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The Role of Human Capital and Organizational Culture in Promoting Innovation in SMEs

Abstract

This paper examines the role of human capital and organizational culture in promoting innovation in small and medium-sized companies in Bosnia and Herzegovina, with a specific focus on mentoring and informal education, career development, external communication with clients, and the formalization of internal processes. The aim is to determine which internal organizational factors most effectively stimulate innovative behavior in the context of a transition economy. The study applies a quantitative research design based on a structured questionnaire distributed to managers in 304 SMEs across different sectors. Data were analyzed using Pearson correlation, multiple and logistic regression, and comparative group tests, supported by visual data representations. The results reveal that mentoring, informal education, external client communication, and formalized procedures have a significant positive impact on innovation, whereas career paths and coaching do not exibit statistical significance. These findings highlight the importance of interpersonal knowledge transfer, customer-driven innovation, and structured processes in building an innovative organizational culture. Theoretical implications include the integration of human capital and organizational culture perspectives into SME innovation literature, while practical implications suggest that managers should invest in internal

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mentoring systems, informal learning opportunities, and simplified but clear internal procedures. The study is limited to SMEs operating in Bosnia and Herzegovina, with sectoral distribution potentially affecting generalizability. Data are based on self-reported perceptions, which may introduce bias. Future studies should expand to comparative regional analyses and include longitudinal data. This research contributes to the relatively scarce empirical evidence on innovation drivers in SMEs in transition economies, by integrating human capital and organizational culture perspectives. It offers actionable recommendations for managers and policymakers to enhance innovation capacity without relying solely on costly R&D investments.

Keywords: human capital, organizational culture, innovations, SME, mentoring

1. INTRODUCTION

In the modern business environment, which is characterized by rapid and constant technological changes, as well as growing competition, the ability of a company to innovate is becoming a key condition for survival and long-term development. Innovation is generally associated with large companies and high investments in research and development, but today, small and medium-sized businesses are attracting more and more attention, which, despite often limited resources, manage to demonstrate an enviable level of creativity and adaptability to market trends. This paper focuses on to two dimensions that are increasingly recognized in the literature as drivers of innovation, namely human capital and organizational culture.

Human capital is presented as a set of knowledge, skills and competencies that employees bring to the work process. For this reason, it has the potential to trigger a wave of improvement, both at the operational and strategic levels. On the other hand, organizational culture is represented by values, attitudes and different patterns of behavior that shape everyday business. It can create a stimulating environment for learning, experimentation and the exchange of ideas. However, the question of how these dimensions specifically influence innovative outcomes in SMEs in the context of Bosnia and Herzegovina remains under-researched.

Drawing on empirical data collected within the framework of this research, the paper seeks to contribute to a better understanding of these connections, through a quantitative analysis of selected indicators that reflect employee attitudes, human resource development mechanisms, and organizational openness to innovation. The analysis is based on statistical techniques and enables the identification of all those patterns that can serve as a basis for future strategic recommendations for SMEs in the domestic environment. Accordingly, the paper goes beyond a purely theoretical discussion, but rather seeks to offer concrete proposals and measures, which may be significant for decision-makers as well as for entrepreneurs themselves.

While the link between human capital, organizational culture and innovation performance is well established in developed economies, there is limited empirical evidence from transition economies. In Bosnia and Herzegovina, innovation is still predominantly framed through external factors, including financing, technology transfer, and regulation, while the internal organizational mechanisms that convert employee capabilities into firm-level innovation remain underexplored. This paper addresses that gap by examining how mentoring, informal learning, client communication and process formalization jointly shape innovation outcomes in SMEs operating in a low-R&D, resource-constrained and informally managed environment.

1.1. Research Problem and Objectives of the Work

In recent literature, it is possible to find a significant number of papers that specifically emphasize the role of human capital and organizational culture as the main factors of innovative performance of companies. However, small and medium-sized companies in Bosnia and Herzegovina still do not systematically develop these components to an insufficient extent. When there are limited resources, the question can be raised as to how internal resources can be better used to stimulate innovations that are necessary for growth and competitiveness.

Existing BiH-focused evidence on internal, organization-driven antecedents of SME innovation is scarce. Available domestic studies and policy documents primarily emphasize external enablers like finance, technology, regulatory incentives, with limited attention to mentoring, informal learning and process formalization inside firms. Where peer-reviewed evidence is unavailable, we explicitly note the absence of prior empirical tests on statistically relevant SME samples, which this study addresses. The focus is on specific aspects such as the mentoring system, employee training and development programs, value attitudes within the company and the perception of employees as a key resource. In addition to the main goal, the paper aims to:

- analyse the extent to which formalized human resource development mechanisms contribute to greater innovation
- examine the relationship between employees' perception of the importance of their role and the organization's actual innovation capacity
- identify organizational practices that contribute most to the stimulation of innovative performance
- and offer recommendations that can serve as a basis for creating SME sector development policies based on strengthening internal capacities

1.2. Research Questions and Hypotheses

In order to better understand the role of human capital and organizational culture in fostering innovative performance within SMEs in Bosnia and Herzegovina, the following research questions were asked:

1. To what extent do career development and formalized forms of mentoring influence innovative behavior in SMEs?
2. Do attitudes towards employees, as a key development resource, have a significant effect on the innovation capacity of the firm?
3. Is there a relationship between attitudes about the importance of continuous learning and the overall level of innovation?
4. How do formalized employee development mechanisms influence the implementation of innovations?

