Examining the Relationship between Acquisitions, Human Capital and Knowledge Transformation, and its Impact on Organizational Performance

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Abstract: The article aims to provide objective and scientifically relevant knowledge on the impact of acquisitions on human capital and organizational performance. The theoretical background covers the relationship between human capital and organizational performance, as well as the various organizational and contextual factors that may influence this relationship. To achieve the research objectives and test the hypotheses, the study used qualitative and quantitative research methods. These methods have enabled us to examine the relationship between observed variables, test research hypotheses, and provide an alternative interpretation of the relationship between variables.

Overall, the study provides important insights into the impact of acquisitions on human capital and organizational performance. The findings can be used by organizations to better understand the potential benefits and risks of acquisitions and to develop effective strategies for managing the human capital and knowledge of the acquired company.

Keywords: Organizational performance, relationship, human capital, knowleadge, impact of acquisitions.

1. INTRODUCTION

This passage highlights the importance of human capital as a key factor in achieving good business results and sustainable competitive advantage in modern conditions. Unlike in traditional business settings where material and financial resources were crucial for success, intangible resources such as human capital are increasingly important in today's environment. Human capital refers to the knowledge and skills possessed by employees, which can lead to creativity, innovation, motivation, loyalty, responsibility, and flexibility. These qualities can differentiate one organization from others and help them achieve better business results. The central component of human capital is the knowledge of employees, which they bring with them to the organization and continue to develop during their work. The relationships employees have with themselves after leaving the organization also contribute to this knowledge. Therefore, management must prioritize attracting, developing, and retaining valuable human capital to achieve organizational success.

In order to preserve and develop human capital, a strategic approach to human resource management is needed. This involves the active involvement of the human resources function in defining the organization's mission, vision, and goals, as well as in making strategic decisions. The development and dissemination of knowledge within the organization is a key activity of strategic human resources management. Various knowledge management techniques and strategies can be used to identify, develop, and transfer implicit and explicit knowledge between employees, which is essential for innovation, creativity, achieving competitive advantage, and achieving desired performance. Given the many challenges that human capital faces in the modern business environment, a strategic approach to human resource management is crucial for organizations that want to succeed and thrive.

The text discusses the impact of human capital on organizational performance after mergers and acquisitions. While there is often an increased investment in employee education and training after acquisitions to improve competencies and results, the influence of human capital on performance depends on various organizational and contextual factors, particularly the diversity of knowledge and skills of employees. While similar human capital is assumed to lead to faster performance growth, it overlooks the fact that employees in the same industry are often unwilling to cooperate, create, and exchange knowledge, which can lead to unwanted or negative trends in performance in the long term. Diversifying human capital, i.e., having differences in employee knowledge and skills, has a positive effect as it motivates employees to learn, create, and exchange knowledge. This can lead to an increase in total human capital in the organization and, consequently, long-term positive performance. Ad-

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ditionally, having diverse knowledge in the organization can lead to the exploitation of new market opportunities. The development of employee knowledge can be further enhanced through job rotation, identification and codification of explicit knowledge, and the exchange of implicit knowledge within the organization, further improving overall human capital.

The text discusses the importance of human capital in the context of acquisitions, with a focus on its impact on organizational performance. It highlights the need for additional analysis due to the complexity of the phenomenon of human capital and the multidimensional nature of performance. The main goal of the article is to determine objective and scientific knowledge about the impact of acquisitions on human capital and organizational performance. This goal is supported by three derived goals: the acquisition of relevant knowledge about the impact of acquisitions on human capital, the impact of acquisitions on achieved organizational performance, and how human capital affects business success in the context of acquisitions. The article is based on three relevant hypotheses, which suggest that companies increase their own human capital after the acquisition process, human capital has a positive impact on organizational performance after acquisitions, and the influence of human capital on organizational performance is greater in international than in domestic acquisitions.

2. LITERATURE REVIEW

2.1. Performance Related to Human Capital and its Measurement

Some accounting measures of human capital and human resource performance were developed last century. By calculating certain indicators, managers try to measure the contribution of employees and their productivity to the achieved organizational performance, in order to create a basis for controlling the behavior of employees, improving individual productivity and thus overall organizational performance (Stephen Gates, Pascal Langevin, 2020). In accordance with the used accounting criteria, compensation systems were developed, which implied the behavior of employees towards the achievement of short-term goals in order to obtain the desired rewards, which are also of a financial (Edden Guy, 2020). In addition to the short-term motivation of employees, the exclusive application of accounting criteria of human capital leads to short-term improvement of the overall performance of the organization, and not to the creation of long-term value.

Integrating accounting and non-financial measures when determining the contribution of an organization's human capital is necessary for several reasons (Stephen S Lim, Rachel L Updike, Alexander S Kaldjian, Ryan M Barber, Krycia Cowling, Hunter York, Joseph Friedman, R Xu, Joanna L Whisnant, Heather J Taylor, Andrew T Leever, Yesenia Roman, Miranda F Bryant, Joseph Dieleman, Emmanuela Gakidou, Christopher, 2018): determining future investments in employees, improving the policy and practice of human resources management, connecting the strategy of human resources with the strategy of the organization, building intellectual capital, motivating and retaining employees. The application of value criteria in the domain of human capital, along with the application of the aforementioned criteria, enables the organization and managers to better understand the value created by employees with specific knowledge and skills, as well as whether the investment in them has led to the creation of the expected value (Bagieńska Anna , 2015).

