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DESIGNING AN INTEGRATED FRAMEWORK FOR MEASURING ORGANIZATIONAL PERFORMANCE IN THE COMPANIES OF THE FOOD INDUSTRY IN THE REPUBLIC OF NORTH MACEDONIA

Abstract: Researchers have offered a number of different systems / methodologies / frameworks for measuring organizational performance. They all have specific characteristics and differ from each other. Designing a framework for measuring organizational performance is a complex process. The main problem in designing is the inability to create a general model that would be applicable to any company. The specificity is that each company has its own characteristics by which it differs from one another, even companies in the same industry. Therefore, when creating a framework for measuring organizational performance it is necessary to ensure that it is adaptable and that can be adjusted to the most of companies. The goal of the paper is primarily to research the main models for measuring and managing organizational performance that have a significant impact in this area, and then to define a new framework for an integrated performance measurement system that would be suitable for implementation and application in companies of the food industry in the Republic of North Macedonia. For this purpose, research was conducted on the current situation regarding the concept of measurement and management of organizational performance in those companies. The results obtained from the research were used in creating the general framework of the new adaptable integrated model for measuring organizational performance.

The research is conducted with various data collection research methods. In this context, primary data is obtained by conducting an interview with the managers of the companies from the food industry in the Republic of North Macedonia. Afterward, the data is evaluated using various statistic methods that are applicable in this branch.

Keywords: organizational performance, measurement systems, framework, methodology.

1. INTRODUCTION

Organizational performance, their measurement and, management are issues that have great attention in the past 20 years among business entities and the academic community. Academic researchers are trying to help managers by creating an adequate performance measurement system and managers on the other hand are those who implement those systems in their companies.

According to the current empirical research, many companies are trying to implement a new or redesign an existing performance measurement system. The multidimensionality of organizational performance is a problem when defining and selecting appropriate indicators and methods for measurement. The field of performance measurement is very wide and a large number of authors from different disciplines have contributed to the same. According to Marr and Schuma many authors have influence in this area, but only a few have a strong impact as a whole (Marr & Schuma, 2003).

Despite the great interest and engagement of researchers in this field, there are still issues that are unanswered and leave space for research. Performance measurement is a process of quantifying the effectiveness and efficiency of a given action and a decision that is made (Wagoner, Neely, & Kennerley, 1999). It provides data on whether and how a certain activity has been performed. The performance measurement system is also defined as an information system used by managers to monitor the implementation of the business strategy by comparing the results achieved with the strategic goals (Simons, 2000). The Performance Measurement System consists of methodologies, metrics, processes, and software tools (Neely, 2005). It represents a link between operational, financial and strategic goals. What is important is to define its role in the company as well as to provide integration of the performance measurement system with other systems and the overall system of the company.

2. KEY CHARACTERISTICS OF THE PERFORMANCE MEASUREMENT SYSTEMS

From the above definitions, we can highlight some of the main characteristics of the performance measurement systems. According to Franco-Santos, M., Lucianetti, L., & Bourne, M. these definitions emphasize the characteristics of the Performance Measurement System in three ways (Franco-Santos, Lucianetti, & Bourne, 2012):

- 1) The elements of the Performance Measurement Systems,
- 2) The role and the objectives of the Performance Measurement Systems and
- 3) The processes or the series of actions comprising the Performance Measurement Systems.

One of the key benefits of organizational performance measurement systems is the ability to align all these different levels of company analysis and to ensure synergy between them. (Kaplan & Norton, 2001).

Regarding the elements of the systems some of the authors (Franco Santos, Marr, Neely, Kennerly, Micheli, & Gray, 2007) states that the minimum requirements for a performance measurement system are:

- 1) The use of performance indicators,
- 2) A supportive infrastructure that will be an information system or a set of processes.

They stress that linking performance indicators and organizational strategies is also one of the important requirements. Furthermore, they observe that a number of definitions also include other characteristics of performance measurement systems such as multidimensionality, effectiveness / efficiency, internal / external, vertically and horizontally integrated or multi-level. Accordingly, there is no consensus on generic species or performance indicators.

