

Linking HR scorecard to strategy creation in industry enterprises

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Abstract. This paper examines the application of the HR Scorecard method in conjunction with the Balanced Scorecard to strengthen business strategy and promote sustainable development in industrial manufacturing enterprises. The study addresses the limited body of research on HR Scorecard implementation, particularly within the industrial sector, and explores its integration with the Balanced Scorecard as a tool for strategic performance management. A questionnaire survey was conducted among large manufacturing enterprises in Slovakia with more than 250 employees. Hypothesized relationships between variables were tested using the chi-square method. The analysis revealed a statistically significant relationship between the implementation of the Balanced

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Scorecard and the use of the HR Scorecard. However, fewer than 25% of the surveyed enterprises currently employ the HR Scorecard. No significant relationship was identified between HR Scorecard usage and foreign ownership of the enterprises. The findings offer practical guidance for managers and entrepreneurs considering the adoption of the HR Scorecard, emphasizing enabling factors and noting the relatively low adoption rates among Slovak enterprises compared with their international counterparts. The results underscore the importance of linking the HR Scorecard to the Balanced Scorecard and to overall corporate strategy as a means of improving organizational performance and fostering sustainable development in industrial manufacturing enterprises.

Keywords: HR Scorecard, Balanced Scorecard, strategy, sustainability, industry.

JEL Classification: L10, L20, L60, M20, O15

1. INTRODUCTION

Entrepreneurship is an essential component of every national economic system, with a significant impact on the sustainable development of society as a whole (Belas et al., 2023; Vegsoova et al., 2019). A key characteristic of business development in the modern economy is the creation of stable competitive advantages, built on innovations in both tangible and intangible assets (Ivanova et al., 2019; Glova et al., 2018a; Kuczevska & Tomaszewski, 2022). Innovations in organizational activities provide a critical source of competitive advantage for contemporary companies (Raišienė & Raišys, 2024; Bilan et al., 2025; Chaharlang et al., 2025).

Strategic management emerged in large enterprises as a response to unexpected, unprecedented, and often disruptive changes in the business environment. Such changes have varied in scope, diversity, depth, and timing, frequently proving to be unusual and even fatal for unprepared companies (Cepel et al., 2019; Matuszewska-Pierzynka, 2021).

In the field of strategic management, new methods and concepts continuously emerge, aiming to support sustainable development and improve both the financial and non-financial performance of enterprises. Strategic management is indispensable for a company's success in an increasingly competitive and turbulent environment (Adda et al., 2021; Feng et al., 2024; Habib et al., 2024; Kristinsson et al., 2024; Virglerova et al., 2025). Among these areas, human resources play a pivotal role, represented by the HR Scorecard tool, which can be integrated with the comprehensive performance measurement framework of the Balanced Scorecard (BSC).

This paper focuses on the analysis of strategic management in manufacturing enterprises, with a particular emphasis on human resources, using the HR Scorecard in conjunction with the Balanced Scorecard. One of the key issues in human resource management is that many enterprises do not consider HRM a part of their overall corporate strategy. HR managers often operate in isolation from strategic decision-making, limiting their contributions to organizational success. In some cases, the absence of strategic alignment has led to the underperformance or failure of HR functions.

The HR Scorecard, first introduced by Becker and Ulrich (originally published in 2001), seeks to address this problem. It is a strategic human resource measurement system that supports the measurement, management, and enhancement of HR's strategic role within an organization. The HR Scorecard works in synergy with the Balanced Scorecard, whose primary concept is to provide a balanced overview of financial

and non-financial performance indicators across four perspectives, aligning a company's strategy and vision with goals and measurable outcomes.

The aim of this paper is to examine factors associated with the use of the HR Scorecard, particularly its application in conjunction with the BSC, its linkage to business strategy creation, and its adoption in manufacturing enterprises. In Slovakia, relatively few studies have addressed this method; thus, the authors seek to contribute to the body of knowledge by presenting the HR Scorecard as an effective tool for integrating human resources with overall business strategy. When combined with the Balanced Scorecard, it offers a comprehensive approach to linking enterprise strategy with activities at all organizational levels.

