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CATEGORIES OF INTEGRATED PERFORMANCE MEASUREMENT SYSTEMS AND CRITICAL REVIEW

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Abstract: *Limited resources are often recognized as initial factor for developing economical sciences. The same cause is looking for optimization form macro down to micro level - the companies. There is lack of financial resources, i.e., the fact is that decision makers do not have resources in unlimited amount, so the company has to follow aims and to make optimizations. In order to be able to make the best decisions, managers need adequate inputs in form of different types of reports. The question in the article is which parameters has to be followed, only financial or non-financial too, and are any of them more relevant. During last decades there are a lot of approaches developed in this field. They are presented in this place, commented and in the final, there is critical review of so far research and common practice.*

Keywords: *key performance indicators (KPI), system for performance measurement, aims of the company, reporting.*

INTRODUCTION

The main goal of every business entity and its owner(s) is to maximize profits, i.e., to maximize the return on investment. The problem that arises is the recognition of profitable investment opportunities, on the one hand, and the possibility of financing them from own or borrowed funds, on the other hand. Financial management has the greatest responsibility for ensuring the constant creation of new value in an organization and measuring its success through the performance indicators of that organization. In order to improve the company's performance, it is necessary to design instruments for their continuous monitoring and systematic measurement, in order to draw conclusions based on these analyzes and take appropriate actions.

In modern business conditions determined by strong competition and the need to obtain information quickly, as a basis for decision-making, traditional management tools are becoming inadequate and too rigid.

In the field of performance measurement, there is no any relevant professional body nor associations in which previous knowledge would be collected and systematized, so the definition of performance measurement system is the result of heterogeny individual approaches and work. Having in mind mentioned, there is noticeable diversity and non-cohesiveness in the approaches to defining performance measurement systems. We have only the opportunity to summarize relevant until now published papers based on which we can say that integrated system for performance measuring has to combine financial and non-financial data and indicators to provide information for strategic decision-making purposes.

1. CATEGORIZATION OF SYSTEMS FOR PERFORMANCE MEASURING

In this paper will be considered and discussed approaches of several authors in wider timeline. Basic research that are taken are from: Bititci, (1994), Ghalayani et al. (1997), Artley and Stroh, (2001), Speckbacher et al (2003), Garengo et al, (2005), Folan and Browne (2005), Slack (2007), Chenhall and Langfield-Smith, (2007), Kaplan and Norton (2008), Jamil and Mohamed (2011), Yildiz et al (2011) and Franco-Santos et al (2012).

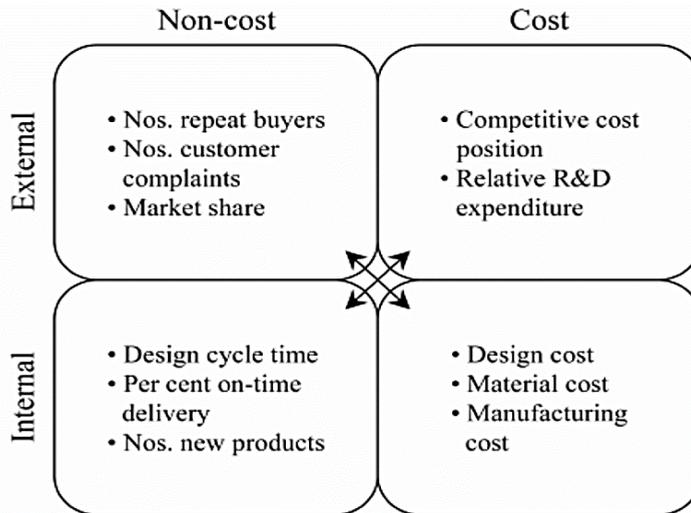
Never mind how many aspects to light from different sides all these approaches cannot be easily aggregated and systematized in new categorization. But, if we consider what was essential aspect for categorization, we can form two groups and say two typical areas that systems for performance measurement set as priority: (1) the structure of the performance measures they include in the system, and (2) the ways in which individual measures are presented and their interrelationships.

1.1. Measures of performances by the structure

In the following will be presented performance measurement systems according to performance measurement structures. The structure of performance measures pertains to a set of nominated indicators used in the system and to their relationships. The most famous four approaches in this systematization are:

- Performance Measurement Matrix,
- Performance Pyramid,
- Balanced Scorecard and
- Performance Prism.