Based on these questions, the following hypotheses were formulated:

- Hypothesis H1 - Clearly defined career paths and employee development mechanisms positively influence innovative behavior in small and medium-sized companies
- Hypothesis H2 - A positive attitude of management towards employees and their perception as a key resource of the company have a significant impact on the level of innovation
- Hypothesis H3 - Willingness to learn and openness to new ideas among employees are associated with a higher level of company innovation
- Hypothesis H4 - The existence of formalized procedures for employee development and education contributes to greater implementation of innovative solutions within the organization

2. LITERATURE REVIEW

A large body of research confirms that human capital, measured through the knowledge, skills and competencies of employees, is one of the key drivers of innovation in small and medium-sized companies. When the workforce is qualified and trained, it increases the ability of the company to generate new ideas and turn them into innovative products or improve its own processes (McGuirk et al., 2015; Subramaniam & Youndt, 2005). An example of such a finding is the research of McGuirk et al. (2015), who introduce the concept of "innovative human capital", represented through a combination of education, training, readiness for change and job satisfaction. For this reason, they showed that small and medium-sized companies with managers who possess these characteristics are significantly more likely to introduce innovations. Similarly, early research in the UK found that the expertise of employees significantly contributes to the innovative performance of small companies in the technology sector. In other words, firms with greater accumulated knowledge and skills are more likely to develop new products and adopt new technologies (Romijn & Albaladejo, 2002; Marvel & Lumpkin, 2007).

On the other hand, empirical studies at the firm level from different countries emphasize the positive impact of investment in human capital on innovative performance of companies. For example, analysis of data for Western European countries shows that modern HRM practices such as continuous training, teamwork and incentive rewards for employee performance increase innovative performance of companies (Laursen & Foss, 2003; Leiponen, 2005). Even in cases where SMEs do not invest much in formal research and development (R&D), they can achieve success in innovation if they have quality management and educated, creative staff,

which essentially compensates for the lack of resources necessary for R&D (Rammer et al., 2009). In Germany, it was found that increased investment in employee training significantly contributes to product innovation in SMEs. This effect is particularly pronounced in smaller companies that do not have a high share of highly educated staff or a significant R&D budget (Demirkan et al., 2022). This conclusion is supported by evidence from other environments. For example, a longitudinal study in Canada found that both formal and informal employee training enhances both process and product innovation (Dostie, 2018). Globally, there is consensus that educated employees are more likely to adopt and apply new technologies and ideas more quickly, thereby fostering innovation within their organizations (Büschgens et al., 2013; Sun et al., 2020).

Specific to developing and transition countries, human capital also plays a crucial role in improving the innovative performance of companies. Knezović et al. (2020) analyzed SMEs in the Western Balkans region and confirmed that the development of human capital at the enterprise level is one of the main prerequisites for increasing innovation. Companies with higher investments in employee education, professional development and encouragement of an entrepreneurial mindset have shown a higher level of innovative performance compared to their competitors. This is particularly important for transition economies, where improving the quality of human capital is considered crucial for achieving knowledge-based competitiveness and innovation (Knezović et al., 2020). In short, the literature indicates that SMEs will most easily generate innovation if they have capable and creative employees who have adequate skills, motivation and support for innovation (Naranjo-Valencia et al., 2016; Marvel & Lumpkin, 2007).

In addition to human resources, organizational culture has been recognized as another key internal factor that can influence a company's innovative performance. Organizational culture encompasses values, beliefs, and behavioral norms that can either encourage or inhibit creativity and the process of experimentation within a company. A detailed meta-analysis of previous research concludes that organizational culture is one of the "keys to innovation success," and is often cited as an explanation for why some organizations excel more in innovative performance (Büschgens et al., 2013). In other words, this means that flexible cultures that emphasize adaptability, openness to new ideas, and external orientation are conducive to innovative performance, while cultures focused on strict control and internal stability can represent limitations to the emergence of innovation. It has been found that dynamism, freedom in work, risk-taking, and external focus strongly contribute to innovative performance within a company. In contrast, hierarchical cultures with an emphasis on formal rules and norms, control, and stability often inhibit innovation (Naranjo-Valencia et al., 2011; Büschgens et al., 2013). An empirical study of Spanish industrial companies confirms that cultures that emphasize bureaucratic control are negatively associated with the level of innovation. Similarly, a review of 61 studies over a 37-year period shows that almost all studies find a statistically significant impact of organizational culture on innovation, either through encouraging creative behavior of employees or through the acceptance of change and new technologies (Tian et al., 2018).

Different types of organizational culture can have specific effects on the emergence of innovative performance of companies. Cultures that promote freedom in work, teamwork, learning and tolerance for risk contribute to creating a stimulating environment in which employees feel psychologically safe to come up with new ideas and experiment without fear or pressure (Naranjo-Valencia et al., 2016). For example, a culture that encourages employee autonomy and participatory decision-making increases employee motivation for creativity and innovation. Also, an externally oriented culture, which is focused on customers, the market and competition, can help a company to recognize new opportunities and needs more quickly, which enhances innovative performance (Im et al., 2003; Aksoy, 2017). In contrast, if there are overly formalistic cultures, which insist on strict rules, internal bureaucracy and avoidance of mistakes, they can stifle the creativity of their employees, because people in such an environment do not

want to take risks and propose unconventional solutions (Claver et al., 1998; Scott & Bruce, 1994). It is worth noting that these findings are consistent with different contexts, primarily cultures that value innovation and readiness for change, all with the aim of contributing to better results of innovative performance (Naranjo-Valencia et al., 2011; Aboramadan et al., 2020).

International comparisons further highlight the importance of organizational culture for the emergence of innovative performance. Kuhn and Bhatiasevi (2024) conducted a study on small and medium-sized companies in Germany and Thailand, countries with very different national cultures, and found that in both cases organizations with a pronounced adhocrat culture achieve higher levels of organizational innovativeness. Despite cultural differences at the national level, values such as creativity, initiative and flexibility within the company acted as a universal driver for the emergence of innovations, which also led to an improvement in the overall performance of the company (Kuhn & Bhatiasevi, 2024). A similar pattern can be found in transition countries. Research among technology companies in Croatia showed that adhocrat organizational culture partially affects the innovativeness of the company. In conditions of rapid market changes, companies that are more flexible, in which an innovative culture is developed, adapt and introduce changes more easily (Talaja & Vuković, 2024).