The study was conducted in large manufacturing enterprises in Slovakia with more than 250 employees. Manufacturing constitutes the largest share of the country's GDP. In the current challenging, crisis-stricken period, the industry must address the impacts of economic disruptions. Sustainability in this sector depends strongly on innovation, with Industry 4.0 playing a growing role. Developments such as additive manufacturing and digital transformation affect the value chain, business models, services, and work environments (Prause, 2019; Belás, 2020). By integrating the HR Scorecard with the BSC, enterprises can strengthen strategy alignment, making it an ideal approach for Industry 4.0 contexts, which demand faster processes, greater adaptability, flexibility, and enhanced collaboration among production systems, suppliers, and customers (Cabinova et al., 2018; Wyrva et al., 2020).

The paper is structured as follows: part one presents a review of the literature on the HR Scorecard and Balanced Scorecard; part two outlines the research methodology, sample selection, and statistical data analysis; part three presents research results, verified hypotheses, and statistical findings, supported by figures; part four discusses the results in comparison with existing research and literature; part five concludes the paper, highlighting its key contributions and outlining research limitations.

2. LITERATURE REVIEW

To get the greatest rewards, each corporation must constantly work to grow its business. The best investment outcomes may be obtained from an undertaking with the appropriate strategy. Therefore, the human resources play a vital role in enabling the company's plan to accomplish its goals (Lohana et al., 2022; Mishchuk et al., 2021). Successful companies are built on motivated, educated and contented workforce (Al-Zu'bi et al., 2025; Michulek et al., 2024; Savanevičienė, et al., 2025). In this regard, ensuring the satisfaction with work is important HR function (Szostek et al., 2024). In addition, it is important to pay attention to leadership style, knowledge management, institutional performance, and to monitor the extent of knowledge causes and effects (Urbański et al., 2024; Nguyen & Nguyen, 2025; Zsigmond & Mura, 2023). Human resources were considered a supporting function, their primary task was to take care of wages, track time and resolve disputes between unions and organizations (Xiao et al., 2020; Poór et al., 2018). The human resources function has developed and transformed into a form in which it was neither a peripheral nor a support function. Instead of times when human resources were considered to be sources of sustainable strategic advantage, the role of the human resources manager is to help and enable such resources to contribute effectively and meaningfully to the organizational strategies (Del Mar Alonso-Almeida et al., 2017; Haddock-Millar et al.; 2015).

Such development is connected to the development of initiatives such as the HR Scorecard, as the tools for measuring how well the HR function is aligned with the overall strategic goals of an organization. The main task of current human resources policy is to align the recruitment, remuneration and retention strategies with the organizational strategies (Böckerman et al., 2011). This means that in current organizations, the human resource managers "sit at the top-management table", and simply put, they need

to be aligned with larger organizational strategies. To do so, the HR Scorecard works by providing decision-makers with data, inputs and outputs on all activities in the field of human resources (An et al., 2019).

The operation of the HR Scorecard is to compile a budget for the HR function, identify key cost items and overhead costs that are incurred once, and then translate the costs into how much they benefit the entire organization (Muterera et al., 2016). HR Scorecard is a Balanced Scorecard with a HR approach where Key Performance Indicators (KPI) are based on four perspectives: Financial Perspective, Customer Perspective, Internal Business Process Perspective, and Learning and Growth Perspective (Kundariyah et al., 2022). In other words, the HR Scorecard provides management and the managers with measures and methods that show usefulness and relevance, and how much value each activity contributes to the value, created for the organization (Amelia et al., 2019; Ismail et al., 2019). Regarding the distinction between HR components (human resources productivity that is independent of the company's strategy) and HR management (human resources performance that influences the execution of the company's strategy), this measurement model is highly valuable (Lohana et al., 2022).

