to the aspect that performance measurement promotes progress and inform about the perspectives and opportunities of today and future performance. That is the main reason that in the context of nowadays changing environment performance measurement becomes more important and relevant.

On the other hand, it is important to notice, that purposeful and reasonable usage of performance measurement and its information influence the opportunity to choose the appropriate structure and features of performance measurement system in the context of environment of organization. Notwithstanding that different aspects of performance measurement are analyzed very widely in science literature, compatibility between performance measurement and environment of organization is not so broadly analyzed. It is difficult to use performance measurement system effectively, if organizations could not identify the instrumentation which allows estimating an aspect of compatibility of its performance measurement system and business environment. According to this aspect the compatibility between performance measurement and environment of organization was selected for further research, striving to summarize research results of other this field scholars and develop the model of performance measurement system compatibility with business environment.

In order to analyze business environment and performance measurement system institutional theory was chosen and shows that institutional theory identifies internal and external environmental factors as institutional factors, according to which the behaviour of an organization could be disclosed and researched. This shows that according to institutional factors internal and external environment of organization could be recognized. The synthesis, comparative analysis methods of scientific literature which involves the

generalization of theoretical propositions were applied for the analysis of performance measurement. The criterion list for identification of internal and external environment is systematized. Theoretical assumptions and hypothetical model of the structure and features of performance measurement system in different internal and external environment are developed.

The **research problem** of this article is formulated as a question:

How to identify performance measurement system compatibility with business environment?

The **objective of this paper** is to disclose the compatible performance measurement system with business environment.

The paper includes two main parts. Theoretical background and interpretations from institutional theory point of view is presented in the first part. Theoretical assumptions and hypothetical model are presented in the second part of this paper.

Theoretical background and interpretations

Institutional theory as theoretical approach of management studies shows that institutional theory identifies internal and external environmental factors as institutional factors (economic constraints, competition; copying best practice from others, accounting standards/financial legislation, socioeconomic-political institutions' pressures, professionals, top management/corporate culture, organizational strategic orientation and organizational characteristics), according to which the behaviour of an organization could be disclosed and researched (Hussain & Hoque, 2002). The analysis of different institutional factors groups showed that institutional factors perform in different ways. Two groups of institutional factors – economic and coercive – perform irrespective of an organization and other two groups – normative and mimetic – depend on the reaction of an organization. According to this aspect it could be stated that institutional factors could perform in two levels: (1) organizational level, (2) environmental level and help to recognize internal and external environment of organization. If institutional factors influence could be analyzed in organizational level, it means, that institutional factors influence organizational systems too. This lets to prove the expediency of institutional factors analyses in the context of performance measurement system. According to institutional factors the list of factors for identification of internal and external environment and performance measurement system could be prepared (see Figure 1).