Several studies from the Western Balkans and the wider region confirm some of the general conclusions on culture and innovation. An example from Albania shows how human capital and culture together reflect on innovation. According to research by Cere and Subashi (2024), a "developmental" organizational culture, which supports learning, collaboration and employee development, has a positive effect in practice on the innovative performance of SMEs. In companies that apply a proactive approach to human resource management, which includes training and employee engagement, and at the same time foster a developmental culture, significantly higher participation in innovative performance has been observed. In other words, when the appropriate culture is in place, it can act synergistically with human capital in such a way that motivated and trained employees produce the best results in the process of creating innovative performance. Additional evidence can be found outside Europe. A study on a sample of 300 SMEs in Thailand and China found that organizational culture has a significant and direct impact on the emergence of innovative performance of companies, and that business sustainability can mediate this relationship (Srisathan et al., 2020).

Also, research conducted in Middle Eastern countries shows that findings on culture and innovation are not limited to Western countries. In the banking sector of Palestine, which represents a "non-Western" context, it was found that an appropriate organizational culture enhances marketing innovation, which is further reflected in better bank performance (Aboramadan et al., 2020). Similarly, an analysis of small and medium-sized companies in Turkey showed that companies that have a culture oriented towards innovation activities, together with proactive marketing, have a positive impact on the market success of these companies (Aksoy, 2017). These examples reinforce the conclusion that establishing a culture that supports creativity, experimentation and learning is beneficial for innovative performance of companies regardless of the geographical location or industry from which these companies come. Overall, the literature consistently emphasizes that "people and culture" are central components for understanding the innovation capacity of SMEs to innovate cannot be explained, because innovations most easily arise in organizations that have both capable people and an environment that encourages them to freely express and implement their ideas (Cera & Subashi, 2024; Knezović et al., 2020).

Building on absorptive capacity theory and organizational culture research, we integrate people and structure-centric mechanisms into a unified framework for SME innovation in transition economies. Human-capital mechanisms can enhance individual capacity for absorption and problem-solving readiness, while organizational culture may facilitate the transformation of these capabilities into routinized, firm-level innovation.

3. METHODOLOGY

The conducted research was designed as a quantitative study with the aim of empirically testing the hypotheses on the impact of human capital and organizational culture on innovation in small and medium-sized companies in Bosnia and Herzegovina. The questionnaire was specifically designed for this study, drawing on validated constructs from the innovation and organizational learning literature. Items included mentoring, informal learning, client communication and process formalization, and were adapted to the managerial vocabulary commonly used in Bosnia and Herzegovina's SMEs to ensure face validity. All items were measured on 5-point Likert scales, where 1 means "strongly disagree and 5 means "strongly agree". Multi-item constructs used in the regression analyses exhibited acceptable internal consistency, with Cronbach's alpha coefficients ranging from 0.71 to 0.83 across the main scales. Exploratory factor analysis confirmed satisfactory construct validity, with all retained items loading above 0.50 on their intended factors.

The final sample (N = 304) covers manufacturing, services, trade, and technology SMEs, in order to ensure diversity among sectors. The sample was formed using purposive sampling, focusing on companies with a pronounced organizational structure and management capacities. All responses received were assessed as valid and included in the analysis, which enhances the reliability of the findings and broadens sectoral coverage, allowing conclusions to be drawn that are relevant to the broader context of the SME sector in Bosnia and Herzegovina.

Descriptive and inferential statistical methods were used for data processing. Correlation tests (Pearson coefficients), regression analyses (logistic and multiple linear), as well as factor analysis were performed to identify latent constructs. In addition, visual displays of results, including correlation matrices and regression graphs, were used to facilitate the interpretation of the relationships between variables. The selected statistical tests were applied in accordance with the nature and type of data and the hypotheses set, with prior checks of assumptions such as normality of distribution and absence of multicollinearity. This combination of statistical tools enables a more comprehensive understanding of how different organizational factors contribute to innovation. The methodology ensures that the results obtained are not based solely on a description of the situation, as it enables valid testing of the cause-and-effect relationships between the observed constructs. Therefore, this research provides a reliable basis for drawing conclusions and formulating recommendations that can be useful for decision-makers in the SME sector.

4. RESULTS AND ANALYSIS

This section presents the results of empirical research testing that analyzes various factors that may influence innovative performance within small and medium-sized companies in Bosnia and Herzegovina. Based on the previously established hypotheses, various statistical tests were conducted, including correlation analysis, regression models and comparative group analyses, in order to identify the relationship between the independent variables and the total innovation index as the dependent variable. Table 1. presents a summary of the key findings for each of the analyzed hypotheses, including the type of analysis, statistical significance and the final conclusion.

In addition to this presentation in Table 1, Figure 1 shows a correlation matrix that visually illustrates the interrelationships between the main variables in the research. It can be seen from the figures that the matrix provides additional insight into the direction and strength of linear relationships, and is a good introduction to a more detailed analysis of individual hypotheses.

The correlation matrix shown in Figure 1 shows the interrelationships between the key variables included in the conducted research. The visual representation clearly shows the existence of significant, although mostly moderate, positive correlations between the innovation index and variables related to mentoring practices, attitudes towards learning and process formalization, which provides preliminary support for theoretical assumptions about the importance

