

BALANCED SCORECARD CONCEPT AS A TOOL OF STRATEGIC MANAGEMENT AND ITS USAGE IN THE CONSTRUCTION INDUSTRY

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Abstract: The paper focuses on the issue of non-financial indicators in construction companies in Slovakia through the Balanced Scorecard concept as a tool of strategic management. The main aim of the paper is to find out the current state of using the method of Balanced Scorecard in construction companies in Slovakia. Two hypotheses were established in the study which was verified using the method of proportion of the given phenomenon in the population and the method of chi-square test for independence. Another part of our research was dedicated to the barriers that prevent the use of the BSC method which we have also subjected to the statistical research in our paper using the standard deviations and other statistical methods. The research has shown that the Balanced Scorecard method is not used even by 15% of construction companies in Slovakia. The partial objective was to find out the existence of statistically significant relationship between the use of non-financial indicators in the management and the use of BSC concept, since the BSC method assigns the same importance to both financial as well as non-financial indicators. The paper offers an overview about the current state of BSC in the construction industry and seeks to present the concept as a modern business management tool that gives equal importance to both financial and non-financial indicators.

Key words: financial indicators, non-financial indicators, BSC, performance, management

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Introduction

Euroregions Changing market environment, global competition, rapidly fluctuating customer demands and more complex global network of supply chains require new production conceptions, new management tools and technologies (Kovacs and Kot, 2017; Maerean and Albu, 2018; Oláh et al., 2018; Nagy et al., 2018). The issue of sustainable development is a fast developing area of surveys that represent the interests of business, academia and societies (Kot, 2018). If a business wants to be successful at present, it must follow current trends and development in a global and rapidly changing environment. In this context, it must be able to use its business

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philosophy; even the performance of enterprises has some of its rules, so philosophy is important as an element of each activity (Grabara et al., 2016; Ulewicz, 2018). In these connections, monitoring the company's performance is coming to the foreground. As the most general characteristic of company's performance, we can consider the definition which understands performance as the extent of using resources that every business tries to use as efficiently as possible to achieve the highest possible value (Maříková and Mařík, 2005). Measuring company's performance is currently influenced by two basic views on company's running. The first view is the financial side of a business that represents for the owner a financial investment which should bring about money appreciation. In terms of enterprise performance, a change in the market value of an enterprise is considered as the basis. The second view is an enterprise which is understood as a socio-economic system. This system represents a complex network of internal and external relations that are needed to be balanced. Current performance measurement systems including the Balanced Scorecard method are based on these views.

Literature Review

The world of business environments in modern economies has changed dramatically the way of pursuing business and depends nowadays heavily on the performance in generating and utilizing new knowledge, information systems, innovations and management techniques and tools for creating of the higher business performance (Rajnoha and Dobrovič, 2017). The prospect of functioning in a global environment causes modern organisations to enhance constantly business models. The subject of business model designing corresponds strongly with the topic of value creation. In order to survive, organisations need to develop their capabilities of creating and capturing values (Pachura and Hairul, 2018). Growing market globalization, increasing global competition, more complex products results in application of new technologies, methods and business processes (Kovacs and Kot, 2017). The structure of sustainable management can be introduced in different ways (Grabara, 2017). One of these methods and tools of management is also the Balanced Scorecard concept which represents a system for measuring enterprise performance which requires to take into account the most important aspects of business. These aspects are expressed in a corporate vision, business mission and strategy. The vision reflects a basic orientation and the strategy is a way to its realization. After determining the mission, vision and the strategy of an enterprise, it is necessary to define goals, metrics and strategic actions which are associated to particular views, the so called perspectives. Assigning to particular viewpoints should prevent unilateral thinking in deducting and following goals. Thinking within perspectives and their interconnections thus documents main connections important to implement a strategy (Vysušil, 2004). Critical success factors will determine what is important for success and special measures serves to measure whether it they are doing just as they should (Niven,

2002). Some phenomena affecting the overall efficiency cannot be expressed by financial indicators. They cannot be recorded into accounting standards, as being unable of reflecting non-financial aspects of company reality. These are expressed in company goals and company strategies (Gallo and Mihalčová, 2016). The main mission of Balanced Scorecard (Kaplan and Norton, 2005) is that a business is not managed according to the past but through strategies oriented towards the future to maintain its longterm existence. Based on their expert observations, the founders of the Balanced Scorecard concept, Norton and Kaplan (1996), proposed four perspectives that create a basis of the given methodology. The characteristic of the four basic perspectives is in the following activities:

Financial perspective looks at an enterprise from the point of view of its owners. The goals connected to the growth, cost reduction, investments, sustaining market position, and so on, are set. Traditional financial indicators are connected to the goals. **Customer perspective** looks at an enterprise from the point of view of its customers. Frequently used goals contain increasing the market share, customers' satisfaction, acquiring new customers, increasing customer profits or the customers' return. **The perspective of internal processes** follows the goals connected to the processes that need to be improved to achieve the goals set in a financial and customer perspective. The emphasis could be put for example on the area of value chain, innovation processes, or operational processes. **The perspective of learning and growth** focuses on the goals connected to the corporate infrastructure and education (Vysušil, 2004; Sasse, 2014). The authors of the concept do not recommend monitoring more than 20 indicators in a company. The company thus avoids monitoring unnecessary indicators and can concentrate its capacities on more important activities (Kaplan and Norton, 2001).

Figure 1 shows BSC perspectives and their connections to the company's strategy and vision.

BSC concept belongs to significant managerial tools that many companies use as tools for managing and measuring their performance. Balanced Scorecard is one of five management tools that are most widely used in the business world. Recently, BSC research has developed significantly, not just considering it as performance measurement tool but also as a strategic management system (Handoko and Wehartaty, 2017). The Balanced Scorecard as a concept evaluating performance from other perspectives of enterprise activity is the subject of many research studies. Besides theoretical review of BSC, its characteristic, evolution, reasons and benefits of the application, the first exhaustive survey in Slovak firms implementing BSC and their clients – companies with deployed BSC systems and compared findings with the research results of renowned American Balanced Scorecard Institute has been performed (Gavurova, 2011; Kisel'áková et al., 2018). The firm Bain & Company regularly pays its attention to the study of managerial tools in the world and the results from its current research from the year 2017 show that nowadays, 53% of enterprises use the Balanced Scorecard concept. Compared

to the most frequently used management tools, the BSC concepts stays in the middle of the ranking and it is graphically shown in Figure 1.

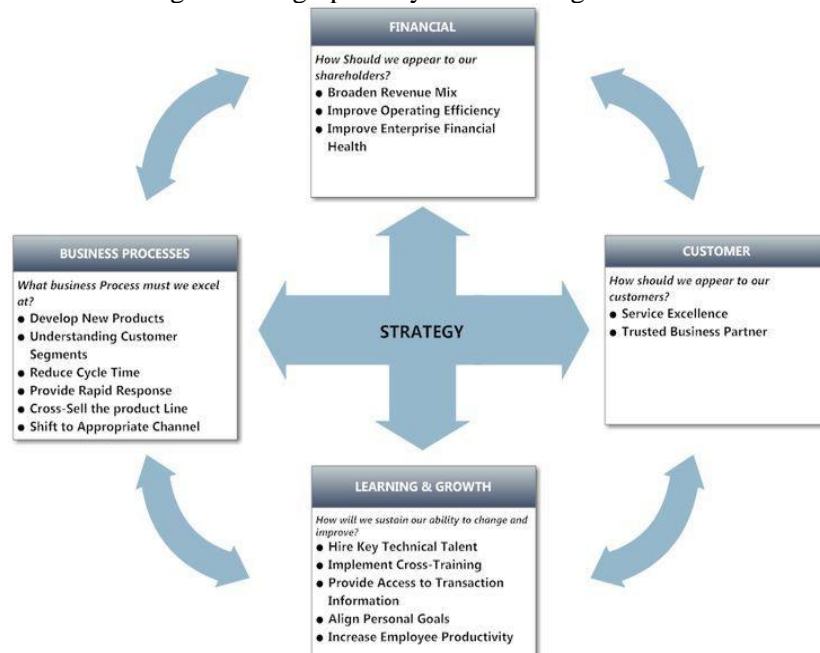


Figure 1. The most frequently used management tools
(Own processing according to Norton and Kaplan, 2005)

In Slovakia, a research of BSC concept was conducted by the author (Karabašová, 2010) who paid her attention to the research on the recognition and the use of BSC concept and according to her research which was conducted in Slovakia at that time, the method of Balanced Scorecard is used only by 6% of enterprises and 12% of enterprises are considering introducing it. The mentioned research was conducted in the year 2010 and was focused on all enterprises. New research was conducted by the authors (Lesáková and Dubcová, 2016) dealing with the issue of Balanced Scorecard and in their research, they found out that only 13.73% of the respondents know perfectly the BSC method and from the percentage, only 9.15% have also implemented the method. Compared to more developed countries, we are still considerably behind in using the BSC method since the use of the mentioned method in Europe is at the level of 53%, especially in the Western European countries (Bain and Company, 2014).