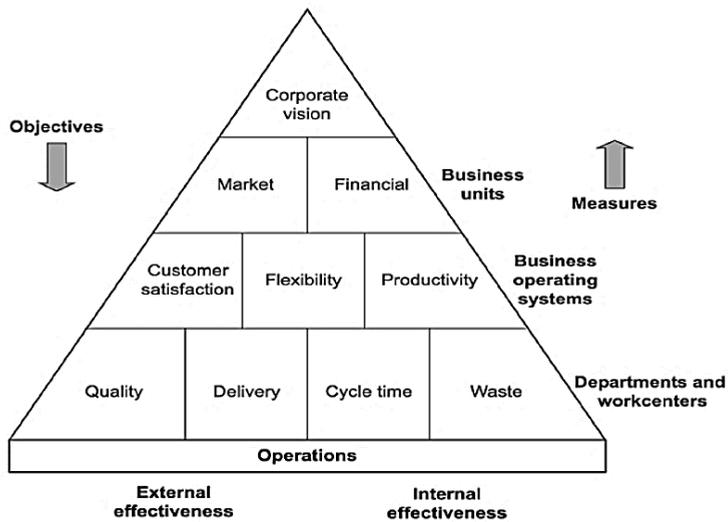
Performance Measurement Matrix is introduced, from this point of view, a long time ago by Keegan et al in 1989. Because of fundamental principles which were fundament for many later (and modern) researches, the main ideas will be presented in this place.



Source: Keegan *et al.*, 1989

We can consider this approach for innovative for that period of time. It is a try to make integration of different categories and types of measures of performances. It is putting into relation and taking common characteristic of, on the first site, different categories. Main contribution is linking different classes of measures; internal and external, cost and non-cost. On the other side as a critic of the approach can be pointed out rough standing, since it is not balancing this set of measures and it does not consider driving measures which are in later research found as relevant such as marketing measures and measures taking human resources into account. Having in mind all strengths and weaknesses this theory was later adopted, improved and used as inspiration and base for later more sophisticated works.

Performance Pyramid is also characterized as pioneer in integrated approaches for measuring performance. Authors Cross and Lynch (1988) are creators of this concept. They were not satisfied with traditional financial performance measures. They named this approach in a tendentious manner using acronym SMART for Strategic Measurement Analysis and Reporting Technique. The guide presented in this approach is corporate vision, and it is on the top of constructed pyramid. Depending on corporate vision as a leading idea are born all further functional relations between internal and external efficiency. Graphic illustration of ideas presented in this theory are presented as follows.

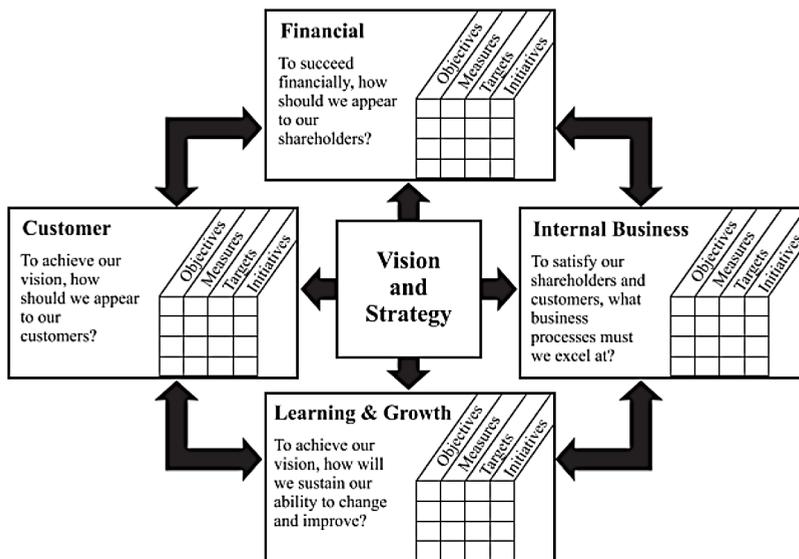


(Source: https://www.researchgate.net/figure/Performance-Pyramid-Tangen-2004_fig4_228947377 visited 16.02.2022)

As presented on the picture above, there are four levels for transmission strategical aims to daily activities. Top of the pyramid is corporate vision whose purpose is to define market on which organization will perform business activities and the way on behavior on that market. From this level the pyramid is split on two hemispheres: left and right. The left one is for external components and the right one is reserved for internal effectiveness. Therefore, on the second level targets and results are sublimated on the level of business units. External component of second level pertains to the market and internal on the finance. In this stage all aims are long term and strategic. The third level is level of business operating systems. On this level is area where strategic and daily performance measures are met and has to be reconciled. External component pertains to customer satisfaction, internal component is productivity and mediator zone is flexibility which has to reconcile them. Bottom level is operational and relates to departments and work centers. Final outcome of this level is advancement of processes, and this is done through indicators of productivity and delivery on external side and through cycle time and waste on internal side of effectiveness.