When designing a system for measuring the performance of human capital, the key question relates to what the organization wants to measure, while it should be borne in mind that some financial indicators, such as productivity, return on investment in training, sales revenue per employee, and the like, they depend on numerous emotional and psychological factors of employees (Feather, 2008). What needs to be kept in mind when measuring the performance of human capital is that there is no single best criterion that can be universally applied in different contexts, the significance of the criterion varies depending on a large number of organizational factors, and that the existence of a high degree of human capital does not mean simultaneously achieving good performance (Chrysler-Fox, P.D., & Roodt, G. , 2019). The above once again confirms the fact that the possession of unique resources does not in itself mean the creation of value and competitive advantage, but it is necessary to engage them in a unique way in order to fully utilize their potential.

Given that human capital represents a component of intellectual capital, the measurement of achieved performance implies two dimensions: the performance of intellectual resources and the performance of the use of intellectual resources. The performance of intellectual resources refers to the characteristics of the resources themselves. When it comes to human capital, we mean characteristics such as specific knowledge, skills, experience, commitment to the organization, motivation and the like. The second dimension, i.e. the performance of the use of intellectual resources, has greater importance, because it shows exactly how the unique characteristics of intellectual resources create value. In order to make better use of the unique characteristics of human capital, that is, the skills and abilities of employees, it is necessary to manage the performance of the use of human resources in a certain way, whereby the process itself consists of four activities (Koziol, W., Mikos, A., 2019):

1. Performance planning: it involves determining the goals that each employee should achieve, as well as setting standards and training employees so that they can achieve the best possible results in their work.

2. Guidance aimed at improving performance: additional employee education, motivation, leadership and employee development.

3. Reporting on the achieved performance: employees must be regularly given feedback on the achieved results in order to motivate them to work or to apply corrective measures.

4. Rewarding: for the achieved performance, employees must be rewarded with those rewards that are significant for them.

Intellectual performance of the mentioned type is found in the harmonized list of results and its perspectives, especially the one concerning learning and development. The aforementioned learning and development perspective includes the dimensions of human capital, i.e. the specific knowledge and skills of employees, but also the dimensions of technical, that is, organizational capital, which refers to organizational culture, value system, teamwork and leadership (Palomar-Lever J, Victorio-Estrada A., 2019).

In addition to the harmonized scorecard, a number of other performance measures can be used in combination in measuring human capital performance. At the very beginning of the development of the idea that human capital can significantly contribute to the realization of good organizational performance, all efforts towards measuring the performance of human capital were mainly directed towards the calculation of costs associated with human resources , with the aim of minimizing them. The mentioned approach points out that investments in human resources were treated as an expense, not as an investment, and this attitude was characteristic of the period of dominance of material and financial assets, as key sources of organizational success (Chloe Austerberry, Pasco Fearon, Angelica Ronald, Leslie D. Leve, Jody M. Ganiban, Misaki N. Natsuaki, Daniel S. Shaw, Jenae M. Neiderhiser, David Reiss, 2022). Today, however, employees and their knowledge represent a key factor of success, value and competitive advantage, and investing in them is seen as an investment that should provide above-average results, and therefore different approaches are needed in measuring the achieved performance. Consequently, the traditional approach to measuring the performance of human capital involved monitoring and controlling the costs associated with employees, while the modern approach views employees as a unique resource that leads to competitive advantage and, accordingly, implies the combined use of financial, non-financial and value performance measures (Timo Gnambs, Carrie Kovacs, Barbara Stiglbauer, 2020).

To develop a human capital performance measurement system that respects the aforementioned criteria, an organization can follow one of three approaches (Alfiero, S., Brescia, V. & Bert, F. , 2021):

1. Identify all possible criteria related to human capital, and then, through the audit process, determine the ones that are most important for the realization of value and measure them exclusively. If some of the mentioned criteria show a significant correlation after some time, it is possible to further reduce the total number of criteria to a few key ones.

2. Identify key performance indicators of human capital that are most important for creating good organizational performance.

3. Make a comparison with other organizations in the same branch of activity, which achieve above average results in work and, if possible, identify and use their human capital performance measures.

In order for human capital measures to be effective, the performance measurement system must be able to adapt to changes in the environment and changes in human resource management practices, include all relevant measures for achieving good organizational performance, include managers from different organizational levels in the design, given that they know their own functions best, and the benchmarks themselves must be communicated to employees so they know what is expected of them. Finally, a regular review of performance measures is implied in order to improve them (Hiltrop and Despres, 1994).

Identify a number of different financial and non-financial performance measures of human capital, which should be highlighted (Carlos Lassala, Maria Orero-Blat & Samuel Ribeiro-Navarrete, 2021):

• revenue per employee,

• expenses per employee,

• percentage share of wages in realized income,

• benefits per employee,

• costs of hiring new employees,

• expenses of the human resources management department and their participation in the overall cost structure of the organization,

• absenteeism rate,

• rate of voluntary and involuntary leaving the organization.