Data and Methodology

The paper deals with the use of non-financial indicators and their relation to the Balanced Scorecard concept with the aim to emphasize their importance in managing the business. The reason for linking the use of non-financial indicators

and the Balanced Scorecard lies in its very characteristic which represents the concept as a method that includes both financial and non-financial indicators.

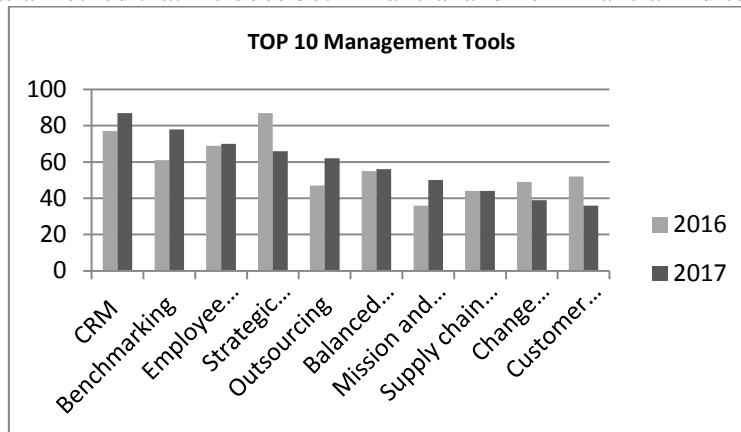


Figure 2. The most frequently used management tools
 (Own processing according to Bain and Company, 2017)

The main objective was achieved through partial goals of identifying the current state of using BSC concept in construction businesses and proving a statistically significant relationship between the use of non-financial indicators and the use of the BSC concept. As a method of collecting information for conducting the research, we used a questionnaire which currently belongs to the most frequently used methods of collecting information for conducting research and surveys. The questionnaire survey contained a list of pre-formed questions that were given in the way to find out opinions and facts needed to the solution of our survey. The questionnaire contains questions from the area of creating and implementing strategic management and measuring the performance of enterprises with a more detailed focus on the questions connected to the Balanced Scorecard concept. When composing a questionnaire, we used a combination of the responses with the possibilities and technique of the Likert scale. The Likert scale is a scale composed of a statement and usually five degrees used by respondents to express their extent of agreement or disagreement (Marcheová et al., 2011).

The questionnaire structure was divided into two parts. The first part was an identification part and the questions were related to the size of a construction enterprise, enterprise ownership and a geographical scope of the company. The second part of the questionnaire was connected to the research itself and the questions were divided into three areas. The questions in the first area were aimed at the company's strategy, the second area included questions focused on measuring the enterprise performance and the questions focused directly on the concept of Balanced Scorecard completed the third area. The third area focused on the BSC concept was the most extensive and we tried to find out the answers to the questions such as the use of Balanced Scorecard, the reasons for not using it, or

what are the preferences of particular indicators which include the perspective of Balanced Scorecard. When composing the questionnaire, we assumed that the research would also include construction enterprises which do not use the Balanced Scorecard concept (Blikharsky et al., 2017). The questionnaire therefore contained a question aimed at identifying the reasons that have a major share on not using the Balanced Scorecard. The question was given in the form of a 5-point Likert scale where enterprises marked the importance of the reasons preventing the use of the Balanced Scorecard concept according to individual degrees. When evaluating the answers, we followed an arithmetic mean, standard deviation, and the frequency of occurrence of the most common responses.