Based on everything mentioned, the conclusion is that described approach is sales oriented and financial measures are supporting instrument in business activities. Also, there is a lot of indicators that are non-financial nature.

Balanced Scorecard (further BSC) is the most famous in approach in the theory and the most often used approach in the practice of integral performance measurement. The roots of the theory are usually connected to Harvard business school. This method is the first time published in the paper “The Balanced Scorecard: Measures That Drive Performance”. BSC ensure balanced approach in performance measurement and that is the biggest contribution of the approach in this area. BSC is management system that enables the company to concretize its strategy using performance measures grouped into four different functional perspectives. Four areas of the approach that will be discussed are most often compared to four legs of the chair. You (company) need all four of them and they have to be balanced; otherwise welcome to uncomfotability and problems with sitting there. Illustration of this is presented bellow and followed by explanations.



(Source: <https://www.mdpi.com/2071-1050/12/8/3221> visited 16.02.2022)

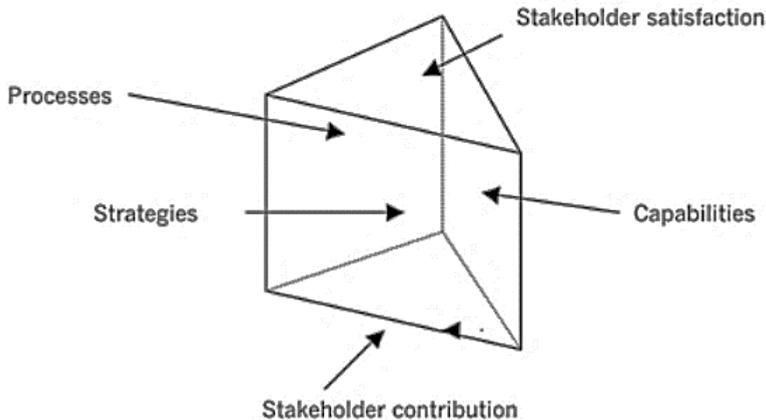
Measurement process of the scorecard is used to accomplish critical management process:

- Clarify and translate vision and strategy,
- Communicate and link strategic objectives and measures,
- Plan, set targets, and align strategic initiatives,
- Enhance strategic feedback and learning.

Kaplan and Norton are emphasizing the need of the manager to have mainly financial measures of business activities. The main reason for this is the timeline. Namely, financial information is generated from accounting function. Accounting is evidencing past events, so financial measures are not oriented on present, and managers has to make decisions for the future. From this reason the dilemma is arising are financial measures critical. These measures are the most accurate measures of achieved performance, but there is need to complete them with another kinds of measures.

To achieve success, business entity has to ensure balance between all four aspect presented on the picture above. Financial component is traditional and the aim is to present indicators that are presenting financial and earning position of the business entity. Measures that this component is offering pertain to increase of revenue and decrease of costs which is nothing new. Customer's perspective is important for the organization and managers interest is moving from achieving financial results to ensuring customers satisfaction. From short term perspective there are no fast benefits from increasing customer care, but long-term view has different perspective. This group of measures has the leading role because it is ensuring long term increase of earning capacity of the entity. Internal perspective covers processes which are critical to achieve the goals of owners and other stakeholders. This internal component is the fact which author of the approach are pointing as key difference between their approach and all traditional ones. Learning and growth is becoming more and more important in new age and the fourth industrial revolution. This component includes all activities that are directed to trainings of individual and the organization as a whole.

Performance Prism is an approach with the aim to support management how to select indicators which are relevant to evaluate effectiveness and efficiency of the company. The prism has five dimensions which can be presented as on the picture.



(Source: <https://www.accaglobal.com/an/en/student/exam-support-resources/professional-exams-study-resources/p5/technical-articles/performance-prism.html> visited 16.02.2022)

Authors are defining that main stakeholders are investors, customers, intermediaries, employees, regulators, communities and suppliers. Therefore, the comprehensive strategy has to fulfil their expectations. On the other side, there is need to measure contribution of stakeholders, so that is new dimension of the prism (bottom and upper one). In order to generate satisfaction of stakeholders from their contribution, it is necessary for the management to ensure a set of business activities. This refers to (1) strategy, (2) processes and (3) capabilities in the organization. The performance prism introduces a novelty in the form of measuring the efficiency of business processes and the ability of the organization and its employees.