From the above, it can be seen that the authors emphasize the financial and accounting criteria of human capital. Hunter et al. (2005) follow a different approach in identifying potential performance measures of human capital and, in addition to accounting, they also single out non-financial measures, which can be of particular importance for building intellectual and,therefore,human capital (Table **1**).

Table 1. Measures of human capital.

Performance indicator	Performance measures
Information Technology	The level of computer literacy, investment in information technology per employee, investment in the development of computer skills, ratio of investment in information technology to the number of employees.
Employees	Investment in education, number of hours of training, percentage of employees with higher education, ratio of the number of employees who have been promoted to the total number of employees, absenteeism rate, profit per employee, income per employee, added value per employee, degree of motivation, employee satisfaction index, turnover rate , number of hours spent performing mentoring activities, budget for employee education..
Research & Development	Investment in research and development, ratio of investment in research and development and added value, number of patents, number of quality certificates, rate of return on investments in projects, income from patents..

Source: Adapted from: Hunter, L., Webster, E., & Wyatt, A. (2005). Measuring intangible capital: a review of current practice. Intellectual Property Research Institute of AustraliaWorking Paper No. 16/04, p. 436-46.

3. METHODOLOGY

3.1. Conceptual Framework of Empirical Research

The key success factor and sustainable competitive advantages of organizations in modern business conditions are no longer physical assets and money, but intangible and intangible resources, such as the knowledge and skills of employees. The aforementioned intangible assets of organizations are presented in the concept of intellectual capital, in which human capital, in addition to structural and relational capital, plays a key role in achieving good business results. Human capital, as a component of intellectual capital and the most important asset element of modern organizations, represents a combination of knowledge, skills and innovation of employees to perform tasks, but human capital also refers to the values, culture and philosophy of organizations (Bontis, 2001). The central component of human capital is the knowledge of employees, acquired through formal education and during work, as well as their creativity, talent, ability to learn new things, motivation, loyalty, commitment to the organization, flexibility, self-efficacy, responsibility and readiness for teamwork. The key components of human capital are also training, education and other initiatives and processes that come from the function of human resources management, which aim to improve knowledge, skills, abilities, attitudes and other factors through which the growth of employee productivity will be ensured, and team and overall organizational performance (Kemboi et al., 2014). Human capital can often be seen as consisting of four parts, i.e. components related to their knowledge and abilities, willingness to work and learn new things, as well as their motivation (Fitzenz, 2000). Accordingly, human capital is something that employees bring to the organization when they are hired, develop during work and education on the job, and take with them when they leave the organization (Wei, 2015). Therefore, the goal of every organization is to identify, attract and retain quality, that is, the best human capital.

3.2. Subject and Objectives of Empirical Research

Acquisitions represent a strategic activity of organizations, which is carried out in order to achieve various goals, among which is the acquisition of employees with specific knowledge and skills, that is, human capital. Traditionally, acquisitions were carried out in order to achieve financial and technical benefits, which were also a key factor in the success of organizations. However, today acquisitions are also approached in order to gain employees with highly developed technical knowledge, abilities and skills, highly functional and development teams that will enable the creation of new products and services much faster and more efficiently than the organization could develop with its own capacities (Napier, 1989; Ranft and Lord, 2000). Starting from the resource-based approach, the organization will achieve a sustainable competitive advantage if there are resources that are rare, valuable, difficult to imitate and unsuitable for substitution (Barney, 1991). Human capital, i.e. the knowledge, skills, abilities and experiences of employees, represent one of the key success factors and competitive advantages, since competent employees possess rare knowledge that cannot be copied, which are effectively combined to create high-quality products and services (Boon et al., 2018). Therefore, acquisitions represent a strategy that can acquire talented employees with specific knowledge, which will provide numerous benefits to the organization (Schuler and Jackson, 2001).

Human capital has been shown to have a statistically significant and positive impact on achieved organizational performance. Precisely because human capital leads to the growth of efficiency and effectiveness of organizations, it can be considered the most important component of intellectual capital. Therefore, building human capital should not be seen as an expense, but as an investment that will lead to good organizational performance and value creation. In order for human capital to enable the creation of value after implemented status changes, i.e. completed acquisitions, it is necessary that it be included in the strategic activities of organizations, be flexible and able to be used in different ways and provide multiple beneficial outcomes, but the most important thing is that employees are willing and ready to develop human capital, especially by mutual exchange of knowledge, resources and ideas with employees coming from another organization, with which the integration was carried out (Gupta and Roos, 2001; Fulghieri and Sevilir, 2011). If the acquisition process is carried out correctly, it leads to the improvement of human capital, but also to the realization of a statistically significant and positive impact of it on the achieved organizational performance in the post-acquisition period (Jordao et al., 2017; Siegel and Simons, 2010; Luo et al. , 2017; Eisfeldt and Papanikolaou, 2013).

