

Performance measurement system – a conceptual model

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Abstract

In globalized world performance measurement became crucial for enterprises to build best in class operations. Paper goal is to revise the main PMS aspects. A literature review was conducted, followed by a proposed conceptual model. As result both theoretical review and conceptual model guide enterprises on PMS implementation and improvement.

Keywords: Performance Measurement System, PMS Conceptual Model, Improvement.

INTRODUCTION

With the advent of globalization performance measurement interest highly evolved among organizations which are increasingly seeking for tools that leads to process optimization, efficiency and competitiveness. The top management became more involved as well operating levels. Organization strategies are now designed to promote its deployment in measures that will lead to actions for targets achievement.

There are several academic literatures on the topic of performance measurement. Some authors give more emphasis to the development of performance measurement system along the century, others focus in the difference between the financial and non-financial attributes and others focus on a specific stage of the performance measurement system. There are articles which focus specifically on structural models emerged during the measurement system evolution as the famous Balanced Scorecard (Kaplan 1987).

The purpose of this paper is to promote an integrated review of the academic literature and describe the stages of a performance measurement system. The results are the consolidation literature review and a proposed conceptual model to be used by any organization. It serves the objective of facilitating and guiding actions, both for the development or maintenance of a performance measurement system which requires continuous review.

STRATEGIC MANAGEMENT

The Measurement System Strategic Performance - MSSP stimulates the development of a more comprehensive strategic agenda within the organization. It consists not only in the formulation of the strategy - a process in which a company defines its general guidelines for long-term, how it will set up its operations and its resources in the market in order to achieve competitive advantage. It also defines how this strategy will be deployed and implemented bringing 'action', 'monitoring' and 'evaluation' of results to the processes.

It's therefore concluded that the adoption of a measurement system strategic performance brings a very important alignment between the long-term strategy of the organization and other aspects and stages imbued in a performance measurement system - the deployment in targets, measurements, assessments, actions, reviews and learning. It also promotes the involvement of the top management - a factor that is crucial to achieve success while developing or maintaining a performance measurement system in an organization acting as a motivating factor for the entire chain such as managers, experts, operational staff, customers and suppliers.

PERFORMANCE MANAGEMENT

The effects of strategic analysis aligned to performance measurement system guideline managers to focus on the future, encourage a more accurate communication flow and optimize the coordination process as a whole. It also stimulates the dialog between the team by rationalizing instead of emotionalizing strategic decisions, supporting the acceptance of the set goals, the predisposition of managers to coordinate the teams in the pursuit of goals achievement as well as of the teams for their execution (Gimbert et al. 2010).

The same as the support of top management, the support of managers is fundamental in the performance management process. But the priorities of an organization are often affected by other internal and external events, and therefore may change over time making the resources and managers available time to be limited - this can turn into a natural resistance scenario in the process (Bourne 2005).

Bourne (2005) clarify that also other factors might affect the perception and lead to support or imply natural resistance to the process by the managers or the organization staff:

- the effort required;
- easy access to IT for development of a specific system for performance measurement;
- the results of measurements which imply in reviews about efficiencies or inefficiencies, leading to actions that often generate discomfort and insecurity;
- the belief that the process has always been done that way and does not require any changes, or that the type of application will never succeed in the organization.

As conclusion, creating a list of factors that encourage or block the process can be helpful to managers in dealing with it. Also helps conducting an assessment of in progress and future projects, its expected benefits and priorities and level of support obtained. In the absence of these factors, a negotiation with top management about demands priorities is crucial (Bourne 2005).

PERFORMANCE MEASUREMENT SYSTEMS

Performance measurement systems are characterized as strategic expert systems by which organizations observe and measure their intangible performance elements in the form of qualitative and quantitative assessment as stated in the article of Fried (2010).

According to Gimbert et al. (2010) performance measurement system is a brief and precise set of measures (financial or non-financial) that supports the decision-making process of an organization by collecting, processing and analyzing quantified data of performance information.