2. MEASURES OF PERFORMANCES BY THE WAY OF PRESENTATION

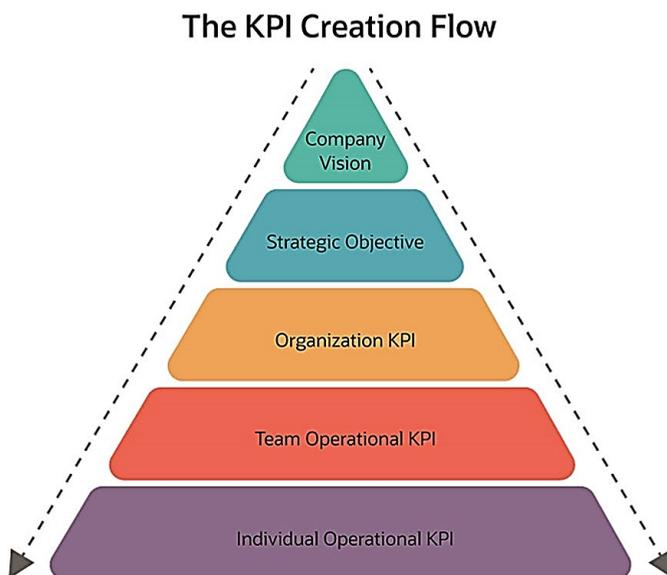
The research is made for the approaches which are relevant for the presentation of measured performances to the management. By the development of the technology, software applications in the companies, presentation of performances is significantly changing. If we consider business intelligence as new modern component than this area

will be more interest in the future and decreasing role of the individual in operational work and increasing it in the area of defining and constructing ways for presentation.

Performance measurement system can be represented by the following performance measures:

1. key performance indicators – KPI list,
2. performance control panel – “Tableau de bord” and
3. management cockpit.

KPI list is management tool in which is defined list of relevant (key) measures of performance. These KPIs are followed and compared with priorly defined targets. Identification of really key indicators is complex task. There are several approaches to the identification, but the most common is from the top to the bottom of the organization. The beginning phase in this process is to define strategy, vision and aims of the organization. Second phase is definition of list of the indicators that will measure progress and the status of defined targets. The best way to present how KPI is created and used is the picture bellow:



(Source: <https://www.netsuite.com/portal/resource/articles/erp/key-performance-indicators-kpis.shtml> visited 16.02.2022)

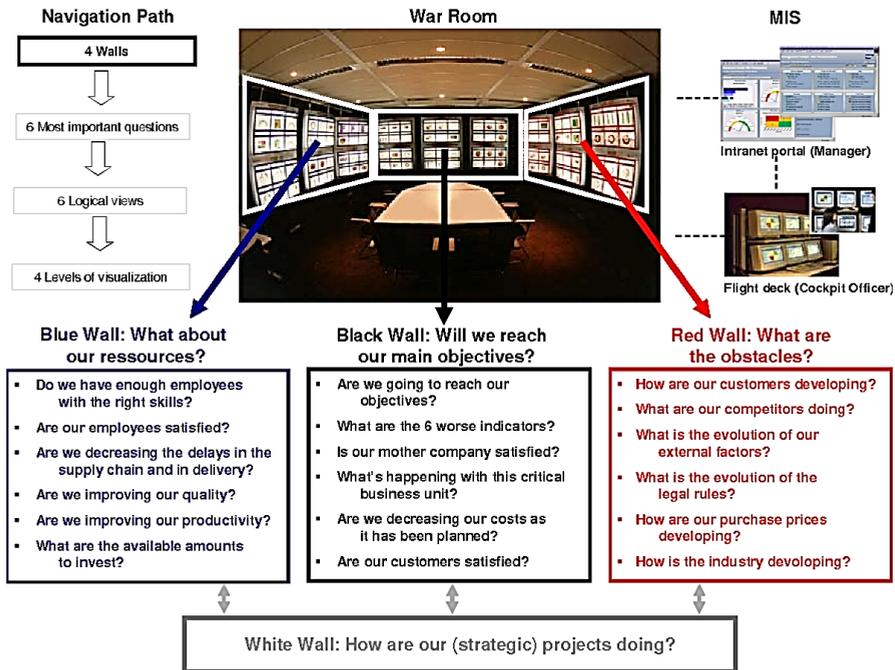
“Tableau de bord” is approach defined by group of French authors. The lading idea is synthetic overview of the situation. There is relatively low number of measures that management should follow and it has to be presented similar to control board of the car where you constantly follow only the most important categories: speed, fuel, temperature and torque. These parameters are enough for smooth drive. Authors Artley and Stroh make parallel between the vehicle and the company performances which are followed in the similar manner:



(Source: <https://www.my-procar.com/garage-et-reparation-auto/probleme-dysfonctionnement-tableau-de-bord> visited 16.02.2022)

In this parallel, fuel is recognized as finance, the company has to have enough financial resources to achieve wanted state. Temperature is shown as buyers which has to be satisfied (if they are too cold or too hot this will not bring new value to the entity). Torque presents internal processes which has to be in line with defined aims. Learning and growth are compared to the speed in the vehicle, the growth has to be sustainable.