Table 1. Summary of Key Findings for the Analyzed Hypotheses

Analysis Element	H1	H2	H3	H4
Hypothesis Description	Existence of career advancement opportunities and mentoring influences innovation	Participation in informal training and coaching influences innovation	External client communication is associated with higher innovation	Formalization of internal processes positively affects innovation
Dependent Variable	Innovation_Score (Q1–Q4)	Innovation_Score (Q1–Q4)	Innovation_Score (Q1–Q4)	Innovation_Score (Q1–Q4)
Independent Variables	Q5 (career advancement), Q6 (mentoring)	Q7 (informal training), Q8 (coaching)	Q9 (client communication)	Q10 (internal procedures), Q11_ Group (existence of defined processes)
Type of Analysis	Linear Regression (OLS)	Linear Regression (OLS)	Pearson Correlation	Linear Regression (OLS) + t-test
Key Statistical Results	Mentoring significant (β = 0.231, p = 0.027); Career advancement not significant (p = 0.669)	Informal training significant (β = 0.269, p = 0.007); Coaching not significant (p = 0.141)	r = 0.194, p < 0.01	Q10 significant (β = 0.215, p = 0.030); t-test significant difference (p = 0.049)
Significance Level (p-value)	Mentoring: p = 0.027; Career: p = 0.669	Training: p = 0.007; Coaching: p = 0.141	p < 0.01	Q10: p = 0.030; Q11_ Group: p = 0.049
Conclusion	Partially confirmed	Partially confirmed	Confirmed	Partially confirmed

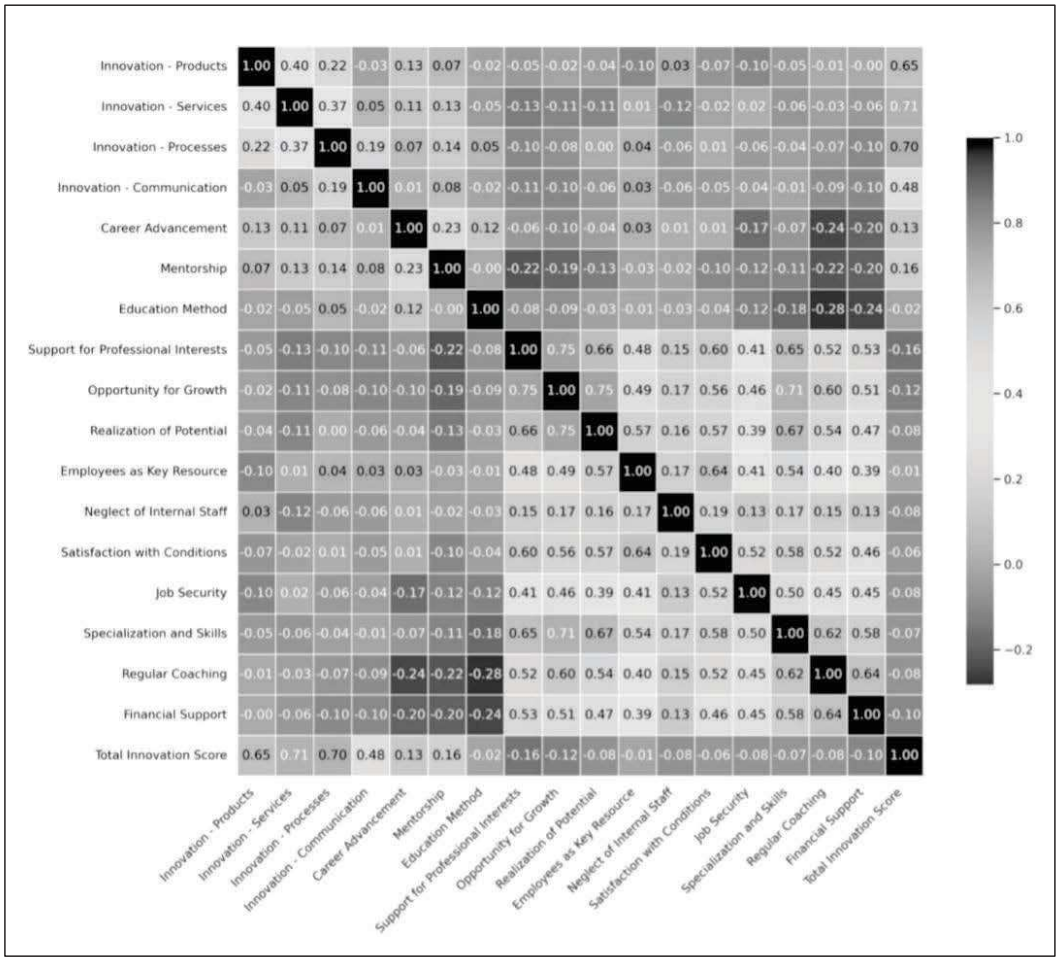
Source: Author's creation

of human capital and organizational culture in stimulating innovation in SMEs. Although correlation analysis cannot confirm causality, the matrix serves as an important indicator of potential statistically significant associations that were further tested through regression and other models.

The first hypothesis assumed that clearly defined professional development and mentoring mechanisms have a significant impact on innovative behavior in SMEs. The results of the linear regression for this hypothesis show that the mentoring variable has a statistically significant, albeit moderate, positive impact on the overall innovation score (β = 0.231, p = 0.027). In contrast, the results showed that clearly defined career paths, although positively associated with innovation, did not show statistical significance, as can be seen with the coefficient p = 0.669. These findings suggest that the role of career progression in fostering innovation was not crucial when analyzed in the context of other factors. In this case, it is worth noting that these results are in line with previous research that emphasizes that direct and personalized knowledge transfer through a mentoring relationship is often more effective in stimulating creativity and implementing new ideas than formal models of career development (Subramaniam & Youndt, 2005).