The HR Scorecard is linked to its human resources indicators and can be said to be part of the Balanced Scorecard (Rafiq et al., 2020). It measures the performance of HR by finding solutions to the weaknesses of human managerial resources and assist in linking mission vision and strategic objectives (Mardiyah et al., 2021). The Balanced Scorecard was first published by Kaplan and Norton in the early 1990s. In 1996, they both published a book called this. Balanced Scorecard is a strategy performance management tool. The Balanced Scorecard method is a system for measuring the performance of an enterprise, in which it is necessary to take the most important aspects of the business into account. Such aspects are expressed in the vision, mission and strategy of the enterprise. The vision expresses the basic orientation and strategy the way to its implementation. After determining the mission, vision and strategy, it is necessary to define goals, metrics and strategic actions, which are assigned to a specific point of view, known as the perspectives. Assignment to different perspectives is intended to prevent one-sided thinking in deriving and pursuing goals.

Thinking within the perspectives and their interconnection defines the main contexts important for the implementation of the strategy. Based on their research, the authors of the Balanced Scorecard concept, Kaplan and Norton (2007), proposed four perspectives that form the basis of the method. The financial, customer, process and learning and growth perspectives are defined. Each perspective is defined by setting strategic goals in the area. Metrics are chosen for strategic goals, used as starting points for quantitative control. Furthermore, it is necessary to choose target values and strategic actions, through which the company should work towards the goals. The Balanced Scorecard is of great importance for improving strategic alignment in companies by keeping all factors, including financial, satisfaction, integrated companies control and organizational development (Curado et al., 2025; Farchi et al., 2021; Hristov & Searcy, 2025; Jugo & Armas, 2025). Mentioned concept represents management framework that aids businesses in implementing and monitoring their strategies (Damtoft & Lueg, 2025; Ou & and Zhang, 2025; Quesado et al., 2025).

Strategic objectives, benchmarks, targets and strategic actions are linked bonds, based on the principle of cause - effect (Jassem et al., 2018). These targets, benchmarks and values are figured as a strategic map.

The strategic map is perhaps more important than the Balanced Scorecard, which is only a feedback mechanism. It would be good if managers used the Balanced Scorecard together with the strategy map (Yang & Lee, 2020). The primary role of the executive team is to determine the strategic direction.

The strategy map, used to visualize the strategic objectives of the strategy causally linked, followed by the Balanced Scorecard, help answer another question: "How do we get there?" Their purpose is to successfully implement a strategy together. Most executive teams are reasonably able to define a strategy; however, many feel frustrated that they will come up short in the full implementation of their strategy. This

is where the strategic map and the Balanced Scorecard fit. Their combination is a navigation tool that leads the organization to implement the strategy formulated by the executive team (Cokins, 2020).

Based on the literature related to HR Scorecard and Balanced Scorecard for the strategies in different areas, the following hypotheses are defined:

H1: There is a significant relation between HR scorecard and the implementation of HR Balance Scorecard concept.

Such hypothesis is based on the working experience of the enterprises and a common misconception that there is a HR Balanced Scorecard. In fact, HR Scorecard combines HR Scorecard indicators and the Balanced Scorecard concept. The Balanced Scorecard is defined as a tool for managing the overall performance of an organization and fulfilling its strategies. The HR strategy supports the strategy, so the creation of the HR Scorecard also significantly affects the overall performance of the organization. The HR Scorecard takes as a starting point the strategy defined in the Balanced Scorecard and then identifies the HR Scorecard results that lead to such results. The research is designed to find out if the manufacturing enterprises use HR Scorecard in connection with Balanced Scorecard and if the enterprises with implemented Balanced Scorecard use the HR Scorecard.

H2: There is a significant relation between using HR Scorecard and the strategy of the enterprise.