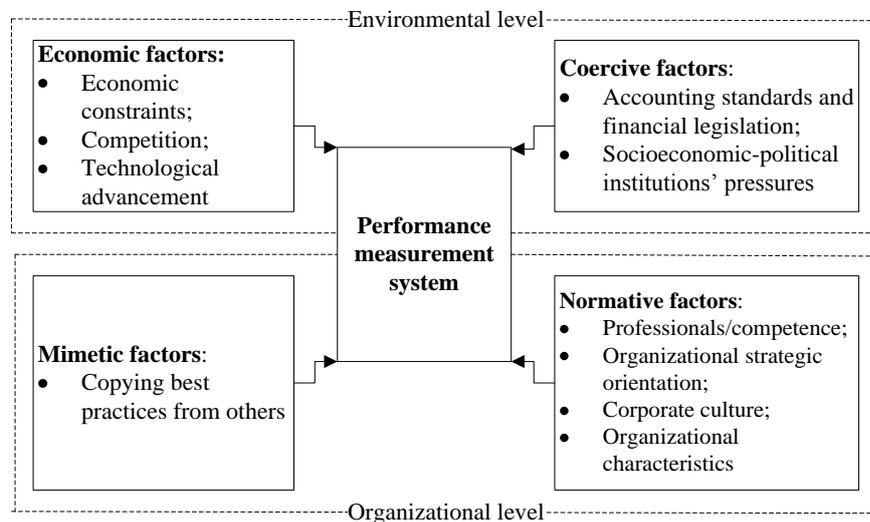


Figure 1. The list of institutional factors in the context of the performance measurement system (Bansal & Roth, 2000; Davidson & Worrell, 2001; Hussain & Gunasekaran, 2002; Hussain & Hoque, 2002; Khadaroo, 2005; Tsai, 2006; Campbell, 2007; Lozano & Valles, 2007; Lämsiluoto & Järvenpää, 2008; Järvenpää, 2009)

Interpretation of institutional factors allows to state that every institutional factor could also perform in different intensity (*economic uncertainty could be high or low, competition – strong or weak etc.*) and according to it influence on performance measurement system also would be different. This direction realized the need for a deeper analysis of intensity of institutional factors.

Different organizations perform in different ways in the same environmental circumstances. According to this aspect, uncertainty level of external environment could be used for a state identification of

external environment (Burns & Stalker, 1961; Rayburn G. & Rayburn M., 1991; Gul & Chia, 1994; Wickramasinghe & Alawattage, 2007). Also it is important to disclose reaction of organization to environment and its influence on performance measurement system. Such a reaction could be used to recognize the state of an internal environment of organization (Ashmos *et al.*, 2000, 2002).

In summary, according to analyses above, an intensity of institutional factors was disclosed using an uncertainty and complexity levels and is substantiated different intensity of institutional factors influence on performance measurement system which could be disclosed according to its structure and features.

Theoretical assumptions and hypothetical model

Theoretical assumptions. External environment of organization which is understood as entirety factors of social and political-law, which influence decisions, performance processes in organizations (Wickramasinghe & Alawattage, 2007). Mentioned factors could be aggregated into a list according to institutional factors and consider variables (x_{in}) – features of products/services, range of products/services, customer needs for features of products/services, customer needs for services, price, technology, competitors, basis of law (Hussain & Hoque, 2002; Aaker, 2005; Halbesleben & Buckley, 2006; Köksal & Özgül, 2007; Hwa, 2007; Ivanova *et al.*, 2007; Jones & Kaluarachchi, 2008; Analoui, 2009; He & Baruch, 2009; Gstraunthaler, 2010). These variables could be described according to its changes and uncertainty. According to this aspect, external environment of organization could be measured by the *level of uncertainty*, which is the result of changes in variables (x_{in}).

Internal environment of organization is understood as an entirety factors associated with organization (Wickramasinghe & Alawattage, 2007). Mentioned factors could be aggregated into a list according to institutional factors and consider variables (x_{jn}) – strategy, goals, structure and interaction (Kaplan & Norton, 1996; Ashmos *et al.*, 2000; 2002; Goulielmos, 2005; Zattoni & Cuomo, 2008). It could be stated that factors of internal environment are developed as a reaction to the level of uncertainty and could be described according to *level of complexity* of variables (x_{jn}).

Analyses made lets to state, that external environment of organization could assume static or dynamic state (Rayburn & Rayburn, 1991) to which reaction of organization could assume simplicity or absorption (Ashmos, Duchon & McDaniel, 2000; Goulielmos, 2005). According to this, external environment of organization could be as x axis in system of axes and reaction to it – internal environment of organization – y axis. It shows that external environment of organization and reaction to it could be as two concurrent axes, which form four different types of organizations (see Figure 2).