Traditional and Non-Traditional Performance Measurement

According to academic literature performance measurement had until the 80's a more traditional approach with financial focus. From that point on, the globalization introduced a non-traditional approach changing the strategic focus of low production costs into quality, flexibility and delivery focus, showing that traditional concepts were very limited and opening to new models (Ghalayini and Noble, 1996).

Based on non-traditional performance measures features - which is the current recommended model – organizations may be guided by aspects that make the process more productive and effective: directed to all employees; simple and easy to use; accurate; always revised; supporting continuous improvement; etc

It is important to analyze the organization approach and its objectives to build a PMS.

Table 1 – A comparison between traditional and non-traditional performance measures (Ghalayini and Noble, 1996)

Traditional performance measures	Non-traditional performance measures
Based on outdated traditional accounting system	Based on company strategy
Mainly financial measures	Mainly non-financial measures
Intended for top and senior managers	Intended for all employees
Late metrics (weekly or monthly)	On-time metrics (hourly, or daily)
Difficult, confusing and misleading	Simple, accurate and easy to use
Lead to employee frustration	Lead to employee satisfaction
Neglected at the shop floor	Frequently used at the shop floor
Have a fixed format	Have no fixed format (depends on needs)
Do not vary between locations	Vary between locations
Do not change over time	Change over time as the need changes
Intended mainly for monitoring performance	Intended to improve performance
Not applicable for JIT, TQM, RPR, OPT, etc.	Applicable
Hinders continuous improvement	Support continuous improvement

Stages of a Performance Measurement System

The development of a performance measurement system can be divided into three main stages: design, implementation and use of performance measures (Bourne et al. 2000). A fourth and fifth stages might also be considered: the review and learning.

This is the sequence a performance measurement system should evolve, however, stages may overlap and some stages be implemented before others (Bourne et al. 2000).

Design

The design stage usually starts with an overview of the business in order to identify the demands of stakeholders and clients as well validate the alignment with the organization's strategy before listing a new set of objectives for the business (Bourne et al. 2000).

Thus, the design stage can be further sub-divided into: identification of key design objectives and measures design (Bourne et al. 2000).

Several articles have discussed the performance measures design establishing different approaches and recommendations. Through a literature review of 10 books and articles these approaches and recommendations were summarized and listed in a table by Neely et al. (1997). The recommendations say that performance measures must: derivate from the strategy; provide updated feedback; be quantifiable; reflect the business; be specific, relevant, simple, objective; have visual impact; focus on improvement; etc.

Furthermore, authors proposed a framework – the Performance Measure Record Sheet, which seeks to specify what a good performance measure constitutes. The proposed framework, besides previous recommendations, emphasizes that the measures must be clearly defined as well based on clearly formula and data source (Neely et al. 1997).

Table 2 – The performance measure record sheet (Neely et al. 1997)

Details
Title
Purpose
Relates to
Target
Formula
Frequency
Who measures?
Source of data
Who acts on the data?
What do they do?
Notes and comments

According to the academic literature there is not a framework or complete tool to use in a performance measurement system. Each one has specific features and specific focus, addressed more to a certain purpose than another, with advantages and disadvantages, resulting in positive and negative points.

While SMART is strong in integrating corporate with operating objectives it does not provide a mechanism to identify key indicators nor integrates the concept of continuous improvement. Neither PMQ provides a mechanism to identify areas for improvement in the company. As the Balanced Scorecard, it integrates important perspectives of performance and is easy to use but is more directed to support the top management level not being adherent to the operational level (Ghalayini and Noble, 1996).

Thus, it is up to the head or group responsible for the development of PMS a deep business analysis and identification among available frameworks or tools, and the task of selecting and applying those most pertinent to the business and organization's objectives.