Bearing in mind the above, it can be concluded that the subject of empirical research includes the role and importance of human capital in organizations that are covered by status changes, that is, that are covered by acquisition processes. The subject of the research is the impact of human capital on organizational performance before and after the acquisition. Based on the previously defined research subject, the main objective of the empirical research is to determine the relevant knowledge about the impact of acquisitions on the change of human capital, as well as how such a change affects the achieved organizational performance. Respecting the basic goal, the corresponding derivative goals of the empirical research can also be determined: examine the impact of acquisitions on the degree of change in human capital of those organizations that are included in the acquisition process, that is, that are taken over by other organizations; determine the impact of human capital on the achieved organizational performance in the context of acquisitions, that is, after the takeover process; determine the degree of diversity in the achieved organizational performance of those organizations that were included in domestic and international acquisitions; examine the existence of differences in the degree of influence of human capital on the achieved organizational performance of acquired organizations, in the context of domestic and international acquisitions.

3.2.1. Research Methodology

The text discusses the research methodology used in an empirical study that aims to investigate the relationship between human capital and organizational performance in the process of acquisitions. The study utilized both qualitative and quantitative methods appropriate to the problem area and research hypotheses. Systemic thinking and analytical scientific methods were used to decompose and understand the complex phenomenon of human capital and its impact on organizational performance. The inductive-deductive method was applied to determine the influence of certain elements and processes on human capital and how it affects acquisitions. Additionally, comparison methods were used to determine

RESEARCH MODEL AND HYPOTHESES

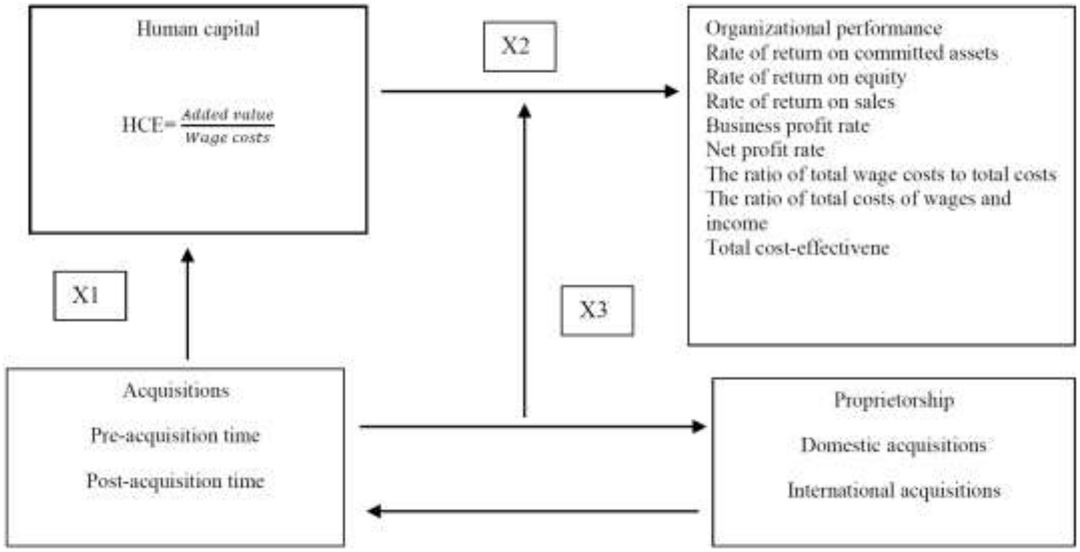

Fig. (1). shows the research model that should represent the relationship between the research variables.

Source: Author

the costs and benefits of investing in human capital and the degree of impact on organizational performance in different types of acquisitions. The study collected data from the official financial reports of 110 organizations that underwent the acquisition process, and relevant balance categories were analyzed to determine the impact of the acquisition process on human capital creation and its impact on organizational performance. Overall, the study utilized a rigorous and systematic approach to investigate the research problem and provide relevant and objective scientific knowledge.

4. ANALYSES

4.1. Independent and Dependent Variables

The text discusses the challenge of examining the influence of an independent variable, such as human capital, on a dependent variable, such as organizational performance, particularly when dealing with intangible assets. Brown et al. (1995) suggest that instead of examining the influence of an independent variable on a single dependent variable, it is necessary to look at the influence on multiple dependent variables over a longer period of time.

Brown et al. (1995) suggests that instead of looking at the influence of an independent variable on a single dependent variable, it is important to examine its impact on multiple dependent variables over a longer period of time. For example, when examining the performance of mergers and acquisitions, the author suggests looking at a period of 3 years before and after the integration process, excluding the year in which the merger or acquisition was carried out.

In the context of acquisitions, the independent variable is represented by human capital, which is determined using the VAIC (Value Added Intellectual Capital) model. This model consists of three components: human, structural, and relational capital. The starting point for determining these components is the determination of added value, which is then divided by the wages paid to employees. This quantification of the independent variable allows for a more concrete and measurable representation of the influence of human capital on organizational performance over tim.

VA = IN – OUT

$$HCE=\frac{VA}{\begin{array}{c}Salary\ expenses, salary\ compensation\\ and\ other\ personal\ expenses\end{array}}$$

To summarize, the dependent variable in the model is organizational performance, which is measured through accounting indicators. Using accounting measures provides objective and reliable information about the realistically achieved result, which is relevant to a large number of investors and stakeholders. Accounting indicators are characterized by measurability, reliability, and relevance, and are exact quantitative indicators that are found in official financial reports. Measuring organizational performance through accounting indicators allows for the avoidance of subjective assessments of managers and can be applied to all forms of organizations of Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA), and the method of calculation of earnings per share (EPS).