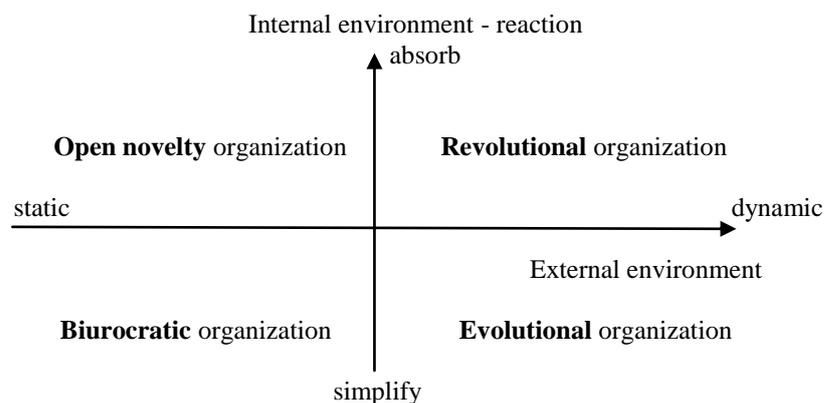


Figure 2. Matrix of external environment of organization and reaction to it

The structure of performance measurement system (VVS_{str}) settled according to normative institutional factors – strategy (S), goals (T) and processes (P), which have different level of conformity when different uncertainty and complexity level exist. According to the different conceptions of performance measurement system (Gomes *et al.*, 2004; Franco-Santos *et al.*, 2007; Peters & Zelewski, 2008; Fukushima & Peirce, 2011), the generalised conception could be stated, that *performance measurement system* is a set of instruments of performance measurement (VVS_{ins}) – measures (R), which information (VVS_{inf}) is used for a decision making process (SL). According to this analysis, performance measurement system could be disclosed as having five variables – strategy, goals, process, measures and decision level.

For the reason to identify the level of compatibility of the variables of performance measurement system with business environment, features for variables of performance measurement system could be developed – comprehensibility of *strategy* content (S_s), precision of *strategy* process (S_i), homogeneity of underlying *goals* (T_h), adequacy of underlying *goals* (T_a), priority in *processes* (P_p), number of *measures* (R_{sk}) and range of *decision making* (SL_p) - which are important in the context of an internal and external environment of organization.

Hypothetical model. Mintzberg (1978), Grobler, Grubner & Milling (2006) estimated that strategy formulation of an organization depends on reaction and made interpretation of an organization about external factors. According to this comprehensibility of *strategy* content (S_s) could be measured in context of internal environment of organization. Bednall & Valos (2005) estimated that organizations which invest in innovation and researches, react to changes in external environment is the most suitable differentiation strategy. And conversely, organizations which try to use the internal potential of organization, focus on one side working – effectiveness, the most suitable is cost leadership strategy. Miller (1993) confirmed that there is relation between high complexity (like absorption reaction) and selection of differentiation strategy. Also Canet-Giner, Fernandez-Guerrero & Peris-Ortiz (2010) estimated that formal hierarchical structure, strict and formal control processes are typical for organizations which orientation is on cost leadership strategy. These features are also typical for organizations which simplify an external environment. According to Ashmos *et al.* (2000, 2002) and Vanttinen & Pyhältö (2009) could be stated that external factors and aspects influence the strategy implementation process. It means that external environment forms processes of internal environment and influence the strategy implementation process and precision of *strategy* (S_i) could be measured in context of external environment. Miller (1993) empirically proved that there is relation between organization in constant, dynamic environment and selection of differentiation strategy.

According to Grobler, Grubner & Milling (2006) researches, which showed that process of strategy separation to goals depends on internal position and reaction to external environment changes, could be stated that homogeneity (T_h) and adequacy (T_a) of underlying *goals*, depend on internal environment of organization. The researches of these authors also showed that organizations with low level of complexity (simplicity reaction) have demand for a regular control and measurement processes, which forms the priority for a short term goals. Also Desai (2010), Mitleton-Kelly (2011) identified that constant performance of organization compatibility with external changes forms importance to a short term goals, but priority for a long term goals in order to implement the strategy of all organization.