Table 3 – Key proposals of PMS models (Attadia and Martins, 2003)

PM MODELS	KEY ATTRIBUTES
Performance Measurement Matrix (KEEGAN et al., 1989)	- performance measures internal and external, financial and non-financial - performance measures linked to strategy
SMART - Performance Pyramid (CROSS & LINCH, 1990)	- performance measures of internal efficiency and external effectiveness - performance measures deployed from organization's strategy
Balanced Scorecard (KAPLAN & NORTON, 1992, 1996)	- performance measures grouped into four perspectives - cause and effect relation between perspectives reflecting the strategy
Integrated Performance Measurement System (BITITCI et al, 1997)	- strategic development for business, business unit, processes and activities generates measures considering requirements of stakeholders, external monitoring, objectives and performance measures
Performance Prism (NEELY & ADAMS, 2000)	- performance measurement of stakeholders satisfaction - strategy communication - approach for the management of business processes

Implementation

The implementation is defined as the stage in which systems and procedures are put in place in order to collect and process the data that will generate the measurements (Bourne et al. 2000). It might be a new process that involves new procedures, or a computer programming for data extraction.

Each organization will set up its own system or procedures, depending on the available resources and according to the strategy defined.

Use

The use of performance measures can be splitted in two sub-divisions: evaluate the success or failure of the implementation and challenge the strategic assumptions (Bourne et al. 2000).

Evaluating the success of the implementation means that the PMS fits in the operation and provides the scores that allows the top management, managers and employees to visualize if the goals were achieved or not. In case of failure, the review stage must take place.

By challenging the strategic assumptions we can understand that through the results of the implemented PMS and extracted measures the organization can guideline the actions towards improvements or changes to be made.

Review

In a review process the organization have a better understanding of performance measurement system in several aspects, increasing its expertise on measures applicability.

There are two aspects to be considered towards the review stage: the preparation for the process review in order it to be effective and a system for understanding the flaws or weaknesses in the performance measurement system that need to be corrected or optimized.

According to Farris et al. (2011) the research of Meekings (2005) offers some guidelines to set up an effective review process based on three case studies:

- structure the process review by defining: "what, when, why, where and how";
- ensure review meetings to be productive;
- pilot the review at a unit that is more susceptible to accept the process.

Farris et al. (2011) research involving a number of organizations, listed *questions* that initially support a systematic process review to understand the failures and necessary improvements in the PMS review stage:

- has the organization an effective way of communicating the measurement framework, the process, the measures and the resulting actions required?
- has the organization a robust performance achievement process established and driven by measures that identify the appropriate actions and recognize best practices?
- has the organization successfully integrated PM approach in its culture and business?

Farris et al. (2011) article proposes a *systematic process review* consistent of:

- a list of evaluation criteria's divided into 04 dimensions: 1) approach (scheduled meetings involving the operational team and stakeholders); 2) deployment (critical results communication to internal and external stakeholders); 3) study (analysis results and action plans); 4) refinement (actions for improvement and deviations adjustments), where these evaluation criteria's are used as support for PMS analysis;
- a list of improvement opportunities extracted from the evaluation criteria's analysis;
- a final list with the key strengths which will guide the actions to optimize the PMS;
- the identification of root causes and action plans for process optimization;

Learning

From the organizational behavior standpoint view the individual learning happens when people assimilate new knowledge through experience in their daily lives and from other sources - this process increases the intelligence and the ability of the individual. When the learning process is absorbed between the members of the organization, a new culture is established and an organizational learning occurs (Yeung Lai and Yee, 2007).

According to Fried (2010) strategic learning does not result automatically from the implementation of a performance measurement system - but their development and use can lead to a strategic learning process. Similarly, the review of a PMS conducts to learning – by increasing knowledge about the current measures, the improvement opportunities identified that lead to change and innovation, and finally to better understand the PMS as a whole.

PMS CONCEPTUAL MODEL

Other authors also have been concerned to define criteria for the development of an efficient and effective performance measurement system from the perspective of strategic management.

The proposed conceptual model seeks to consolidate the stages described in this paper, in a sequential order, synthesizing the main important practices. The objective is to allow the conceptual model to be used as a guide by any organization while developing or reviewing a PMS process. It lists key actions preventing crucial points in the process to be ignored or forgotten. For each listed stage, respective key actions and specific actions are recommended.

While using the conceptual model if any question raises the theoretical part can always be reviewed for additional details. Moreover, academic bibliographies available referring to the subject might be used as support as well.