ROA is a ratio that measures the profit generated by an organization relative to the assets it has employed, and it is calculated by dividing the net profit by the total assets. The rate of return on own funds is calculated by dividing net profit by equity, while the rate of return on sales is calculated by dividing the net profit by sales revenue. The rate of business and net profit is calculated by dividing the net profit by total income, while the ratio of total wage costs to total costs is calculated by dividing total wage costs by total costs.

The ratio of total wage costs to total income and total economy is calculated by dividing total wage costs by total income or total economy, respectively. EBITDA is a measure of an organization's operating profitability, calculated as revenue minus expenses (excluding taxes, interest, depreciation, and amortization). Finally, earnings per share (EPS) is the amount of profit attributable to each outstanding share of common stock, calculated by dividing net income by the number of outstanding shares.

Overall, by observing the organizational performance through these accounting indicators, researchers aim to provide objective and quantitative measures of the impact of human capital on the performance of organizations in the context of mergers and acquisitions.

As a reason for observing the organizational performance, i.e. the dependent variable, through accounting indicators, the relative availability of the financial statements of the observed organizations in the sample is highlighted, as well as the need to avoid subjective assessments of the managers of the taken over organizations, which are often present when applying this method of measurement (Wang and Moini, 2012). Finally, as a reason for the application of accounting indicators in the measurement of organizational performance, the fact that these criteria can be applied to all forms of organizations, and not only to joint stock companies, unlike some other approaches to measuring organizational performance in the context of acquisitions, is highlighted.

Following the research approach applied in their works by Krishnakumar and Sethi (2012), Rani et al. (2014), Mahesh and Prasad (2012), Azhagaiah and Satishkuman (2014), Saboo and Gopi (2009), as well as many others, organizational performance, as a dependent variable, was observed through the following indicators: rate of return on employed assets (ROA), the rate of return on own funds, the rate of return on sales, the rate of business and net profit, the ratio of total wage costs to total costs, the ratio of total wage costs to total income and total economy, the method of calculation of which is presented in Table **2**.

Table 2. Calculation of organizational performance as a dependent variable.

Indicator	Calculation
Rate of return on total assets (ROA)	Net profit after tax
	Total assets of the organization
Rate of return on equity	Net profit after tax
	Total own funds of the organization
Rate of return on sales	Net profit after tax
	Revenue from sales
Business profit rate	Profit before tax
	Business income
Net profit rate	Net profit after tax
	Business income
The ratio of total wage costs to total costs	Total labor costs
	Total business expenses
The ratio of total wage costs to total income	Total labor costs
	Total Incomes
Overall economy	Total Incomes
	Total expenditure

Source: Author.

Although the paper repeatedly emphasized that in addition to the rate of return on employed assets (ROA), one of the frequently used approaches to measuring performance also includes the application of the rate of return on equity capital (ROE) (Thanos and Papadakis, 2011), this indicator will not be applied in research model, since a significant number of organizations involved in the research are not of the shareholder type.

Table **3** shows the summarized characteristics of the organizations that belong to the sample.

Table 3. Sample characteristics: summary results.

	Absolute Frequency	Relative Frequency
Organizational Activity		
Production	73	62%
Services	30	25%
Trade	15	13%
In total	118	100%
National Character of the Acquisition		
Domestic acquisitions	71	60%
International acquisitions	47	40%
In total	118	100%

Source: Author.

Among the other characteristics in the sample, it should be emphasized that the largest number of acquisitions was carried out in 2020 (26 acquisitions, i.e. 22.03% of all acquisitions in the sample).4.

4.2. Research Results

4.2.1. Descriptive Statistical Analysis

At the very beginning of the statistical analysis, a descriptive statistical analysis was applied. Obtained data for each of the researched variables, which refer to the minimum and maximum value, arithmetic mean, standard deviation, asymmetry and flattening, which refer to the results achieved both before and after the acquisitions, are shown in Table **4**. The reason for displaying the results of descriptive statistics for the total achieved organizational performance in two periods is an insight into the general earning and yield capacity of organizations, as well as an overview of the average investment in human capital. In addition to the indicators of descriptive statistical analysis previously mentioned, two additional ones were applied. The first is the Skewness test, which shows the distribution of values in the sample. Positive skewness values move to the left of the mean, while negative values move to the right of the mean. Another important indicator is the Kurtosis test, which shows how well the obtained data are grouped around the central distribution. Positive values of this test indicate that the values are clustered around the mean, while negative values indicate that the data deviate more from the mean.

Table 4. Results of descriptive statistical analysis.