Walters & Lancaster (2000) stated that technology and changes in customer demands form the identification of processes of value chain. Nicovich, Dibrell & Davis (2007) extended the analysis of processes of value chain and Porter's competitive strategies in aspect of market orientation. Crain & Abraham (2008) analyzed exertion of processes of value chain according to changes in customer demands. Prajogo, McDermott & Goh (2008) identified dependence between processes of value chain and changes in quality and new features of the products. According to analyzed aspect could be stated that priority in *processes* (P_p) of value chain identifies the behavior of an organization according to external environment of organization. Miller (1993) empirically proved that there is relation between organization in constant, dynamic environment and selection of processes for implementation of differentiation strategy.

Brodbeck (2002) stated that measures create information and measure the quality of the feedback and usefulness could be ensured by selection of actual measures, selection of adequate period and demand for a measurement. According to Mole (2004) organization is in constant connection with environment and could adapt according to the flow of information. Bourne *et al.* (2000), Hussain & Hoque (2002), Gunasekaran & Kobu (2007) also proved that external environment is a factor which influence the set of measures. According to this analyses could be stated that number of *measures* (R_{sk}) could be measured in context of external environment of organization.

According to Brodbeck (2002) effective feedback and flow of information could be ensured by the decision making process in all hierarchical levels of organization. This position is supported by complexity theory researches (Anderson, 1999; Boisot & Child, 1999; Ashmos *et al.*, 2000, 2002; Burnes, 2005a, 2005b; Goulielmos, 2005; Grobman, 2005; Houchin & MacLean, 2005; Cunha & Cunha, 2006) too – the range of *decision making* (SL_p) through all hierarchical levels of organization could help to adapt and improve. In summary, the range of decision making process shows the flexibility of decision making process and the level of stakeholders' involvement and could be stated that decisions are made in different management levels according to internal environment of organization.

According to theoretical assumptions, hypothetical model was proposed (see Figure 3).