Table 5 – Performance measurement system - a conceptual model (authors)

	Stages	Key Actions	Specific Actions
	➤ Long Term Strategy – Top Management	<ul style="list-style-type: none"> ▪ Align Organization Strategy with Top Management / Managers for PMS support 	<ul style="list-style-type: none"> ✓ List factors that block PMS in case of resistance at management level
	➤ Long Term Strategy – Senior Managers	<ul style="list-style-type: none"> ▪ Deploy Business Strategy, Corporate / Process / Employees Goals, to support PMS development and maintenance 	<ul style="list-style-type: none"> ✓ List factors that block PMS in case of resistance at operational level
	➤ Traditional and Non-Traditional Measures	<ul style="list-style-type: none"> ▪ Analyze Organization's Approach and Objectives (where they want to go) to set the measures 	<ul style="list-style-type: none"> ✓ Select between: Traditional measures and Non-Traditional Measures (Tab1)
	➤ Performance Measures	<ul style="list-style-type: none"> ▪ Ensure compliance with the 08 attributes at measures definition 	<ul style="list-style-type: none"> ✓ Emphasize specific attributes according to the business scenario and the Organization strategies
	➤ Design	<ul style="list-style-type: none"> ▪ Use the Recommendations for the Performance Measures Design ▪ Use the Record Sheet for the Performance Measures (Tab2) ▪ Analyze available PM models and apply best option (Tab3) 	<ul style="list-style-type: none"> ✓ Ensure the establishment of objective, simple and only necessary measures ✓ Ensure clarity and registration of the established measures
	➤ Implementation	<ul style="list-style-type: none"> ▪ Apply the Design stage definitions, the system model chosen and the data allocation 	<ul style="list-style-type: none"> ✓ Follow up Design stage planning ✓ Check need for adjustments
	➤ Use	<ul style="list-style-type: none"> ▪ Stratify the results ▪ Apply the analysis and process improvement for low performances 	<ul style="list-style-type: none"> ✓ Ensure data accuracy, results analysis and regular meetings ✓ Ensure team motivation focusing on improvements not on guilty
	➤ Review - Preparation	<ul style="list-style-type: none"> ▪ Ensure the preparation for the process review according to the proposed guidelines 	<ul style="list-style-type: none"> ✓ Set 'what, when, why, where, how' ✓ Ensure productive meetings ✓ Identify Business Unit to review
	➤ Review - Systematic	<ul style="list-style-type: none"> ▪ Apply the Systematic Process Review 	<ul style="list-style-type: none"> ✓ Apply Evaluation Criteria's list ✓ Extract a list of Strengths and Opportunities for Improvement ✓ Select the main opportunities ✓ Identify Root Cause and apply Action Plans for improvement
	➤ Learning	<ul style="list-style-type: none"> ▪ Identify opportunities for improvement and innovation based on PMS Review 	<ul style="list-style-type: none"> ✓ Ensure improvement projects and progress of measures ✓ Apply PMS adjusts as expertise increases and deviations raises

RESULTS

Through the compilation of several articles and renowned publications of the academic community this paper brings as first result the consolidation of the stages and its aspects, in a sequential order, to be considered in a PMS process. It serves as support towards the theoretical aspect without complexity of terms and classifications so that it can be easily internalized by the readers, with the objective to support the knowledge.

As second contribution it proposes a PMS conceptual model as a facilitator tool in a practical aspect, emphasizing and listing the main stages and aspects to be considered in a PMS process with the objective to support the actions.

The proposed model can also be applied to support a PMS process review for those who have already developed its PMS and are willing to add adjustments or improvements.

CONCLUSIONS

The purpose of this paper is to support organizations with a literature consolidation for knowledge support and a PMS conceptual model for practical support on a PMS process.

It is expected that with the brief review of academic literature provided by the theoretical part of this paper the organization can have a better understanding of a PMS process and increase the chances of success in its development or review stages.

It is also expected that the conceptual model can serve as a guide for an organization during the PMS process so that it can be the most effective and efficient as possible considering its scenario, objectives and strategies.

Despite covering certain aspects and stages of a PMS process this paper does not cover all variables of the substantial academic literature available, so there is still considerable room for additional researches.

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