To select the business subjects, we used the classification of enterprises according to SK NACE and we have chosen the section F construction industry. We addressed construction enterprises in Slovakia with the questionnaire survey. The selected file was created in accordance with a probability theory, which means that the results found out in the selection file can be generalized to a basic file which we further save and thus perform census. In our research, we applied random selection which prevents the results to be distorted by the tendency of choice. The advantage of random selection is that each unit of the base file has the same likelihood of getting into the selection file while being selective at the same time. The sample selection was carried out through the Enterprise Index database. All information and data on which the Business Index is based are drawn from publicly available databases and registers. The basic information frame consists of digital structured data, files in the formats of pdf, csv, xls and electronic scans of various documents. We sent a questionnaire to a total of 716 construction companies in Slovakia. Of all the questionnaires sent, 68 completed questionnaires were sent back to us, the return on the questionnaires thus reached 9.49%. An important part of our research consisted of hypotheses based on the main goal of the paper.

H1: We assume that more than 15 % of enterprises in the construction industry use the method of Balanced Scorecard as a tool for managing their business.

H2: We assume that there is a statistically significant relationship between the use of non-financial indicators and the use of Balanced Scorecard method.

To evaluate the collected data, we used research methods as (descriptive statistics, contingency tables and others), using analysis, comparisons, synthesis, selection, induction, and deduction. The questionnaire was created on the basis of defined hypotheses which were subsequently statistically verified. To verify the hypotheses, we used the method of the proportion of a given phenomenon in the population and chi-quadrant method of independence test. Verifying the hypothesis by using chi-quadrant test was done in the statistical programme Statistica from the software company StatSoft version 5.5 edition. The formula is shown in Table1.

Results of Research

The research conducted in the environment of construction enterprises in Slovakia was aimed at using non-financial indicators in given enterprises and their connection to the use of the Balanced Scorecard concept.

Table 1. Formulas of verifying hypotheses and questions

(processing by Marcheová et al., 2011)

Method of proportion of a given phenomenon in the population	Pearson's chi-square test for independence	Standard deviation
$p = \hat{p} \pm z_{\alpha} * \sqrt{\frac{\hat{p} * \hat{q}}{n}}$	$\chi^2 = \sum \frac{(f_e - f_t)^2}{f_t}$	$s = \sqrt{\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2}$

It resulted from the mentioned that the first objective was to find out the current use of the concept in construction enterprises. In the questionnaire, a question of using the BSC concept was given, through which we tried to verify the Hypothesis 1. When verifying the hypothesis focused on the usage of the BSC concept, we used a statistical method of the proportion of a given phenomenon in the population. The results are shown in Table 2.

Table 2. Results of testing the first hypothesis by using the method of the proportion of a phenomenon in the population

Method of proportion of a given phenomenon in the population
$\hat{p} = 0.2795$ $\hat{q} = 0.7205$ $p = 0.2795 \pm 1.96 * \sqrt{\frac{0.2795 * 0.7205}{68}}$ $p = 0.2795 \mp 0.0544$ $0.1728 \leq p \leq 0.3860$

When verifying the hypothesis, that we conducted through the method of proportion of a given phenomenon in the population, we achieved the values from 17.28% to 38.6%. The calculation that we have used to achieve these values contained the following variables. The first variable included a percentage share of construction enterprises that use the BSC concept. The second variable was set based on the principle of opposite phenomenon, i.e. the use of the percentage share of the enterprises that do not use the BSC concept. For a complete calculation, we have also used the value of total number of respondents who participated in the questionnaire research. To acquire a relevant result, we used a determined rate of reliability. In our case, the value was at the level of 95% which is evaluated by the coefficient 1.96. When verifying the hypothesis by using the mentioned method, we acired values over the level of expected 15%. It means that the concept of

Balanced Scorecard is used by more than 15% of construction enterprises in Slovakia. Based on the acquired and verified data, we can conclude that the hypothesis was verified and we accept the given hypothesis. Similar research with the aim to find out how many respondents had implemented the BSC method was conducted by the author Lesáková (Lesáková et al., 2017). The results from her research show that only 39 respondents (13.73%) have implemented Balanced Scorecard as a strategic management tool, out of which 23 (58.97%) are large businesses (250 and more employees). Using a binomial test, the author has statistically verified and found out that Balanced Scorecard was used by the management in less than 50% of the Slovak enterprises.