3. PHASES AND BASICS IN THE DESIGNING OF PERFORMANCE MEASUREMENT SYSTEM

According to Bourne & Neely (Bourne & Neely, 2000) the development of a performance measurement system consists of the following three phases:

1. Designing Performance Indicators - this phase can be further divided into identifying the key objectives that need to be measured and designing measures for them. There is strong agreement among researchers regarding this issue that performance indicators should arise from the strategy. In other words, this phase usually begins with the definition of important strategic goals of the company, which are further specified in the key goals that need to be achieved at the lower goals of the company. Then, the actual performance indicators are designed in accordance with the key objectives.
2. Implementation of Performance Indicators - this phase is defined when systems and procedures are put in place to collect and process data that enable measurement to be carried out regularly. This may involve computer programming to monitor data already used in the system and to present them in a more significant way. This may involve the initiation of new procedures and initiatives.
3. Using Performance Indicators - This phase is divided into two main sub-phases. First, as the indicators come from the strategy, their main utilization is in the direction of measuring the success of the implementation of the strategy. Secondly, the information and feedback from the indicators should be used to check the assumptions

and test the validity of the strategy. It should be noted that strategies change over time, and therefore, when the strategy changes, it is necessary to change the performance indicators and adapt to the new strategy.

There is another phase, and it is a continuous adjustment of the performance indicators. This phase includes continuous monitoring and harmonization of the indicators with the set goals. In conditions of a dynamic business environment, the conditions in which the companies operate are constantly changing, and therefore it is necessary to change the goals. Precisely because of this, it is necessary to change the set indicators and their alignment with the goals. This is included exactly in this stage.

Designing a performance measurement system is a complex process. Despite the great interest in this issue of designing a performance measurement system, there is still no specific answer to the question of what should contain a well-designed performance measurement system. One of the key issues to be addressed is how to design specific performance indicators. It is known that inadequate design of performance indicators can lead to dysfunctional behavior. Designing performance indicators involves much more than simply specifying a formula. There are other issues that are important in designing indicators such as the purpose of the indicator, the frequency of measurement, and the source of data that should be taken into account.

In conditions of strong competition, companies must look for ways, methods, and models that will enable them to achieve better results and competitive advantage. Organizational performance measurement frameworks are approaches for measurement used by companies. Very often, the previously developed models for measuring organizational performance have significant differences in design and use. The models are kind of standard measurement methods, typical of some specific indicators that are related to given business processes, for some particular industry, or for some common function. The economic model (Ouliaris, 2011) is a simpler description of reality. It is designed to give hypotheses of economic behavior that can be tested. Economic models generally consist of a set of mathematical equations that describe the theory of economic behavior. The aim of the researchers who create the models is to include sufficient equations that would provide useful information on how a particular problem is being researched and displayed with the help of a model. When analyzing the different models and their characteristics, it can be concluded that they can be viewed and grouped in different aspects. First, they are presented depending on how they are originated. From the review of the literature on measuring and performance management, it can be noticed that the models develop gradually according to the needs of the companies. Some of them obviously differ from each other, and some are just complementary to the previous, by improving or modifying some of their characteristics.

4. RESEARCH DESIGN

4.1 Research problem and objectives

The main problem that arises in this research is that the performance management, that is, the problem of measuring, managing and predicting organizational performance is not enough or it is not at all present in the companies from the food industry in the Republic of North Macedonia. In particular, the problem is the lack of an adequate system for measuring, managing and predicting organizational performance, which system will be integrated into the entire system of the company. The problem is that every industry, even a company in the same industry, is a specific entity, which differs from each other. Because of this, cannot be created and implemented one general model for all companies. To overcome this, it is possible to modify the created models for each company separately, responding to its needs and conditions in which it works. The problem of creating and implementing a model for measuring, managing and predicting performance is multidisciplinary and as such should be treated. When considering all factors that affect performance, it is concluded that the meaning of the model is multiple.

The main goal of the research is to create an adaptive model that will be used for measuring, simulating and predicting organizational performance in the companies from the food industry in the Republic of North Macedonia. The goal of the model is managers and other employees of the company to have an overview of organizational performance at any time, to be able to make an analysis based on which they will make decisions about future activities, as well as to predict the movement of organizational performance in the future.