The hypothesis is based on the fact, that HR scorecard is a strategic system for measuring human resource performance that helps measure, manage and improve the strategic role of the HR department and is a part of the strategy. The main indicators are measurements that predict the future growth of the enterprise. They are also known as HR metric and more specifically HR KPIs, because they are metrics that are related to the personnel strategy linked to the strategy of the enterprise. Part of the investigation was to determine whether the selected companies had a defined strategy.

H3: More than 25% of the enterprises use either HR Scorecard strategy maps or Balanced Scorecard strategy maps.

The hypothesis is based on the fact that the key success of an organization is to establish the right and ambitious vision and corporate strategy. For this reason, the evaluation of set goals and indicators is extremely important for the future competitiveness. A strategic map can be created to identify how the HR Scorecard is linked to the Balanced Scorecard goals. The strategy map helps identify how HR supports the business goals. The HR Scorecard answers the question: which human resources practices manage the strategic goals?

H4: There is a significant relation between the use of the HR Scorecard and the enterprises with foreign participation.

HR Scorecard supported by the Balanced Scorecard concept is used mainly abroad and is relatively uncommon in the environment of the Slovak enterprises. Such assumption is also confirmed by the research of Bain and Company (2024), where the Balanced Scorecard concept is used by almost half of the enterprises in Western Europe and America, in contrast to Slovakia, where the use is about 10% only, as reported by (Lesáková & Dubovcová, 2016).

3. METHODOLOGY

The research is focused on the issue of HR Scorecard, which is connected with the concept of Balanced Scorecard. The main task of these tools is to achieve the strategic goals of the enterprises and thus contribute to better competitiveness in the market with the aim of sustainable business development.

The aim of the research is defined on the basis of the hypotheses, statistically verified. The questionnaire research as a suitable source of data collection is chosen as the most important research method. The questionnaire method is one of the most commonly used tools for such research, as it compiles

a logical structure of questions through which we can obtain the views of respondents on the issue are obtained. The authors of the paper used the Google-form application to create and distribute the questionnaire.

The questionnaire survey took place from June to December 2023. The research was solved within the project of economic relations in managerial positions and the project focused on social factors of human resources. The research sample consisted of industrial enterprises, classified according to SK NACE. SK NACE represents the classification of economic activities issued by the European Commission. For the needs of the research, the authors use classification C, manufacturing enterprises (SK Nace, 2022). To address the respondents, the Entrepreneur's Index database and the Slovak Business Agency database was used (Index podnikateľ'a, 2024).

The questionnaire consisted of several types of questions, including the choice of options that the respondent should choose, or with the possibility of writing their opinion, and the questionnaire also contained using Likert scale. The Likert scale contained a point scale from 1 to 5 points, ranging from strongly agree to strongly disagree. The structure of the questionnaire consisted of identification and research questions. The identification questions concerned the ownership, size and focus of the business.

When examining the ownership of the enterprise, the questionnaire responses were divided into the following categories: private enterprise with a Slovak owner, private enterprise with a foreign owner, private enterprise owned by a Slovak owner with foreign participation and state-owned enterprise. The survey focused on large enterprises with 250 employees and more. To limit the enterprises in this category, the respondents were also asked a question focusing on the size of the enterprise in accordance with the European Commission Recommendation No. 2003/361/EC, which classifies enterprises into micro enterprises with up to 9 employees, small enterprises with 10 to 49 employees, medium enterprises with 50 to 249 employees and large enterprises with more than 250 employees. When examining the business focus, enterprises were divided into different areas such as industry, IT sector, construction, etc.

The research questions were focused on the researched issue itself and whether the enterprise has implemented the Balanced Scorecard concept as well as the HR Scorecard. The questions were also focused on strategy, i.e. the respondents were asked whether they have a defined corporate strategy and whether they implement it in their business activities. An important part of the research was the focus on the use of strategy maps in relation to the Balanced Scorecard concept and also the HR Scorecard. To investigate the relationships, the question was defined whether they use these maps in their business activities.