	Min	**Max**	**Mean**	**SDev**
Rate of business profit	-2.283,7	258	-16,26	167,52
Net profit rate	-5.185,3	2.294,2	-18,14	294,81
ROA	-4.987,4	62,2	-6,69	186,91
Rate of return on own	-1.014,6	3.571,8	-8,06	168,54
resources	-162.646,67	11.605,52	-417,44	7.123,43
Rate of return on sales	0	27,11	0,2273	1,101
The ratio of total wage costs to total costs	0	8,53	0,236	0,503
Ratio of total costs	0	94,03	1,2013	3,479
earnings and total income	-29,12	363	2,37	15,14
Overall economy	**Skewness**		**Kurtosis**	
HCE	Statistics	SDev	Statistics	Sdev
	-10,084	0,091	114,35	0,182
	-8,6	0,091	158,36	0,182
Rate of business profit	-26,394	0,091	704,043	0,182
Net profit rate	12,154	0,091	288,546	0,182
ROA	-19,757	0,091	417,572	0,182
Rate of return on own	26,109	0,091	694,058	0,182
resources	11,147	0,091	150,540	0,182
Rate of return on sales	26,491	0,091	707,775	0,182
Ratio of total costs	19,605	0,091	452,316	0,182

Based on a visual inspection of Fig. (61-69), one can conclude that the data do not follow a normal distribution, since the normal distribution curve is not bell-shaped and is not symmetrical with respect to the arithmetic mean.

Table 5. Normality tests: period before acquisitions.

	Kolmogorov – Smirnova			**Shapiro - Wilk**		
	Statistics	df	Sig.	Statistics	df	Sig.
Business profit rate	0,393	356	0,000	0,186	356	0,000
Net profit rate	0,397	356	0,000	0,209	356	0,000
ROA	0,437	356	0,000	0,047	356	0,000
Rate of return on quity	0,340	356	0,000	0,466	356	0,000
Rate of return on sales	0,481	356	0,000	0,058	356	0,000
Ratio of total costs	0,108	356	0,000	0,888	356	0,000
of employees and total costs	0,337	356	0,000	0,229	356	0,000
Ratio of total costs	0,160	356	0,000	0,882	356	0,000
earnings and total income	0,215	356	0,000	0,640	356	0,000
a-Lilliefors Significance Correction						

Source: Author

Correlation analysis in the continuation of the empirical research, a correlation analysis was applied, the results of which are shown in Table **6**.

Table 6. Results of correlation analysis.

	Business profit rate	**Rate of net profit**	**ROA**	**Rate of return on equity**
Human capital (HCE)	0,765**	0,561**	0,550**	0,482**
Sig.	0,000	0,000	0,000	0,000
	Rate of return on sales	Total labor costs and total costs	Total labor costs and total income	Overall economy
Human capital (HCE)	0,518**	-0,194**	-0,415**	0,765**
Sig.	0,000	0,000	0,000	0,000
Note: ** - Results are significant at the 0.01 level				

Source: Author.

Since the data collected for research purposes do not follow a normal distribution, Spearman's correlation coefficient was applied in Table **6**. The specified correlation coefficient ranges from -1 to 1, with values between -0.1 and 0.29, that is, 0.1 and 0.29 considered low, values between -0.3 and -0.49, that is, 0.3 and 0.49 are considered moderate, and values between -0.5 and -1, that is, 0.5 and 1 indicate a high correlation (Cohen, 1988). Looking at the results of the correlation analysis shown in Table 6, it can be seen that almost all correlation values are at a high and significant level. The highest degree of correlation was achieved between human capital (NSE) and economy (0.765), human capital (HCE) and the rate of business profit (0.765), human capital (HCE) and the rate of net profit (0.561), human capital (HCE) and the rate return on capital employed (ROA) (0.55), as well as human capital (HCE) and rate of return on sales (0.518). A moderate correlation exists between human capital (HCE) and the rate of return on equity (0.482). The correlation between human capital (HCE) and the ratio of total wage costs to total costs, as well as between human capital (HCE) and the ratio of total wage costs to total revenues is negative and achieves a low value (-0.194 and -0.415, respectively). As

Table 7. Results of correlation analysis: period before acquisitions.

	Business profit rate	**Rate of net profit**	**ROA**	**The rate of return on own funds**
Human capital (HCE)	0,934**	0,683**	0,710**	0,642**
Sig.	0,000	0,000	0,000	0,000
	Rate of return on sales	Total labor costs and total costs	Total labor costs and total income	Overall economy
Human capital (HCE)	0,682**	-0,280**	-0,540**	0,925**
Sig.	0,000	0,000	0,000	0,000
Note: ** - Results are significant at the 0.01 level				

Source: Author.

Table 8. Results of correlation analysis: period after acquisitions.

	Business profit rate	**Rate of net profit**	**ROA**	**The rate of return on own funds**
Human capital (HCE)	0,660**	0,519**	0,442**	0,379**
Sig.	0,000	0,000	0,000	0,000
	Rate of return on sales	Total labor costs and total costs	Total labor costs and total income	Overall economy
Human capital (HCE)	0,418**	-0,171**	-0,342**	0,665**
Sig.	0,000	0,000	0,000	0,000
Note: ** - Results are significant at the 0.01 level				

Source: Author.

expected, there is a correlation between human capital and certain indicators used to measure the variable of organizational performance, which in most cases is high, and Azhagaiah and Satishkuman (2014) reached similar results. Table **7** shows the results of the correlation analysis for the period before the acquisitions.