Using a questionnaire, we have found out that in the category of the construction enterprises, medium large and large businesses prevail and just these businesses use the concept of BSC much more than small businesses. The presented fact is also verified in the research (Rajnoha and Lesníková, 2016) where the authors had studied strategic performance of businesses in Slovakia including also BSC. The mentioned research brought results according to which a half of the medium large businesses (50%) use strategic management of performance. The rest are small businesses (27%) and large businesses (almost 23%). As was expected, larger businesses are more engaged into strategy than small or medium large ones. The basis of the concept lies in assigning the same significance to non-financial indicators in enterprise management as to financial indicators. From the given characteristic, we assume that enterprises consider non-financial indicators as important as financial indicators. Based on this, we set a hypothesis whether there is a dependence between the use of non-financial indicators and the use of Balanced Scorecard concept. We processed the data from all addressed respondents and we tried to verify the hypothesis using higher statistics. To find out the connections between the determined variables, we used the method of Pearson chi-square test for independence. Using this method, we calculated the chi-squared test characteristic, which we then compared with the critical table value for the error probability chosen by us and the degree of freedom found. Table 3 contains the expected dependencies frequencies of enterprise ownership, and Figure 2 below shows the direct relationship of these two variables by XY scatterplot.

Table 3. Results of testing the second hypothesis by using chi-square test

Pearson's chi-square test for independence	
Calculated p-value	$p = 0.0479$
Error probability	$\alpha = 5\% (0.05)$
Degrees of freedom	DF = 1
Critical value	$\chi^2 = 0.01$

The statistical verification of the hypothesis using a chi-square test shows that there is a statistically significant relationship in the construction enterprises in Slovakia in the use of non-financial indicators and the use of the BS concept.

This relationship follows from the result of calculated value in which the p value is less than 0.05. There is a statistically significant relationship between the factors, and that means, the hypothesis is accepted.

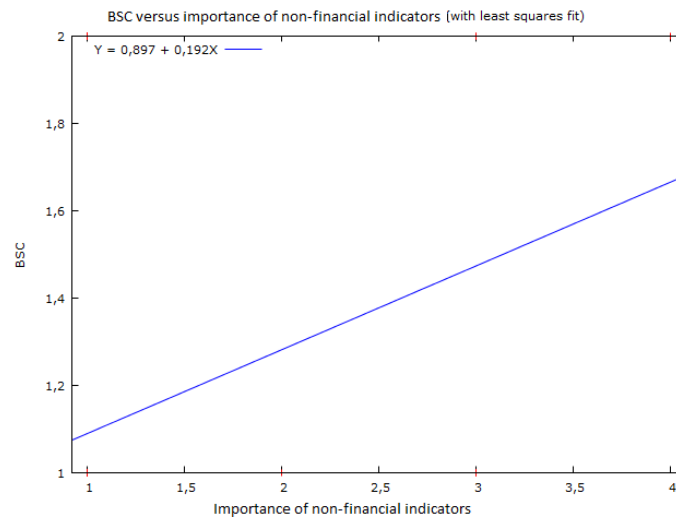


Figure 2. BSC versus importance of non-financial indicators

The importance of non-financial indicators in an entrepreneurial activity is confirmed also by Luhn (Luhn et al., 2017) who carried out a questionnaire research in Austrian enterprises with the result that managers in an enterprise realize the important role of non-financial indicators and that the majority of managers also know to identify them correctly and are able to clearly explain them to other employees. Slavica et al. (2017) in his research shows grades of importance, financial and nonfinancial performance measures. Examinees by giving a rating ranging from 1 to 5 (1 - unimportant, 5 - very important) gave a greater importance to financial performance criteria, in comparison to nonfinancial. Over 80% of examinees gave the highest grade to financial performance criteria. The necessity of financial indicators is based on the fact that the ability to create value in business processes makes sense only if it results in a financial effect. The lack of financial impacts after operational process improvements casts doubt on the strategy.

The respondents also included businesses that do not use the Balanced Scorecard concept. These businesses were asked a question on non-using the BSC concept with the content of questions where they could express themselves in the form of Likert five-point scale, where the businesses marked the importance of the reasons discouraging the use of the Balanced Scorecard concept by individual grades. These enterprises were also subjected to statistical evaluation where we used arithmetic mean, standard deviation and the frequency of occurrence of the most repeated answer. The answers from the addressed enterprises are presented in Table 4.