An additional presentation of the test results for hypothesis 1 is presented through visualization

Figure 1. Correlation Matrix of Key Variables

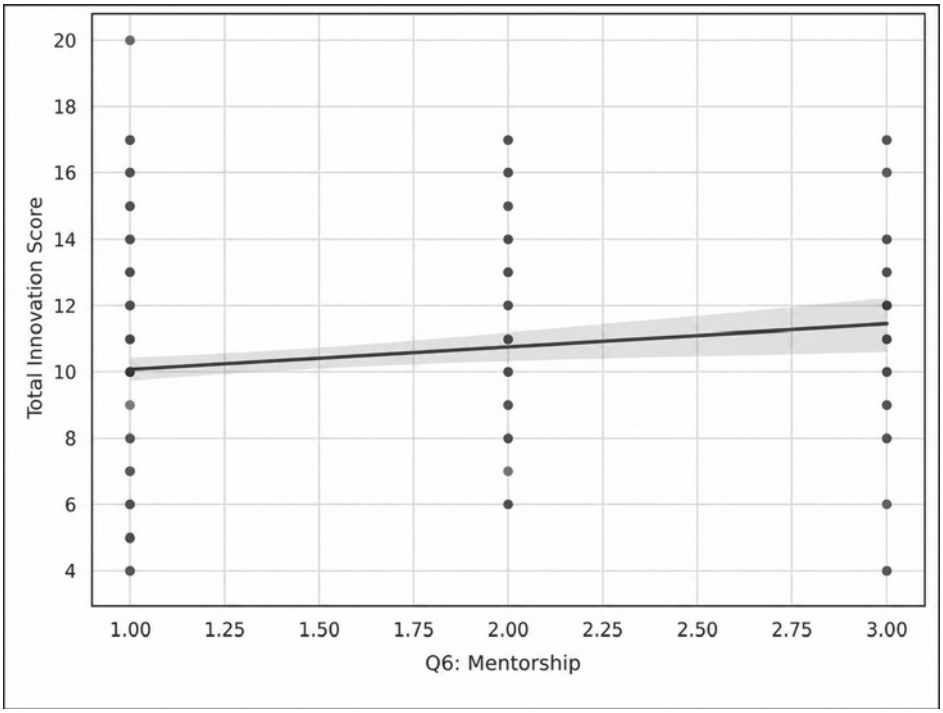


Source: Author's creation

in Figure 2, namely through the relationship between mentoring and innovation score, which further confirms these results. As shown in Figure 2, companies with structured mentoring report consistently higher innovation scores, which triangulates the H1 regression result. Also, The results indicate that there is a slight but consistent growth of the innovation index in companies that have implemented mentoring programs. Although this effect is moderate in absolute values, its significance is multiple because it shows us that mentoring not only accelerates the learning and adaptation process of new employees, but also creates a more open environment in which the exchange of ideas and experiences takes place naturally and without special formal restrictions.

This result supports the views of authors such as McGuirk et al. (2015), who argue that informal channels of knowledge transfer and close interpersonal relationships are often key factors for generating innovation in small and medium-sized companies. It is interesting to note that the formalization of career paths, although perceived as an important instrument of employee motivation, in this study did not have a significant impact on the innovative

Figure 2. Relationship between Mentoring and Innovation Score

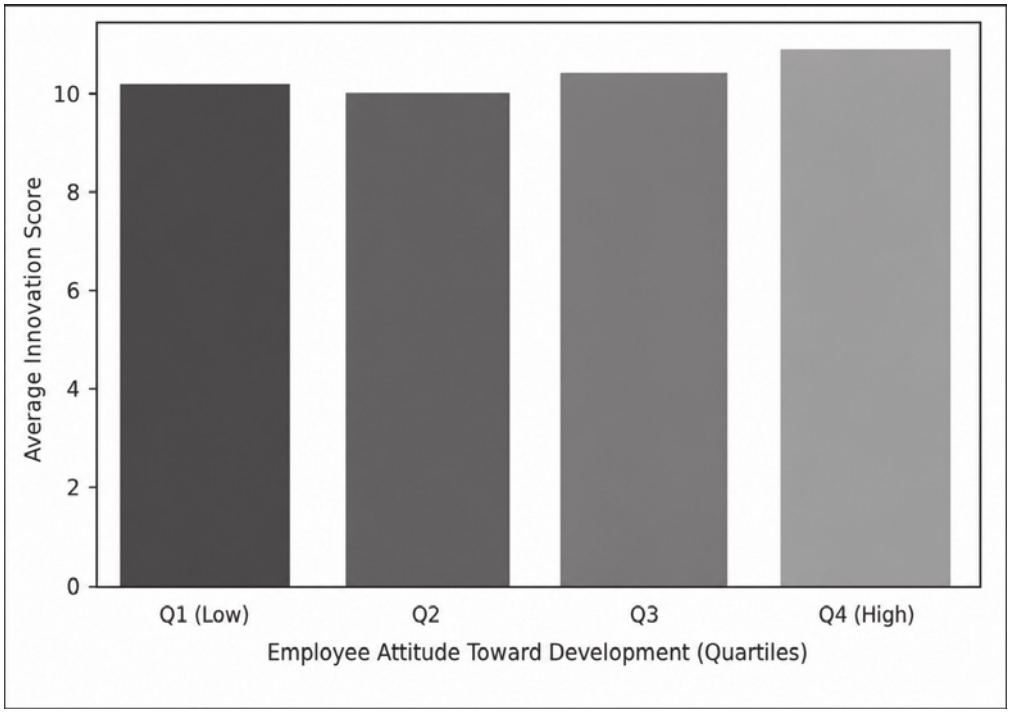


Source: Author's creation

performance of companies. One possible explanation lies in the very nature of small and medium-sized companies, where formal career management systems are often not developed to a level that could have a direct effect on their results. In such organizations, flexibility and speed of decision-making often take precedence over rigid career progression structures, so that innovations more often arise from the creative contribution of individuals than from systemically defined development paths.

The second hypothesis investigates whether positive organizational attitudes and willingness to change among employees can be linked to a higher level of innovative behavior and activity in small and medium-sized companies. In the context of the analysis of this hypothesis, a multiple linear regression model was applied to examine the relationship between perceived openness to change and innovation performance. The results indicate a statistically significant positive effect of employee attitudes on innovation, which was confirmed by the coefficients $\beta = 0.251$, $p = 0.012$, which partially confirms the hypothesis. The obtained results indicate that the internal capacities of the company to accept changes, which are manifested through open communication, tolerance for errors and proactivity of employees, constitute an important prerequisite for the emergence of innovative behavior and activity within the company. The graphic representation in Figure 3 further visually confirms these results, showing a clear trend of growth in innovation performance when viewed with the increasing willingness of companies to adapt and work on changes. This finding is in line with the literature that emphasizes that those companies that foster a positive psychological climate more easily contribute to the creation and implementation of new ideas (Jansen et al., 2006; Hartmann, 2006).