The model was developed on the basis of consultations of the literature and experts in this field, obtained results from the conducted research on the current situation in the field of performance management in the Republic of North Macedonia and the need for implementation of the model, as well as through a case study in a company, where it has been implemented and tested. A number of factors influencing the decision-making process for creating the model are accepted only as external model parameters that are obtained as a result of additional studies and research beyond this research.

4.2 Proposed framework for measuring organizational performance

The general framework of the adaptive model for performance measurement was created on the basis of previously created performance measurement models that were found to be most suited to be implemented in the companies from the food industry in the Republic of North Macedonia. Creating models is an up-down

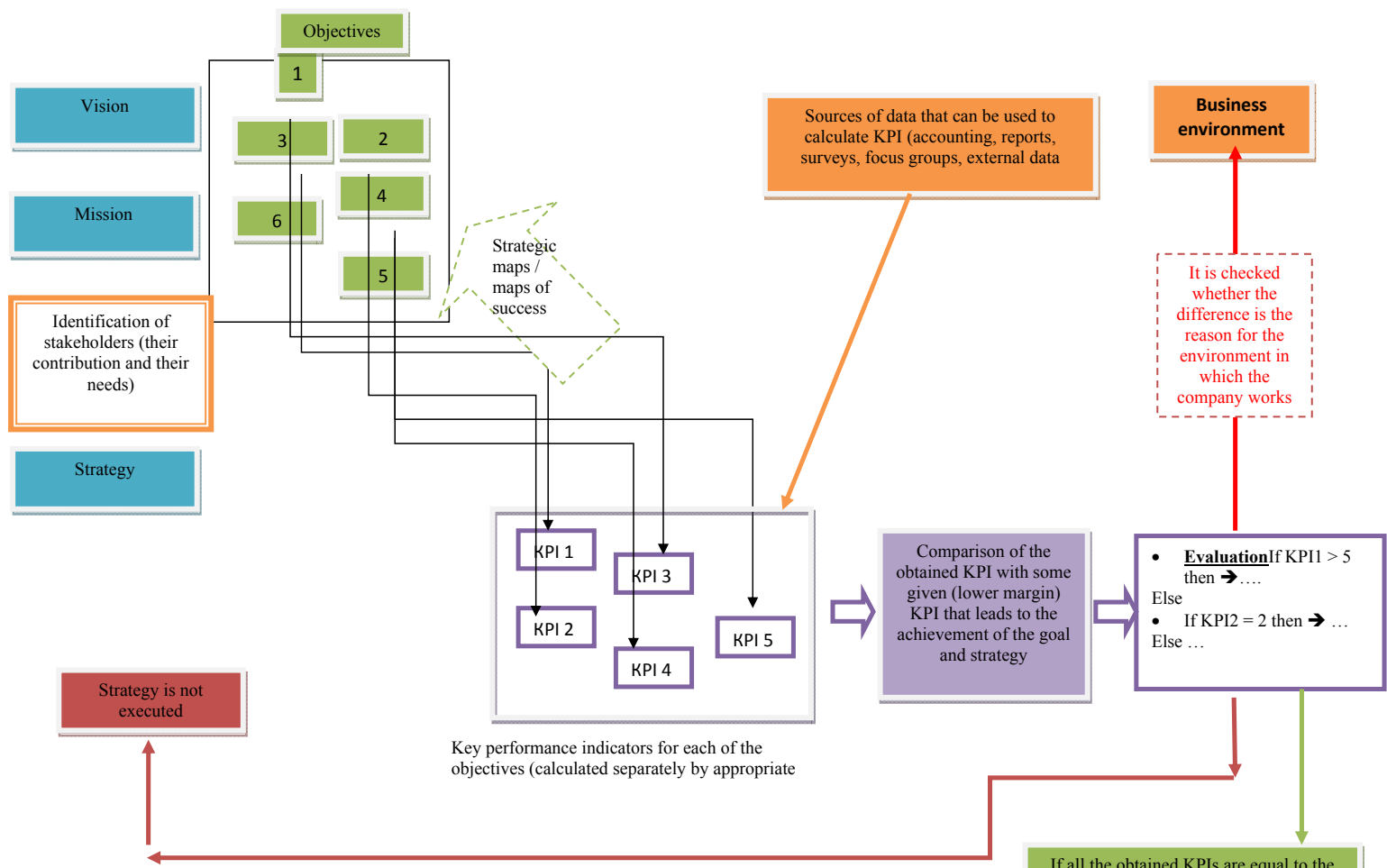
approach, and basically, it comes primarily from the vision and mission of companies/organizations, their strategies, and goals. The models transform the input data into output quantified information, which can be used in the decision making process. Determining and quantifying economic indicators is specific and no simple correlation can be made. From this aspect, during the survey, the indicators are classified and appropriately grouped based on their characteristics and functional dependencies.