The probability theory was used to choose the enterprises, as it is used to generalize the results to sample. In the research, the authors used a random selection so that each enterprise had the same opportunity to become an element of the research sample. The questionnaire was limited to large companies with more than 250 employees. Another condition for the selection of the enterprises that had to be met was that the enterprise must be economically active, i.e. it had to carry out a production activity.

In total, the authors addressed 596 large companies operating in manufacturing production. Out of the total respondents, 164 responses were returned, representing a return rate of 27.51%.

To analyse the answers from the respondents, the research methods such as the descriptive statistics, contingency tables are used, supported by the analysis, comparison, synthesis, selection, induction and deduction. The method of analysis was used to examine enterprises operating in different sectors of the national economy in the context of Industry sector. The method of synthesis was used to define the enterprises operating in the Slovak Republic, where the OKEČ and NACE classification of enterprises was used. The comparison was used when examining the data in connection with enterprise ownership and the use of the Balanced Scorecard and HR Scorecard concepts. The method of induction was used in the study of phenomena that have common characteristics and belong to one common class, which in the conducted

research is represented by enterprises operating on the territory of the Slovak Republic according to the OKEČ and NACE classification.

To verify the hypotheses, Pearson's Chi-square test is used, based on measuring the differences in actual frequencies in cells, compared to expected, where the expected cell frequency is calculated as the ratio of the product of marginal frequency of the row and column and the total number of the respondents. In the conducted research, we examined the compliance, homogeneity and independence of individual variables. The homogeneity test was used for categorical variables such as enterprise ownership, size in relation to the implementation of Balanced Scorecard, HR Scorecard and the use of enterprise strategy in the implementation of its business activities. In verifying one hypothesis, the method of proportion of the phenomenon in the population is used, measuring the number of respondents with positive and negative answers and verifying them using the reliability of the test, at the level of 95% and it is rated by the coefficient of 1.96. The appropriate formulas are given in Table 1.

Table 1

Formulas explanation

| Indicator | Formula | Explanatory note |
|--|---|---|
| Pearson's Chi-square Test of Independence | $\chi^2 = \sum \frac{(f_e - f_t)^2}{f_t}$ | χ^2 – the Chi-square value subsequently compared to a table value based on the selected error probability, f_e – the empirical frequency of observed variables, f_t – the theoretical frequency of observed variables. |
| Population proportion | $p = \hat{p} \pm z_\alpha * \sqrt{\frac{\hat{p} * \hat{q}}{n}}$ | \hat{p} – the proportion of the given phenomenon in the selected sample, q – the proportion of the opposite phenomenon in the selected sample, n – sample size, z_α – degree of reliability. |

Source: Marcheová et al. 2011

4. EMPIRICAL RESULTS AND DISCUSSION

4.1. Empirical results

The research focuses on the HR Scorecard, linked to the Balanced Scorecard concept. This means that the enterprises using the HR Scorecard should also use the Balanced Scorecard concept. By verifying the hypothesis, the authors tried to prove a statistically significant relationship between the use of HR Scorecard and the implementation of the Balanced Scorecard concept. The results of the hypothesis testing are shown in Table 2.

Table 2

The results of testing hypothesis

| Research hypothesis | Size of the enterprise | N | Average | Standard deviation | Error profitability | p - value |
|--|------------------------|-----|---------|--------------------|-------------------------|-----------|
| There is a significant relation between HR Scorecard and the implementation of HR Balanced Scorecard concept. | large enterprise | 164 | 1.043 | 0.185 | α = 5% (0.05) | 0.04753 |

Source: own processing

The selection of questions from the questionnaire was focused on the questionnaire, which indicated the possibility that they use the concept of Balanced Scorecard and also use the HR Scorecard. We selected the mentioned companies that mentioned these options as variables in terms of the number of companies and examined the dependencies between the given factors. The questionnaire clearly stated whether the company used the Balanced Scorecard concept, whether it only knew it or did not come across this concept. Similarly, a question focused on the HR Scorecard was constructed, i.e. whether they use the HR Scorecard or just know or have not encountered this management tool.