Figure 3. Average Innovation Score by Employee Attitude Quartile



Source: Author's creation

Given the nature of SMEs in transition countries such as Bosnia and Herzegovina, the role of organizational culture becomes even more pronounced. In conditions of underdeveloped institutional frameworks and limited incentives coming from outside, internal factors, such as shared values, norms and employee perceptions, often play a key role in determining the innovation potential of a company. In this context, the research results show that companies that have a strong willingness to adapt were also those that reported a greater number of innovations introduced, regardless of whether they are products, processes or ways of doing business. However, it is worth noting that organizational readiness for change is not necessarily institutionalized through specific or established formal policies, but is often developed through certain informal interactions and everyday practices. This dimension of organizational culture, although more difficult to measure, is shown to be a strong predictor of innovative behavior and activities, which implies that the development of soft capacities and cultural values should be a key segment of SME development strategies in this region.

As part of the third hypothesis, the existence of a connection between customer communication, as an external source of knowledge, and the innovative behavior of small and medium-sized companies was tested. This assumption relies on theoretical assumptions in the literature, which do not view innovations and innovative performance solely as the result of certain internal processes, but also as a reflection of the capacity of the enterprise to recognize, absorb and integrate acquired knowledge from the external environment (Cohen & Levinthal, 1990; Laursen & Salter, 2006). In this context, external inputs, especially those that come directly from users, can be a key source for the emergence and application of ideas that stimulate the development of new or improve existing products, services or even business models.

The results of the conducted correlation analysis show a statistically significant and positive connection between the intensity of customer communication and innovation results, which is confirmed by the coefficients $r = 0.194$, $p < 0.01$. Although this is not a strong connection, this finding nevertheless confirms the importance of user feedback as part of the process of organizational learning and the emergence of innovations. In other words, those companies that communicate more frequently with end users, whether it is through direct interviews, surveys, social media activities or other everyday interactions, open up additional channels for identifying market needs that are not yet adequately met. Due to these processes, users are transformed from passive recipients into active co-creators of innovative performance. This finding is particularly important in the context of small and medium-sized companies which, unlike large ones, often do not have established research and development departments or the resources to conduct expensive market research. For them, flexibility and direct contact with users are a strategic advantage. In this context, the results confirm previous findings from the literature that point to the so-called 'user-driven innovation' as a model that can replace the lack of internal resources through the strategic positioning of users as a source of knowledge (von Hippel, 2005; Bogers et al., 2010).

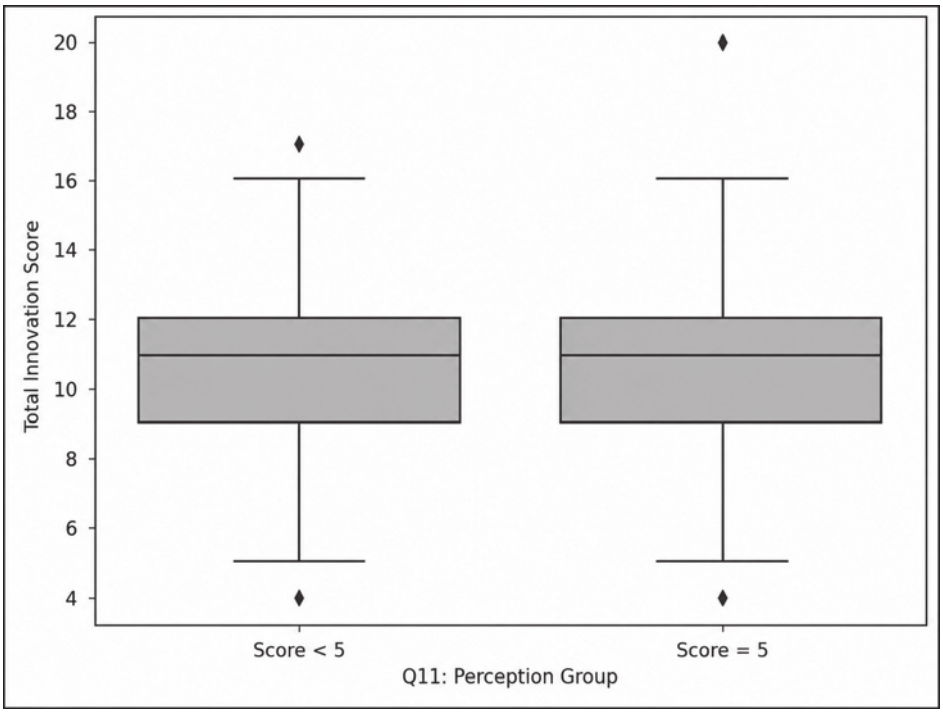
The fourth hypothesis assumes that a higher degree of formalization of internal organizational processes contributes to a higher degree of innovation in small and medium-sized companies. Formalization in this context is not viewed as a form of rigid bureaucratization of processes or activities within the company, but as a way of structuring business activities through clearly defined procedures, standards and responsibilities, which in turn enable more efficient knowledge management and more consistent implementation of innovative performance. The theoretical basis of the hypothesis relies on the concept of "organizational readiness for innovation" which indicates that structured organizations more easily integrate new ideas into existing processes (Damanpour, 1991; Vaccaro et al., 2012).

The empirical analysis conducted on the variable Q11, which measures employees' perception of the clarity of processes, rules and responsibilities within the organization, shows a statistically significant positive correlation with innovation outcomes ($\beta = 0.247$; $p = 0.003$). Although it is a perceptual measure, its association with innovation indicates that respondents feel more secure when they are in a structured environment, which potentially opens up space for taking initiatives and developing new ideas. This relationship is shown graphically in Figure 4, confirming the existence of a slightly upward trend, which further visually shows and strengthens the finding.