The results of the correlation analysis for the time period before the acquisitions, which are presented in Table **7**, point to the conclusion that the highest degree of correlation exists between human capital (HCE) and the business profit rate (0.934). A high correlation was also achieved between human capital (HCE) and overall economy (0.925), human capital (HCE) and rate of return on employed assets (ROA) (0.710), human capital (HCE) and net profit rate (0.683) and human capital (HCE) capital (HCE) and rate of return on sales (0.682), human capital (HCE) and rate of return on equity (0.642), which is consistent with the results obtained by Azhagaia and Satishkuman (2014). As in the previous case, the correlation between human capital (HCE) and the ratio of total wage costs to total costs, as well as between human capital (HCE) and the ratio of total wages to total income is negative, while in the first case this value is low (-0.280, while in the second it is high (-0.540).

The results of the correlation analysis in the period after the acquisitions point to the conclusion that the strongest degree of correlation was achieved between human capital (HCE) and overall economy (0.665). A high correlation also exists between human capital (HCE) and business profit rate (0.660), human capital (HCE) and net profit rate (0.519). Moderate correlation exists between human capital (HCE) and rate of return on assets employed (ROA) (0.442), human capital (HCE) and rate of return on sales (0.418), human capital (HCE) and rate of return on equity (0.379) As in the previous cases, the correlation is negative between human capital (HCE) and the ratio of total wage costs to total costs (-0.171), as well as between human capital (HCE) and the ratio of total wage costs to total revenues (-0.342), whereby in the first case the correlation is low, and in the second case it is moderate.

5. HYPOTHESIS TESTING

In order to examine the first research hypothesis, a comparative t test was applied, the results of which are shown in Table **9**.

Table 9. Results of the comparative test.

Variables	MEAN		Sdev		Sig.
Human Capital (HCE)	Before acquisitions	1,3446	Before acquisitions	2,98	0,080
	After the acquisitions	3,3587	After the acquisitions	21,34	

Source: Author.

The results of the comparative t test shown in Table **9** point to the conclusion that there is a statistically significant difference in the level of realized human capital (HCE) before and after the acquisitions (r<0.1), whereby the conclusion can be made that there has been an increase in human capital in the post-acquisition period. The obtained result is in ac-

Table 10. Chow test results: period before and after acquisitions.

Model	Total sum of Residuals	Sum of Residuals before Acquisitions	Sum of Residuals after Acquisitions	F
HCE→Rate of Business Profit	3268808,278	1162858,175	2036326,292	3,87
HCE→Net profit rate	6989719,161	1147399,945	5813813,985	0,73HC
HCE→ROA	197390,492	17577,416	175396,941	4,07
HCE→Rate of return on equity	15814909,87	13389787,72	2325939,151	1,12HC
resources	1354530717	1066968407	284885612,5	0,35HC
HCE→Rate of return on sales	729,3	725,332	2,377	0,38HC
HCE→Total Cost Ratio	56,356	51,033	5,078	0,77HC
earnings and total costs	8651,782	8613,333	11,867	0,54HC
Note: ns - no significance				

Source: Author.

Table 11. Results of the test.

Criteria of segmentation	Mean		Sdev		Sig.
Human Capital(HCE)	Domestic acquisitions	2,72	Domestic acquisitions	18,37	0,353
	Foreign acquisitions	1,66	Foreign acquisitions	7,9	

Source: Author.

Table 12. Chow test results: domestic and international acquisitions.

Model	Total sum of residuals	Sum of residuals before acquisitions	Sum of residuals after acquisitions	F
HCE→Rate of Business Profit	19993582,27	15779919,02	4018639,146	3,55
HCE→Net profit rate	62379095,03	43724417,73	18380975,07	1,59HC
HCE→ROA	25116303,69	66153,789	24958713,13	1,31HC
HCE→Rate of return on	20421506,55	15809847,24	4542612,341	1,22HC
own funds	36513287310	36118915319	311214228	0,82HC
HCE→Rate of return on sales	737,211	731,364	4,845	0,49HC
HCE→Total Cost Ratio	180,603	170,555	9,142	1,82HC
earnings and total costs	8694,114	8661,765	16,821	0,64HC
Note: ns - no significance				

Source: Author

cordance with the previously stated claim that one of the reasons for taking over organizations is human capital, that is, the specific knowledge and skills of employees, which they try to preserve, that is, to keep in the organization. As a result, in the post-acquisition period of the organization, the initiators of the takeover continue to invest in education, i.e. building the human capital of the acquired organizations. In order to examine the impact of human capital on achieved organizational performance in the period before and after acquisitions, that is, to test the second research hypothesis, the Chow test was applied.The test results are shown in Table **10**.

When comparing the obtained results of the Chow test in table 10 with the critical values in table F of the schedule, the conclusion is reached that a statistically significant difference in the realized impact of human capital (HCE) on organizational performance exists in the case of the rate of business profit (3.87>3.021) and the rate return on assets employed (ROA) (4.07>3.021). As a result of investing in human capital, the competencies of employees increase, which leads to the achievement of good organizational performance, viewed through business profit. In addition, investment in employees, i.e. human capital, represents one of the forms of investment in the assets of organizations, as a result of which organizations achieve higher yield and earning capacity, which shows the influence of human capital on the previously mentioned rate of return on engaged assets (ROA). In all remaining cases, there is no significant difference in the period before and after the acquisitions.

In order to examine the third research hypothesis, it is first necessary to determine the differences in the degree of realized human capital between domestic and international acquisitions, and then, by applying the Chow test, to determine whether the influence of human capital on the achieved performance is higher in the case of international than in the case of domestic acquisitions. The results of the t test are shown in Table **11**.