The need for implementation and application of the performance measurement system in the companies in the food industry in the Republic of Macedonia is primarily imposed due to the dynamic and competitive environment in which the companies operate. Managers need accurate and timely information so they can make the right decisions. Performance measurement systems need to be dynamic and capable to reflect the needs of key stakeholders as well as the processes needed to meet these needs. The need for implementing a new way of measuring organizational performance is inevitable in the new conditions that the business environment has. Based on the facts stated in the literature, and analyzed in the previous sections of this paper, as well as on the basis of the obtained information from the conducted research, a model for measuring organizational performance for the companies from the food industry in the Republic of North Macedonia was created. Prior to creating the model, the different methods / frames / models for measuring organizational performance that have been developed up to this point are elaborated. The model developed in this paper attempts to take into account the characteristics of various international models that have been explored previously (Midovska Petkoska, 2016). This model is not completely new, but it has been modified by including important parts of existing models presented in the previous section in the paper and adapting them to the conditions in which Macedonian companies from the food industry in the Republic of North Macedonia work. So it takes into account the following elements:

- The vision and mission, as well as the strategy and strategic goals such as the SMART pyramid. The model starts exactly from these elements. The main assumption for achieving high organizational performance is the alignment of the strategy with the strategic and operational goals and activities. Therefore, the model assumes that in order to achieve high performance, the companies must have a strategy and appropriate targets at all levels of management. In addition, all employees must be familiar with the strategy and goals of the company.
- Key Stakeholders, as Performance Prism - in parallel with defining the strategy and goals of the company, the model assumes that it is necessary to identify the key stakeholders of the company. In relation to this question, it is necessary to know what the expectations of the stakeholders are and what the expectations of the company from stakeholders are.
- Key Performance Indicators for different perspectives like The Balanced Scorecard (BSC) of Robert Norton and Kaplan. It is necessary to identify and select the actual Key Performance Indicators that will suit both the company's strategy and goals, and the requirements and needs of the company stakeholders appropriately for the envisaged five perspectives for measuring organizational performance.

From the analysis of the models for measuring organizational performance, it is concluded that these models represent a good basis for creating the model for measuring and predicting organizational performance in the companies from the food industry in the Republic of North Macedonia. This is confirmed by the results of the conducted research on the conditions and challenges in the field of organizational performance measurement in the companies from the food industry in the Republic of North Macedonia. So, the model takes into account the company's strategies and of course the vision and mission of the company, as in the case of Balanced Scorecard on one side. On the other hand, it takes into account the stakeholders, starting from their identification and selection, as is the case with the Performance Prism. When identifying stakeholders, it is necessary to determine the contribution they have for the company on one hand, as well as their requirements and needs from the company on the other. In accordance with the defined strategy and strategic goals, as well as the identified key stakeholders, the model further approaches with the identification and selection of Key Performance Indicators appropriate for each organizational performance perspective.

The general frame of the model is presented in the following picture:



If there is a difference between the desired and calculated KPI, the execution of the activities should be

If all the obtained KPIs are equal to the expected ones, a general conclusion and

According to this general framework, the model starts from the vision, mission, and strategy of the company and the identified key stakeholders to continue with defining of the goals that lead to the realization of the strategy and meeting the needs of the key stakeholders of the company. After defining the objectives, identification and selection of Key Performance Indicators that are appropriate for the set goals were performed. The selection of key performance indicators is different for each company, even though it is a company of the same industry, because each company has set different strategies, goals and key stakeholders.