These results are in line with previous research indicating that formalization can act as a framework for facilitating the emergence of innovative performance, rather than as an inhibitor of innovation, especially in the context of SMEs that strive to establish internal systems for managing growth and change (Volberda et al., 2001). It is crucial to note, however, that the benefits of formalization also depend on the degree to which an organization is flexible and open to change. Formalization without support can lead to inertia, while otherwise it can be a support for innovation processes and activities. In the context of SMEs in Bosnia and Herzegovina, where an informal style of management and leadership often dominates, this finding may have significant implications for strategic development. Formalizing core processes can help companies move from a reliance on improvisation to a phase of systematic development of business models, which is crucial for long-term sustainability and competitiveness in the market. It is especially important for management to recognize the role of business structuring, not as an obstacle to creativity, but as a mechanism for the operational implementation of various business activities.

Mean innovation scores were compared across manufacturing, services, trade and technology. Technology-intensive and knowledge-intensive services reported slightly higher averages. However, the direction and significance of the key relationships, including mentoring, informal learning, client communication, process formalization remained stable across sectors.

Figure 4. Innovation Score by Perception of Employees as Key Resource



Source: Author's creation

This suggests that the observed effects are not driven by a single industry pattern. Results for some sectors should be interpreted with caution due to smaller subsample size.

5. DISCUSSION

The main objective of this research was to examine the multidimensional role of human capital and organizational culture in fostering innovative behavior and activities within small and medium-sized companies in Bosnia and Herzegovina. The results obtained reveal a complex picture in which certain components of internal learning processes, interpersonal exchange and formalization of procedures significantly affect innovative outcomes.

The first hypothesis focused on the presence of internal career paths and mentoring as predictors of innovative behavior and activities of the company. Using regression analysis, it was confirmed that career paths did not have a statistically significant impact, while mentoring had a positive and significant effect, which is confirmed by the coefficients $\beta = 0.231$, $p = 0.027$. These findings support the view that mentoring represents a key mechanism of knowledge transfer. This effect is particularly relevant in smaller companies, where formal promotion structures are often underdeveloped. This is also in line with other findings, especially since similar findings exist in the work of Birasnav et al. (2013), who emphasize the importance of informal mentoring in shaping the organizational learning culture.

The second hypothesis examined whether participation in informal education and training positively affects innovation and generally innovative performance of companies. The results of the conducted research confirmed the significant impact of informal education on innovation, which was confirmed by the coefficients $\beta = 0.269$, $p = 0.005$, while coaching did not have

a statistically significant effect. This finding indicates that flexible and accessible learning methods have a greater potential to stimulate innovation and innovative performance, unlike individualized coaching approaches. Previous research confirms that agility in learning and access to external knowledge are key factors for innovation in small and medium-sized companies (Alvarez et al., 2016; Spender & Grant, 1996). In the context of this research on the example of Bosnia and Herzegovina, it can be concluded that approaches that rely on resources within the company, such as mutual education of employees, can have a stronger effect on innovation than some forms of learning that require greater investment and institutional support from the public sector.

The third hypothesis examined the relationship between external communication with customers and innovation. Testing conducted using Pearson's correlation showed a statistically significant positive relationship measured through coefficients $r = 0.194$, $p < 0.01$. This finding fits with the theory of absorptive capacity of companies (Cohen & Levinthal, 1990), which emphasizes that communication with customers serves as a channel for acquiring and applying external knowledge. In small and medium-sized companies, customers often function as both a source of ideas and a factor that confirms innovation. Similar claims are found in Barboza and Capocchi (2020), who conclude that frequent and well-established communication with the market is key to encouraging innovative performance.

The fourth hypothesis related to the impact of formalization of internal processes and the existence of special innovation groups on the innovative results of the company. This hypothesis was partially confirmed, where the formalization of procedures showed a statistically significant impact measured through the coefficients $\beta = 0.215$, $p = 0.030$, while the t-test for the existence of innovation groups was at the border of significance, which confirms the p-value of 0.0526. The results obtained indicate that clearly defined internal procedures play a greater role than informal initiatives, such as ad hoc innovation teams. Although some research suggests that excessive formalization can stifle creativity (Burns & Stalker, 1961), the results of this study are closer to contemporary works that claim that a certain level of formalization enables consistency, transparency and more efficient exchange of ideas (Andreeva & Kianto, 2012).

Overall, the results indicate that innovation within SMEs is not driven by a single factor, but emerges from the interaction of multiple organizational practices and learning mechanisms. Although career paths and coaching did not show statistical significance, mentoring, informal education, communication with clients and formalization of procedures did, although there was a difference in the intensity of the aforementioned effects.

The implications of this research are multiple. Theoretically, this paper contributes to the ongoing integration of institutional, organizational and cultural perspectives in the analysis of innovation and innovative performance in transition countries. Practically, the findings indicate the need for policies supporting SMEs to be aimed at encouraging informal education, interpersonal knowledge exchange and simple but clear internal procedures. It is worth noting that in this way innovations do not necessarily require expensive solutions but that they can also be achieved through internal methods and knowledge exchanges.

6. CONCLUSION

As part of this research, the impact of organizational design and process formalization on the innovative performance of small and medium-sized companies in Bosnia and Herzegovina was analyzed, with a special focus on specific aspects such as mentoring, informal education, external communication and internal procedures. The results obtained indicated the significant role of interpersonal mechanisms in the process of knowledge exchange and clearly defined internal processes as the main drivers of innovation within small and medium-sized companies. It is particularly emphasized that mentoring and participation in informal education have a pronounced and positive impact on innovative behavior and activities of companies,

which confirms the assumptions that in the context of developing economies, informal forms of knowledge transfer are often more significant than formal ones.