Table 4. Statistical evaluation of the reasons for not using the BS concept

Valid number of enterprises	Arithmetic mean	Min	Max	Standard deviation	The most repeated answer	Occurrence Frequency of the most repeated answer
49	2.73	1	4	0.87	3	18
49	3.07	2	5	0.88	3	18
49	3.07	1	5	1.24	3	16
49	2.57	1	4	1.14	3	16
49	2.57	1	3	0.93	3	20

As a result of the questionnaire survey, we can conclude that the most important reasons for which construction companies do not use Balanced Scorecard in managing an enterprise include the high financial costs of running it and the lack of human resources for its implementation into practice and management (Onyusheva, 2017). The area of human resources mentioned as a significant factor of not using BSC can be connected to the unreadiness of the employees to imply strategic management. According to Witek-Crabb (2016), who carried out research focused on the process of strategic management, the ability of managers to imply strategic management in large businesses is higher than in businesses with a lower number of employees. When assessing the importance, we can use the standard deviation, which is the lowest in terms of responses to the high financial costs of operation and the inability of managers to agree to the introduction of the Balanced Scorecard system.

Using the standard deviation, we can conclude that one of the reasons for not using the BSC is also the inability of managers to agree on the introduction of the concept into corporate practice. By comparing the trend of directing and comparing the evolution with the arithmetic mean and the standard deviation shown in Figure 3 shows that the arithmetic mean and standard deviation have a relatively equal trend of directing. But standard deviation is lower due to the lack of financial resources. We can thus conclude that construction enterprises consider the lack of financial resources for its introduction as the most noticeable reason for not using the BSC concept.

The results of our research can be divided into three basic areas, i.e. that the BSC concept is not known even by the 15% of the construction enterprises in Slovakia. The second important finding according to us is that construction businesses that have introduced the BSC concept consider indicators equally important in managing an enterprise as non-financial indicators and the third point shows the limits of the BSC concept with the lack of financial resources as the main reason for not using the BSC concept.

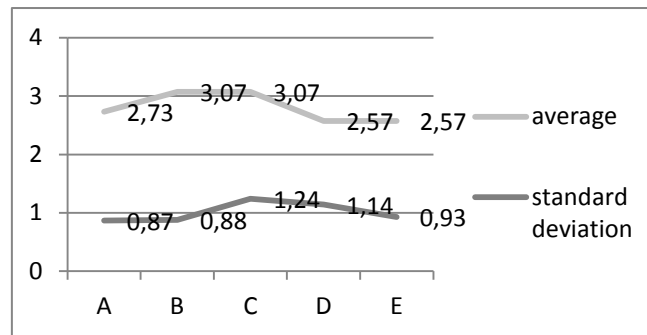


Figure 3. Comparing the direction of arithmetic mean and standard deviation

Managerial Implications

The research offers a current review of the state of using the method of Balanced Scorecard as well as the barriers of its implication into construction enterprises in Slovakia. Similar studies in different industries were conducted also in the past and comparing these studies with the current one, we can observe the change in perceiving the conception in enterprises after a certain period. By evaluating data acquired in questionnaire research, we can clearly define the barriers that impede using the BSC method in practice. The indirect task of the paper was also the presentation of the BSC method that offers management of all activities and processes in an enterprise in the harmony with the strategy of the enterprise that is in compliance with personal aims of individuals. All these processes are focused on increasing the performance of an enterprise. BSC is able to measure not only financial indicators with their information value limited to past results but using suitable indicators, it can predict the future performance of an enterprise and thus provide invaluable information for all people interested – stakeholders, employees, customers or suppliers. Although BSC or its tools are now successfully used by more than half of the enterprises in the world, it is not used very much as a system of managing a strategy in Slovakia. Experience with the implementation of the performance management systems in the world is very positive and it is therefore possible to expect a steadily growing percentage of businesses benefiting from the performance management systems. This paper aims to support the BSC concept and its use and to get it into the awareness of managers.

Conclusion

In an ideal world, everybody in the organization would understand its strategy. The individuals would grasp how their actions benefit the process of achieving the ultimate objective. Sustainable HRM strategies are divided into four perspectives of BSC including learning and growth, internal process, stakeholders, and value creation. These four perspectives incorporate aspects that have an influence on the performance of the organization and can enable the organization to devise future

strategy and development, and to deal with the major intended and emergent initiatives (Tabatabaei et al., 2017).