Management cockpit is the last approach that will be presented. Originally, it was developed by Patrick Georges and the company “N.E.T. Research”. This approach is taken by the most famous accounting software company SAP AG from Germany. The presentation of this approach is usually called “war room”, this is because of the presentation form in which the management is following and visualizing all the data.



(Source: <https://www.semanticscholar.org/paper/Management-Cockpit-War-Room%3A-Objectives%2C-Concept-of-Daum/0925179a348176f7ab1d920e00b12125bf1aa8d4> visited 16.02.2022)

The war room title is implemented because of two main reasons: effective supply of information and effective cooperation of managers. By default, it is assumed that war rooms are technically advanced, but that is not precondition for this approach.

2.1. Critical review of categories in which are systematized measures of performance and their diversity

In order to become and remain successful organization in a modern business environment, decisions and judgments of its management should be based on adequate information on performance measures. Hence, organizations must have a modern and a customized performance measurement system to follow their success (in the broadest sense of the word). In this sense, traditionally is, almost dogmatically, used managerial wisdom that company “cannot manage what cannot be measured.” Efforts which have

been done so far in the field of creating useful systems for measuring performance, cannot be considered as insignificant. Numerousness and diversity speak in favor of this hypotheses (Kaplan and Norton, 1992; Kaplan and Norton, 1996; Stern and Shiely, 2001; Neely et al, 2001; Barnabe, 2010).

However, each group of companies, as well as each individual company, develops its own system of reporting and monitoring of the achieved results as well as planning future events.

Organizations of different types are almost always in a situation where there is a large number of goals, and on the other hand the resources and competencies necessary to meet them are limited. This circumstance leads to disorganization that occurs as a consequence of the negative effect of the external environment on the system (the measure of disorder is entropy), so that changes disrupt the system and can lead to errors in adapting the system to the new environment.

Quality management reports, as well as overall successful communication, consist of clear messages, systematic standardization and reduction to the essence. The following are explanations of the HICHERT © SUCCESS reporting rules. Following the SUCCESS rules provides the basis for successful business communication. The following seven rules are recommended for written (reports, statistics) and oral (presentations, lectures) business communication:

- SAY: Say the message
- UNIFY: Standardize content
- CONDENSE: Collapse information
- CHECK: Ensure quality
- ENABLE: Implement the concept
- SIMPLIFY: Avoid complications
- STRUCTURE: Organize a report

These seven rules can be grouped into a reporting pyramid. The reporting pyramid has three levels:

1. Message (Say, Structure)
2. Visualization (Unify, Condense, Simplify)
3. Data (Check, Enable)

There is a lot of factors which will indicate which performance measurement systems will be used and how many indicators will be measured. Because of that fact, we cannot say that universal performance measurement system can be established. Some of factors that determine this are: size of the company, competitiveness, level of technological development, organizational structure and business strategy. With the growth of the company, it is natural to expect that the company is using more complex performance measurement system and to follow more indicators. On the other side, this can lead to bureaucracy and the reports are becoming the aim for itself, not the instrument and the tool for decision making process.

Very high interest in growth of the company and connecting this fact to the management shows author Isak Adizes. The effectiveness of his methods is contained in the concept of life cycles that indicate a wide range of managerial challenges. In his work, Adizes defines several stages of development of an organization, and they are:

- courtship,
- the period of infancy,
- wild years: go-go,
- adolescence,
- top form,
- aging,
- aristocracy and
- final doom.

In his works based on concrete experiences as a consultant, Adizes strives to point out the circumstances that will direct managers to keep the organization in the top form phase. During the development of a company, it inevitably goes through a large number of changes. It is up to the management of the company to use these changes as opportunities or to recognize them as a problem.

CONCLUSION

In order for the organization to be able to respond to external factors, it is necessary for the interior of the organization to be maximally organized, to function homogeneously and to have a sufficient amount of quality information to make better decisions to take advantage of the challenges. Therefore, just concretely tailored system for performance measurement can be used as adequate base for making decisions.

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