Pearson's Chi-square is used to test the hypothesis. The value calculated using this test was $p = 0.04753$, which is less than $\alpha = 0.05$. Based on the above, there is a statistically significant relation between the use of HR Scorecard and the implementation of the Balanced Scorecard concept. The **hypothesis is accepted**.

The corporate strategy is a factor and a document necessary to achieve the objectives and the overall sustainability of the enterprise. The corporate strategy also includes the definition of the goals related to human resources. Such goals, following the overall strategy of the enterprise, are set through the HR Scorecard. By achieving the goals of the HR Scorecard, the enterprise also achieves other business, financial and process goals. In this context, a hypothesis is defined that there is a statistically significant relation between the use of the HR Scorecard and the creation of the corporate strategy. The results of the hypothesis testing are shown in Table 3.

Table 3

The results of testing hypothesis

| Research hypothesis | Size of the enterprise | N | Average | Standard deviation | Error profitability | p - value |
|--|------------------------|-----|---------|--------------------|-----------------------|-----------|
| There is a significant relation between using HR Scorecard and the strategy of the enterprise. | large enterprise | 164 | 1.065 | 0.201 | $\alpha = 5\% (0.05)$ | 0.03251 |

Source: own processing

The questionnaire was created to verify the established hypotheses and focused on the HR Scorecard management tool, the Balanced Scorecard concept and also on the creation of business strategies, which are necessary for the use of HR and Balanced Scorecard. In evaluating the above hypothesis, we examined the questions from the questionnaire, in which the respondent answered whether they create business strategies and also use the HR Scorecard. These numbers of enterprises formed our variables. The creation of a company strategy was the main indicator for the hypothesis under study. The selected companies indicated in the questionnaire whether they had a defined strategy, whether it was confirmed by a formal document, or whether the strategy was only defined informally through set goals. Part of the investigation also included whether all employees or only top management were familiar with the company's strategy.

As in testing the first hypothesis, Pearson's Chi-square test is used in this case. The calculated value was $p = 0.03251$ which is a value lower than $\alpha = 0.05$. It means that here is a statistically significant relation between the use of the HR Scorecard and the creation of the corporate strategy. The above-mentioned **hypothesis is accepted**.

The successful implementation of the HR Scorecard in the enterprise is connected with the creation of a strategic map. The strategic map clearly identifies the link between human resources objectives and overall business objectives. This map is complemented by the strategic map of the Balanced Scorecard. In this context, it is tested whether the enterprises, using the HR Scorecard have also processed an HR strategic map or a strategic map of the Balanced Scorecard, which is key to the success of creating and controlling

strategic goals. As a hypothesis, it is assumed that more than 25% of the enterprise use HR Scorecard strategic maps or strategic map of the Balanced Scorecard. To verify the hypothesis, the method of proportion of the phenomenon in the population is used. The results are shown in Table 4.

Table 4

The results of testing hypothesis

| Research hypothesis | Do you use the HR Scorecard strategy maps or Balanced Scorecard strategy maps. | N | Average | Standard deviation |
|---|--|----|---------|--------------------|
| More than 25% of the enterprises use either HR Scorecard strategy maps or Balanced Scorecard strategy maps. | Yes, the company uses it. | 46 | 2.957 | 0.184 |
| | No, but the company is thinking about it in the future. | 86 | 2.704 | 0.165 |
| | No, the company is not considering it yet. | 32 | 1.057 | 0.225 |

Source: own processing

Table 5 shows the calculation for the proportion method of a given phenomenon in the population for the use of HR Scorecard or Balanced Scorecard strategy maps.