Based on our conducted research, we can conclude that the situation of using the method of BSC stagnates for now, or eventually it is improving slightly and its usage approaches to the level of 15%. This result can be compared also to conducted research from the previous years where authors (Lesáková and Dubcová, 2016) conducted research focused on the issue of Balanced Scorecard and they found out in their research that only 13.73% of the respondents use the BSC concept in their business. Compared to more advanced countries in using the BSC method, we are still considerably behind since the BSC concept belongs there to the most frequently used tools and its usage approaches the level of 50%. Based on the conducted research, we have further found out that the construction enterprises which use the method of Balanced Scorecard assign importance also to non-financial indicators and to the employees who are able to appreciate the enterprise capital and thus bring the expected benefit for the shareholders as well as other interest groups. Employees as non-financial indicators are related to another part of our research which has shown that high implementation costs are the barrier in implementing BSC to management. It also relates to the evaluation of experts and managers in this field where a recruitment process is a progressive and time-consuming activity for an enterprise, usually connected with high costs (Grabara et al., 2016). In our research, we focused on the category of construction enterprises in Slovakia, but we also worked with processing the data from other industries as well. Every conducted research has its own limits and in our case it is mainly about the determination of the industry sector that we would like to expand with other sectors in the future to acquire more accurate data on the given issue.

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PORÓWNAWCZA ZRÓWNOWAŻONA KARTA WYNIKÓW JAKO NARZĘDZIE ZARZĄDZANIA STRATEGICZNEGO I JEGO UŻYTKOWANIA W BRANŻY BUDOWLANEJ

Streszczenie: Artykuł koncentruje się na problemie wskaźników niefinansowych w spółkach budowlanych na Słowacji za pomocą koncepcji Balanced Scorecard jako narzędzia zarządzania strategicznego. Głównym celem artykułu jest poznanie obecnego stanu wykorzystania metody Balanced Scorecard w firmach budowlanych na Słowacji. W badaniu ustalono dwie hipotezy, które zweryfikowano za pomocą metody proporcji danego zjawiska w populacji i testu zgodności chi-kwadrat pod kątem niezależności. Kolejną część naszych badań poświęcono była barierom, które uniemożliwiają zastosowanie metody BSC, którą również poddaliśmy badaniom statystycznym przy użyciu odchyleń standardowych i innych metod statystycznych. Badania wykazały, że metoda Balanced Scorecard nie jest wykorzystywana nawet przez 15% firm budowlanych na Słowacji. Celem pośrednim artykułu było ustalenie istnienia statystycznie istotnego związku między wykorzystaniem wskaźników pozafinansowych w zarządzaniu i stosowaniu koncepcji BSC, ponieważ metoda BSC przypisuje to samo znaczenie zarówno do wskaźników finansowych, jak i niefinansowych. Artykuł przedstawia przegląd aktualnego stanu BSC w branży budowlanej i stara się przedstawić tę koncepcję jako nowoczesne narzędzie do zarządzania przedsiębiorstwem, które nadaje równe znaczenie wskaźnikom finansowym i niefinansowym.

Słowa kluczowe: wskaźniki finansowe, wskaźniki niefinansowe, BSC, wyniki, zarządzanie

平衡记分卡概念作为战略管理工具及其在建筑业中的应用

摘要: 本文通过平衡记分卡概念作为战略管理工具, 重点研究斯洛伐克建筑公司的非财务指标问题。本文的主要目的是了解斯洛伐克建筑公司使用平衡记分卡方法的现状。在该研究中建立了两个假设, 这些假设使用群体中给定现象的比例方法和卡方检验独立性的方法进行验证。我们研究的另一部分致力于阻止使用BSC方法的障碍, 我们在本文中使用了标准差和其他统计方法进行统计研究。研究表明, 斯洛伐克15%的建筑公司甚至不使用平衡记分卡方法。部分目标是找出在管理中使用非财务指标与使用BSC概念之间存在统计上显著的关系, 因为BSC方法对财务指标和非财务指标都赋予同样的重要性。本文概述了建筑行业BSC的现状, 并试图将该概念作为一种现代商业管理工具, 同时重视财务和非财务指标。

关键词: 财务指标, 非财务指标, 平衡记分卡, 绩效, 管理