From Table **11**, which presents the results of the t test, it can be seen that there is no statistically significant difference in the degree of human capital (HCE) between domestic and international acquisitions, although the differences in arithmetic means indicate otherwise. In order to test the last hypothesis in the paper, the Chow test was applied in the continuation of the analysis (Table **12**).

By comparing the obtained results of the Chow test in table 12 with the critical values in table F of the schedule, the conclusion is reached that a statistically significant difference in the realized impact of human capital (HCE) on organizational performance exists only in the case of the business profit rate (3.55>3.008). As in the previous case, investments in human capital improve the competencies of employees, as a result of which they work more productively, which is one of the reasons for achieving good organizational performance, viewed through business profit. The absence of a statistically significant impact on other indicators is partly due to the fact that in the case of international acquisitions, significant investments are also made in all other capacities and assets of the acquired organizations, which increases the amount of costs in absolute and relative terms.

6. CONCLUSION

Human capital, which represents the unique knowledge, skills and abilities of employees, represents one of the most important factors of success and sustainable competitive advantage, because the competencies of employees in the organization cannot be imitated as easily as it is the case with physical, i.e. material assets. Hence, the goal of every organization is to identify and acquire talents from the labor market, and then further improve their knowledge with specific education programs and keep them in the organization. In order for the above to be possible, it is necessary that the practice of human resources management follows a strategic character, which, in addition to everything else, implies the involvement of the human resources management function in the strategic decision-making process of the organization. In addition, investments in the education of employees need to be made on a continuous basis, whereby the investments themselves must be treated as an investment that will ensure the creation of value, and not as an expense that must be kept to a minimum. The aforementioned investment in employees, along with an adequate talent management practice, which includes a carefully planned process of staffing, motivation and retention, will provide the organization with such a working environment in which it is seen as a unique and desirable place to work, which is able to attract and retain the best candidates from the labor market, who will not only work more productively, but also be loyal to the organization, which will provide it with a sustainable competitive advantage.

One of the ways in which organizations can obtain valuable and unique knowledge is through acquisitions. Understood as the process of taking over a controlling share owned by another organization, acquisitions have traditionally been carried out in order to reach physical assets, consumers, a market, and the like. Today, in business conditions characterized by frequent changes, uncertainty and the great importance of intangible assets for achieving good results, acquisitions are carried out in order to obtain human capital. However, it often happens that acquisitions do not lead to the expected results, but to the deterioration of organizational performance, where the main reason is precisely the employees.

The first research hypothesis in the dissertation was formulated in order to determine the degree of change in human capital after the acquisitions. The results of the research in the paper showed that the organizations involved in the acquisition process increase their own human capital after the takeover process. In other words, acquisitions have a positive effect on the human capital of organizations, that is, they lead to its increase, which leads to the conclusion that the practice of human resources management, in which the emphasis is on the formation of unique human capital as a key success factor, is increasingly prevalent in domestic economic conditions. Top managers and human resources managers cooperate intensively in all phases of the acquisition process, which reduces the negative, or unwanted reaction of employees after implemented organizational changes. In addition to the above, human capital after the acquisitions was increased thanks to access to new knowledge. Namely, by taking over the physical assets of organizations, their employees are also taken over, which implies access to new skills, knowledge and abilities. Through adequate human resource management practices, employees of two organizations are encouraged and motivated to learn together and generate a new form of knowledge, unique to the given organizational circumstances. Intensive cooperation and communication between employees of two organizations has a positive effect on their motivation, job satisfaction and organizational commitment, which is positively maintained on organizational performance and sustainable competitive advantage. The increase in the value of human capital after the implemented acquisitions represents the fact that the organizations initiating the takeover were interested in the specific knowledge and skills of the employees, which confirms the investment in building human capital after the implemented changes, that is, the completed acquisitions. At the same time, this result shows the effectiveness of the management of the organization that initiated the takeover, and certainly of the management of people of resources, which is able to identify, evaluate, take over and save it over time with specific strategies in different stages of the acquisition process.

The second research hypothesis was formulated with the aim of examining the impact of human capital on organizational performance after acquisitions. The results of the empirical research in the dissertation showed a partial confirmation of the hypothesis, given that there is a statistically significant and positive influence of human capital on the rate of business profit and the rate of return on the engaged assets of organizations. When interpreting the results obtained in this case, it should be borne in mind that organizational performance is measured by certain accounting indicators, which are characterized by certain limitations. Depending on the needs of the organization, accounting methods can make the data in the financial statements different from what they are, which is especially characteristic of the net profit indicators. Accordingly, one cannot expect a realistic and objective statistically significant influence of human capital on them. However, one must not lose sight of the fact that the value of human capital increased after the acquisitions were carried out, partly because monetary investments in absolute terms were increased for the purpose of training, which should ensure the development of specific knowledge and skills, and partly due to the exchange of employees' knowledge in integrated organizations, as well as due to the specific human resource management strategies of the takeover initiators, with the aim of retaining talent and employees with unique knowledge and skills. That there was an increase in the value of human capital in the post-acquisition period is also confirmed by the growth in the value of certain organizational performances, which are known to be under the influence of human capital.

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