Table 5

The results of testing hypothesis

| | |
|------------------|---|
| Calculation | $p = 0.2804 \pm 1.96 * \sqrt{\frac{0.2804 * 0.7195}{164}}$ $p = 0.2804 \mp 0.03508$ |
| Calculated value | $0.2117 \leq p \leq 0.3492$ |

Source: own processing

Verifying the hypothesis using the above-mentioned method revealed the results ranging from 21.17% to 34.92%. As the lower percentage is below 25%, the HR Scorecard strategic map or the Balanced Scorecard strategic map is not used by the expected number of the enterprises. Therefore, the **hypothesis is not accepted.**

Last hypothesis focuses on the ownership of an enterprise that uses the HR Scorecard. It is assumed that the HR Scorecard, or the Balanced Scorecard concept, which the HR Scorecard fits under, is used abroad, especially in the countries of Western Europe and America, and it is much more used than in our country. The hypothesis assumes that there is a statistically significant relation between the use of the HR Scorecard and companies with foreign participation. Table 6 shows the results of the hypothesis validation.

This hypothesis followed the questions from the questionnaire, which concerned the ownership of companies and the use of HR Scorecard. In the case of equity participation, enterprises were divided according to owners into enterprises with foreign ownership, enterprises with domestic ownership, or mixed enterprises with domestic and foreign ownership. Another question was related to the use of the HR Scorecard, where companies stated whether they use this management tool or not.

Table 6

The results of testing hypothesis

| Research hypothesis | Ownership of the enterprise | N | Average | Standard deviation | Error profitability | p - value |
|--|---|----|---------|--------------------|-----------------------|-----------|
| There is a significant relation between the use of the HR Scorecard and the enterprises with foreign participation. | private enterprise with a Slovak owner | 22 | 2.137 | 0.210 | $\alpha = 5\% (0.05)$ | 0.21321 |
| | private enterprise with a foreign owner | 84 | 1.365 | 0.144 | | |
| | private enterprise owned by a Slovak owner with foreign participation | 53 | 1.352 | 0.189 | | |
| | state-owned enterprise | 5 | 1.031 | 0.115 | | |

Source: own processing

To verify the hypothesis, Pearson Chi-square test is used. The resulting value of $p = 0.21321$ is a value higher than the $\alpha = 0.05$. Verifying the hypothesis there is no statistically significant relation between the use of the HR Scorecard and the enterprises with foreign participation. The **hypothesis is not accepted**.

4.2. Discussion

The research described in the paper focuses on the issue of strategic management related to HR Scorecard as a part of Balanced Scorecard concept. The topic of Balanced Scorecard is discussed by a number of studies and research; however there are much less studies related to the connection of the method with the HR Scorecard. Lohana et al. (2022) designed and evaluated an organization's performance using the HR Scorecard method to establish the priority weight of strategic objectives and important performance indicators. This analysis resulted in 16 strategic objectives and 20 key indicators and 17 delays hands. Research of Fadhil et al. (2017) states that HR Scorecard is a combination of HR and Balanced Scorecard indicators. The HR Scorecard is also listed as part of the BSC (Tabatbei et al., 2017). In this context, the authors of the paper focused on the use of HR Scorecard in the implementation of BSC. The resulting value of $p (0.04753)$ confirms a statistically significant relation. The study of Roziq et al. (2021) also founded that the alignment of investment in HR (human capital) and organizational strategy is mediated by strategic performance management system namely Balanced Scorecard. The investment in HR has positive impact on organizational performance as well as positive contribution to value creation and competitive advantages of the organizations. On the other hand, Murad and Asaduzzaman (2014) state that HR as leading indicator mostly spawn stronger competency that causes sustainable competitive advantage. According to the authors, HR is connected to learning and growth perspective of Balanced Scorecard. Their research leads them to conclude that a declining or static learning and growth viewpoint without any further upgrading results in a waning of Balanced Scorecard.

The use of the HR Scorecard is also related to with the corporate strategy. Without formulating a strategy, it is neither possible to create an HR Scorecard nor a Balanced Scorecard. Giannoukou and Beneki (2018) states that the creation of HR management strategies and their connection with corporate strategies lead to a better understanding of the relations of the stakeholders, including the employees as the rare capital of the organizations. The resulting value $p (0.03251)$ shows that there is a statistically significant relation between the use of the HR Scorecard and the creation of the corporate strategy.