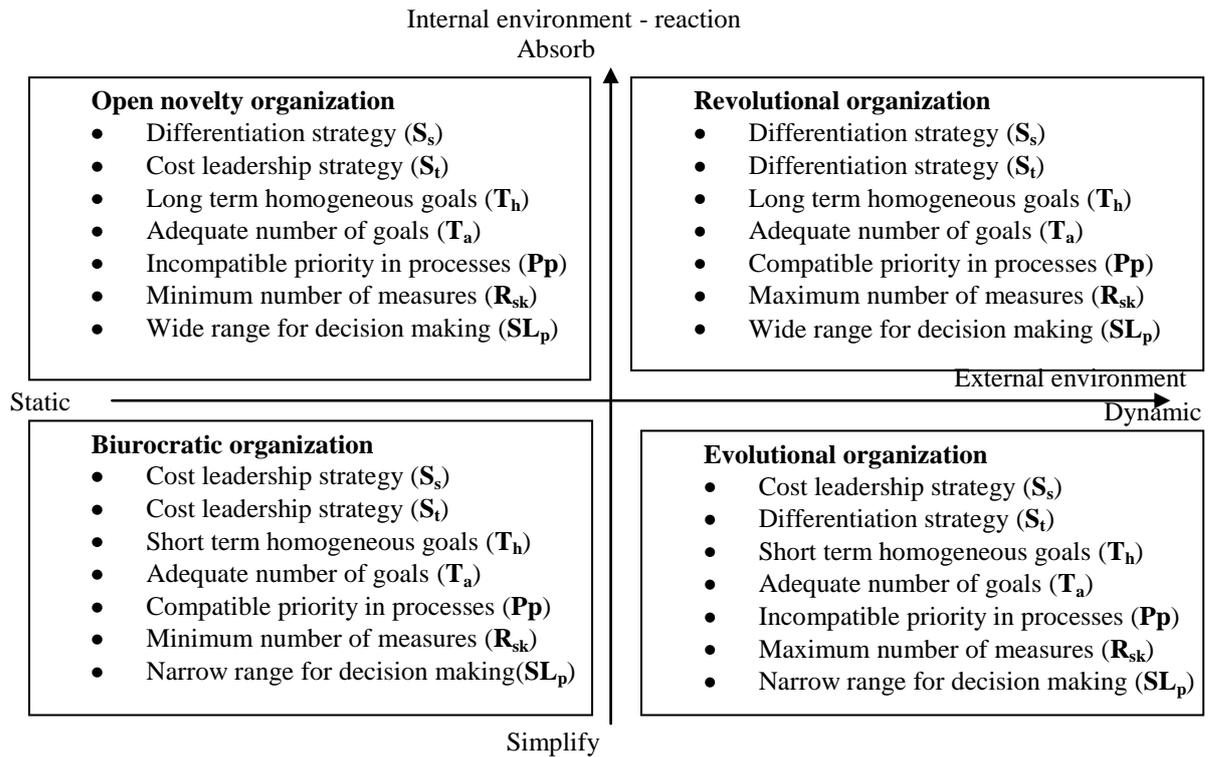


Figure 3. Hypothetical model of performance measurement system compatibility with business environment

Biurocratic organization is operating in stable and clear environment, with understandable and constant principles of performance. This influence that formulated strategy could be implemented precisely, separated to short term underlying homogenous and adequate number of goals, which could be reached by orientation to compatible priority in processes for implementation of formulated strategy. Stable and clear external environment forms low demand for an information and influence minimum number of measures and narrow range for a decision making process.

Evolutional organization is operating in dynamic and unclear environment, but tries to simplify it and could be called as reaching for order in chaotic environment which forms several aspects: (1) high demand for information could influence maximum number of measures but simplicity reaction could influence narrow range for decision making, which means that not all generated information is used and useful in organization; (2) incompatible priority in processes influence that formulated strategy could not be implemented precisely; (3) short term underlying goals could disturb to reach formulated strategy in dynamic environment.

Opposite to analyzed above is *revolutional* organization, operating in constantly changing environment and trying to react to all changes, to be an innovative and exclusive organization. In order to operate in such conditions, organizations should try to consider all possible alternatives and match it up with formulated strategy. This influence that formulated strategy could be implemented precisely, separated to long term underlying homogenous and adequate number of goals, which could be reached by orientation to compatible priority in processes for implementation of formulated strategy. According to this aspect, external environment forms high demand for an information and influence maximum number of measures and wide range for a decision making process.

Open novelty organization is trying to find and reach changes in static external environment and could be called like conformity of different interest which forms several aspects: (1) low demand for information could influence minimum number of measures but absorption reaction could influence wide range for decision making, which means that organization tries to generate new alternatives and information in organization; (2) incompatible priority in processes influence that formulated strategy could not be implemented precisely; (3) long term underlying goals could disturb to reach formulated strategy in static environment.

Conclusions

1. According to analysis of institutional factors could be stated that **institutional factors could be found as criterions of external and internal environment of organization and performance measurement system identification because it performs in two different levels – environment and organization.** Institutional factors of environmental level could not be managed by an organization. Institutional factors of organizational level show reaction of an organization to business environment and form internal environment of organization. According to an aspect that institutional factors influence could be analyzed in organizational level, could be stated, that institutional factors influence organizational systems too. This lets to prove the expediency of institutional factors analyses in the context of performance measurement system.
2. **Uncertainty level of environmental institutional factors and complexity level of organizational institutional factors forms external and internal environment of organization which form requirements for different performance measurement system.** The research of institutional factors also lets to state that different external and internal environment of organization influence different features of performance measurement system. It shows that performance measurement system will be useful for organization and completes all its functions when it reflects an internal reaction of organization and fits with external changes. It means that performance measurement system should conform to external and internal environment and let to **substantiate the requirement for conformity.**
3. According to analyses of scientific literature it could be stated that **the features of performance measurement system could be configured according to external environment and internal reaction of organization.**

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