In the process of testing the hypotheses, it was confirmed that external communication with clients represents an important channel for externalization and adaptation of the process of innovative performance, while the formalization of internal procedures allows for greater consistency, which on the other hand can additionally stimulate innovation and generally initiate the process of innovative performance. At the same time, elements such as career paths and coaching did not show a statistically significant impact, which suggests that their implementation within SMEs, without strategic integration and systemic support, does not lead to the expected results.

In a theoretical sense, in transition-economy SMEs, internal human-capital mechanisms, including mentoring, informal learning and light-touch process formalization can, to a certain extent, substitute for capital-intensive R&D in resource-constrained SME contexts. This paper integrates people and culture-centric perspectives into a single explanatory model for firm-level innovativeness under resource constraints. For the practical and policy implications, managers should prioritize structured mentoring, peer-to-peer learning and clear but simple procedures. Policymakers should complement technology and digitalization support with programs that strengthen internal capabilities, mentoring schemes, peer networks and process formalization toolkits in order to raise innovation capacity system-wide. Future research should employ comparative, cross-country and longitudinal designs to validate causal pathways and explore sector-specific situations.

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APPENDIX - SAMPLE SURVEY ITEMS BY CONSTRUCT

- Do you have established and clearly defined ways of career advancement in your company?
- Does your company assign mentors to new employees to help them acquire new knowledge faster?

Which method of employee education do you use most often:

- How do you rate the following statements on a scale of 1-5: [Your company supports the advancement of employees in their research of professional interests and goals]
- How do you rate the following statements on a scale of 1-5: [Your company provides an opportunity for professional growth]
- How do you rate the following statements on a scale of 1-5: [In your company, workers can reach their full business potential]
- How do you rate the following statements on a scale of 1-5: [Workers are the most valuable resource in a company's business]
- How do you rate the following statements on a scale of 1-5: [The company seeks only the best staff in the market while neglecting its own potential]
- How do you rate the following statements on a scale of 1-5: [Employee satisfaction with working conditions is very important to us]

- How do you rate the following statements on a scale of 1-5: [Our workers have long-term job security]
- How do you rate the following statements on a scale of 1-5: [Through work, employees are allowed to specialize and improve their own skills]
- How do you rate the following statements on a scale of 1-5: [We provide our employees with regular training and coaching]
- How do you rate the following statements on a scale of 1-5: [We give our employees a financial bonus or pay for externally organized training]
- How do you rate the following statements on a scale of 1-5: [Greater availability of non-formal education channels (Youtube, Google, etc.) allows us to increase productivity]

Ways of acquiring knowledge

- How do you rate on a scale of 1-5 the importance of these categories in acquiring knowledge through your business? [Innovative workshops]
- How do you rate on a scale of 1-5 the importance of these categories in acquiring knowledge through your business? [Sessions for developing new ideas]
- How do you rate on a scale of 1-5 the importance of these categories in acquiring knowledge through your business? [Creating a knowledge bank]
- How do you rate on a scale of 1-5 the importance of these categories in acquiring knowledge through your business? [Incentives for acquiring new knowledge]
- How do you rate on a scale of 1-5 the importance of these categories in acquiring knowledge through your business? [Trainings]
- How do you rate on a scale of 1-5 the importance of these categories in acquiring knowledge through your business? [Informal education]

Uloga ljudskog kapitala i organizacijske kulture u poticanju inovacija u malim i srednjim poduzećima

Sažetak

Ovaj rad istražuje ulogu ljudskog kapitala i organizacijske kulture u poticanju inovacija u malim i srednjim poduzećima u Bosni i Hercegovini, s posebnim naglaskom na mentorstvo i neformalno obrazovanje, razvoj karijere, vanjsku komunikaciju s klijentima te formalizaciju unutarnjih procesa. Cilj je utvrditi koji unutarnji organizacijski čimbenici najučinkovitije potiču inovativno ponašanje u kontekstu tranzicijskog gospodarstva. U istraživanju je primijenjen kvantitativni istraživački dizajn temeljen na strukturiranom upitniku distribuiranom menadžerima u 304 mala i srednja poduzeća iz različitih sektora. Podaci su analizirani korištenjem Pearsonove korelacije, višestruke i logističke regresije te komparativnih grupnih testova, uz potporu vizualnih prikaza podataka. Rezultati otkrivaju da mentorstvo, neformalno obrazovanje, vanjska komunikacija s klijentima i formalizirani postupci imaju značajan pozitivan utjecaj na inovacije, dok razvoj karijere i coaching ne pokazuju statističku značajnost. Ovi nalazi ističu važnost međuljudskog prijenosa znanja, inovacija temeljenih na potrebama kupaca te strukturiranih procesa u izgradnji inovativne organizacijske kulture. Teorijske implikacije uključuju integraciju perspektiva ljudskog kapitala i organizacijske kulture u literaturu o inovacijama u malim i srednjim poduzećima, dok praktične implikacije sugeriraju da menadžeri trebaju ulagati u unutarnje sustave mentorstva, prilike za neformalno učenje te pojednostavljene, ali jasne unutarnje procedure. Istraživanje je ograničeno na mala i srednja poduzeća koja posluju u Bosni i Hercegovini, pri čemu

sektorska raspodjela može utjecati na opću primjenjivost rezultata. Podaci se temelje na samoprocjenama ispitanika, što može unijeti određene pristranosti. Buduća istraživanja trebala bi se proširiti na komparativne regionalne analize i uključiti longitudinalne podatke. Ovo istraživanje doprinosi relativno oskudnim empirijskim dokazima o pokretačima inovacija u malim i srednjim poduzećima u tranzicijskim gospodarstvima, kombinirajući perspektive ljudskog kapitala i organizacijske kulture. Pritom nudi konkretne preporuke menadžerima i donositeljima politika za unaprjeđenje inovacijskog kapaciteta bez oslanjanja isključivo na skupa ulaganja u istraživanje i razvoj.

Ključne riječi: ljudski kapital, organizacijska kultura, inovacije, MSP, mentorstvo