According to the of Ingham's study (2011), the best way to link analytics and strategy is through a HR Scorecard. This scorecard should be based on a strategy map like the original balanced business scorecard, which links inputs, HR activities and human capital outputs together and also shows how these are linked

to HR's impacts in the business. Strategic maps visually show the whole chain of relations between causes and consequences between organizational means and tangible results (Slapničar & Buhovac, 2014). As reported by Wu (2019), management can better invest limited resources in the areas that need improvement most through the logically constructed strategy map.

BSC and HR Scorecard are interrelated. Manville et al. (2019) states that adjusting indicators in the HR Scorecard improves the financial results, if the customers are satisfied. All of it is illustrated through different phases of the strategic map. In the paper, the authors tried to find out the number of enterprises actually using HR Scorecard or BSC strategic maps. The answers of the respondents revealed that not even a quarter of the participants use strategic maps.

The HR Scorecard linked to the Balanced Scorecard concept is widespread in Western countries. According to the research of Gartner Group (2023) about a half of the manufacturing enterprises use it. Rigby and Bilodeau (2021) in the survey show the rate of use of Balanced Scorecard in small and medium enterprises at the level of 40%. Research conducted by Lesáková et al. (2017) carried out in the Slovak Republic, revealed the rate of use of 10%. Based on a comparison of such usage in Western countries and in the Slovak Republic, the authors verified if HR Scorecard is used by the enterprises with foreign participating. The calculated value of p (0.2132) does not confirm such relations. It means that neither Slovak nor foreign ownership affects the use of the HR Scorecard and the Balanced Scorecard.

5. CONCLUSION

This study analyzes the use of the HR Scorecard method in relation to the Balanced Scorecard concept, using the example of large manufacturing enterprises in Slovakia. The results confirm a statistically significant relationship between Balanced Scorecard implementation and HR Scorecard usage, as well as between HR Scorecard application and enterprise strategy formation. At the same time, less than 25% of the surveyed enterprises actually use the HR Scorecard, and no significant relationship was found between the use of this tool and foreign ownership of the enterprises.

From a practical point of view, the study confirms the importance of strategy formation as a prerequisite for successful HR Scorecard and Balanced Scorecard implementation. Managers should consider these tools in an integrated manner to align human resource management goals with the overall enterprise strategy. The findings also point to the potential for wider HR Scorecard adoption in Slovak enterprises compared to the current level.

From a scientific point of view, the study contributes to expanding the limited knowledge about HR Scorecard usage, especially in relation to the Balanced Scorecard. Further research could focus on studying the factors that facilitate or hinder HR Scorecard implementation, as well as assessing the impact of this tool on enterprise performance in the long term. It would also be appropriate to investigate HR Scorecard application in other industries and enterprise sizes.

In relation with the research, it is also necessary to mention the limits that had an impact on the results. One of the limiting factors would be the size of the enterprise, as the authors focused only on large enterprises and the results in small and medium-sized companies could be different. The limiting factor is also the chosen sector focused on manufacturing industry. In the current crisis period, the results may be different in more affected sectors, as each sector has its own differences and specificities that affect its functioning.

The limitations of the study include the country in which the research was conducted. The business environment in Slovakia is different in some areas than, for example, in Western European countries. The countries of Central and Eastern Europe, including Slovakia, belonged to the sphere of influence of the former Soviet Union and only entered the market environment in the 1990s. Western European countries

have been doing business in a market environment for a long time and have much more experience with innovative management concepts. Within the limits, it is therefore necessary to mention that the results in other countries, especially in Western European countries, may be different from the results achieved in the Slovak environment.

In terms of further research in the field of strategic management, the authors would like to focus on modern management methods and trends. However, such methods need to meet environmental, social and economic sustainability factors. Sustainability is the way to enable society to move forward and help maintain a resource-efficient approach.

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