It is especially important for the model to determine the place and the relations of the system for measuring and predicting organizational performance in the entire system of companies. For proper and successful implementation and application of the system, it needs to be integrated into the company's total system and connected to all other subsystems. The need for integration is imminent. The organizational performance measurement system needs to download data from other systems, but also to distribute data to stakeholders. The proposed model for measuring, simulating and predicting organizational performance modeled is part of the Enterprise Resource Planning (ERP) system. It is important for the company, its management as well as the other stakeholders always to have timely and accurate information about the execution of its activities in order to make appropriate decisions. Information is crucial in today's operating conditions where competition is huge. The created model is adaptable and it can be adapted to the needs of every company from the food industry in the Republic of North Macedonia. When creating the model, it should be noted that each organization should individually develop its own set of performance indicators that will reflect its strategy, goals, structure and needs. Key performance indicators in this model are taken from several perspectives and they provide information on financial indicators, market and consumer indicators, indicators of the performance of internal business processes, human resource indicators and indicators for other stakeholders. So the model has taken into account elements from several existing models and is a new way of measuring of the organizational performance in the companies from the food industry in the Republic of North Macedonia. During its creation, the existing challenges faced by these companies, their need for implementation and application of the organizational performance measurement system, the benefits that would be gained from it, as well as the barriers that they would face, were taken into account. The model is designed in order to provide better visibility of the performance of the company's activities, improve decision-making in companies, and improves organizational performance in the long run, all in the direction of increasing revenues and the number of consumers.

Measurement of key performance indicators is performed in accordance with previously defined formulas, which are specified in the Excel document. Data can be entered manually or downloaded from some other systems and databases. After the measurements and the results obtained, they are compared with the previously given margins for each Key Performance Indicator separately. For each deviation below the defined lower margin, each indicator receives a value of 0, and if it is above the lower margin it gets a value of 1. This mathematically is modeled using the Heaviside function. Finally, conclusions are drawn up by analyzing the composite index created with the appropriate methodology from several indicators for each perspective separately. If the composite index moves within the predicted interval, it is concluded that organizational performance has been carried out at a high level.

- If all received KPIs are equal or higher than the set margin, it is concluded that organizational performance is at a high level and leads to the realization of the strategy.
- If one or more of the Key Performance Indicators is below the set margin, it is concluded that organizational performance has been achieved at a low level. This would mean that it is necessary to find the reason for such a situation, to identify the problem and to undertake corrective actions.

4.3 Key elements and perspectives in the framework for measuring organizational performance

After laying the foundations for designing a system for measuring organizational performance, the next one discussed in this paper is the definition of key elements of the model. According to Frank Santos, three key elements are necessary for the performance measurement system: performance indicators, objectives and support infrastructure (Santos & Bourne, 2005). Also they predict that each system should include both financial and non-financial measures, both internal and external measures, and measures that measure what has been achieved, but also those measures that can predict in the future.

According to previously elaborated definitions, performance management links the strategy, strategic goals, key stakeholders and key performance indicators. These will be taken as key elements in creating a performance measurement model.

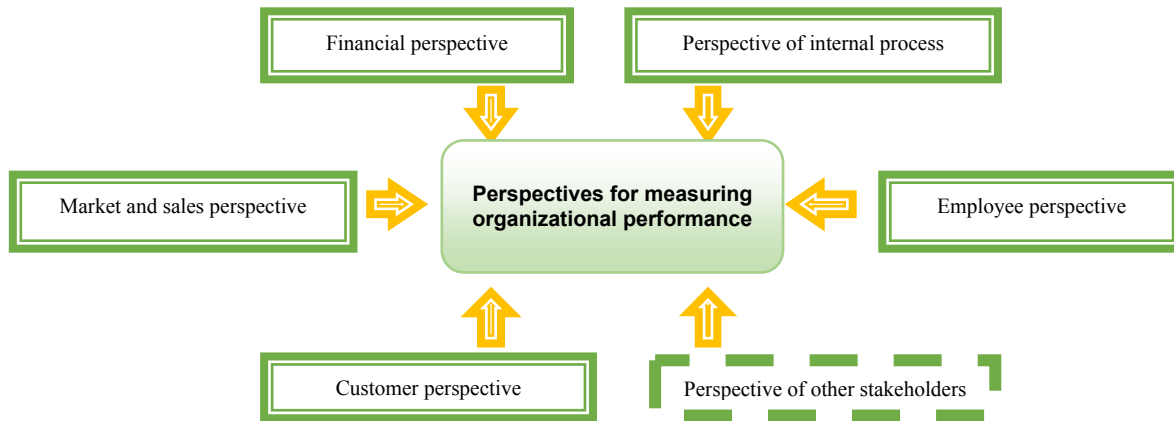
- The strategy and strategic goals - represent broadly defined goals that the organization must achieve in order to succeed in the implementation of the strategy. They should possess certain characteristics and be: measurable, specific, appropriate, realistic and time-defined. Strategies must be in line with the mission and vision of the organization. They are mainly related to growth and development, market positioning, strategies for competitive advantage, and the like. Critical success factors must also be mentioned here, which are elements that must be fulfilled to ensure success in achieving the vision and mission of the organization. They are vital to the success of the strategy and those who lead it.
- Key stakeholders are interested parties that have influence or are influenced by the company's activities. When creating the model, it is necessary to identify key stakeholders for the company, as well as their needs and

requirements on the one hand and their contribution on the other. This way of taking into account the stakeholders is also foreseen in the Prism of Performance.

- Key Performance Indicators are a set of indicators that the company uses to measure or compare performance in order to meet its strategies and operational goals. They are directly related to the goals of the organization and define and follow the specific business goals of the organization. They are used to measure performance, make the decision-making process simpler, help the organization to understand how well it works in terms of achieving strategic goals and enable the organization to measure its success.

Sources of data are databases from where the system will draw the necessary information must be mentioned here. They can be various plans, reports, balance sheets and success, external reports, and the like. Data can be downloaded from existing databases that companies have.

The model integrates five perspectives for measuring organizational performance: financial perspective, employee perspective, consumer perspective, market perspective, the perspective of internal processes and the perspective of other stakeholders.



Picture 2: Perspectives for measuring organizational performance in the system.
Source: authors view

The main purpose of the model is to be adaptable and applicable to the companies from the food industry in the Republic of North Macedonia. Because of this, it has the opportunity to add another perspective if the company needs such. This is foreseen primarily because each company operates in a different way and is distinct in relation to others. The perspective that is added is the Perspective of other stakeholders.

Previous research has shown that many of the performance measurement systems are not successful in their implementation because they have not selected suitable indicators or consist of only a few indicators. Kaplan and Norton consider that some of the problems they face when designing a performance measurement system can be overcome if a set of balanced measures is adopted (Kaplan & Norton, Using the BSC as a strategic management system, 1996). For this, an appropriate elaboration has been made. According to them and also according to some other authors, measuring only financial indicators is no longer enough to get a proper picture of the accomplishment of the activities in the companies. It is also necessary to measure other indicators taking into account different perspectives.

It should be borne in mind that the indicators that will be identified and selected for measurement in the proposed model are not just certain formulas that need to be calculated. In addition, other characteristics such as the purpose of the indicator, the frequency of the measurement and the data sources to be used, i.e. some of its basic characteristics, should be determined for them (Neely, Huw, Mills, & Plattes, 1997). For this purpose, the so-called Organizational Performance Indicators Card is proposed, in which it is necessary to introduce some specific features of the respective indicator.

5. CONCLUSION

The purpose of the created framework for measuring organizational performance is to provide a set of quantitative and qualitative data that will be available to interested parties at any moment and will enable them to get a clear picture of the progress of the organization, the achievement of its goals and the achievement of the strategy and mission. The review of the literature on this subject shows that a number of authors are trying to explain it and make their own contribution to it. Most agree with its essence, but each has its own point of view. The testing of the created system for measuring organizational performance through a case study in a company from the food industry in the Republic of North Macedonia showed that the system can be implemented and applied in these companies. Certainly with certain modifications from company to company it can be adapted to more. The created composite index for organizational performance gives one picture of the performance of organizational performance at the level of the entire company. An appropriate analysis of individual indicators further provides information on the performance of individual activities. The negative composite index indicates that some of the organizational performance is achieved below the set lower

limit. Their identification can be done by analyzing the individual indicators for each perspective separately. After the identification, corrective measures can be taken where necessary in order to improve the organizational performance.

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