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ORGANIZATIONAL DESIGN THROUGH PROCESS FORMALIZATION AS PRECONDITIONS FOR INNOVATIVE BEHAVIOR IN SMEs

ABSTRACT

This paper investigates the relationship between organizational structure, process formalization, and innovative behavior in small and medium-sized enterprises in Bosnia and Herzegovina. Drawing on the theoretical foundations of institutional economics and organizational innovation, this research tests four hypotheses using logistic regression, multiple linear regression, and Pearson correlation analysis. The study employed a quantitative approach using data collected during 2023 from a sample of 304 SMEs operating in the manufacturing, trade, services, and ICT sectors in Bosnia and Herzegovina. The analysis applied logistic regression, multiple linear regression, and Pearson correlation to test four hypotheses. The results show that formalized career paths do not have a significant impact on innovativeness, while mentoring and training show a partial, but statistically significant effect. Also, a positive correlation was confirmed between the intensity of communication with customers and the level of organizational innovation, indicating the importance of external feedback serving to shape internal changes. Process formalization showed a partial impact on the overall level of innovation. The results obtained contribute to a better understanding of the factors shaping the innovation capacity of SMEs in transition economies and emphasize the need for a comprehensive approach that combines human capital development, flexible organizational structures, and active involvement of the external environment.

Keywords: *SMEs, innovation, organizational design, formalization, mentorship, transition economies, Bosnia and Herzegovina*

JEL Classification: D23, M21, O31, O32, L26.

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1. INTRODUCTION

When we look at the modern business environment, it is marked by accelerated technological changes, increased levels of competitiveness and changing market demands, as well as the ability of companies to innovate, which is now becoming one of the key characteristics for them to achieve a level of sustainability and growth. Although innovation is most often associated with high technology and large corporations, today there is increasing evidence that it is precisely small and medium-sized enterprises that form the backbone of the economies of many countries, including Bosnia and Herzegovina, and that they possess significant innovation potential. However, in order to fully utilize this potential, it is very important to understand what organizational assumptions enable or, on the other hand, hinder innovative behavior in these companies.

In this context, internal organizational factors deserve special attention, i.e. the way in which a company is structured, then its degree of formalization of business processes, and finally the existence of clear mechanisms that enable the professional development of its employees. The role of these factors in fostering innovation is often neglected in transition countries, where institutional support for innovation is still developing, and most SMEs still operate within informal management practices. Recent approaches to organizational design emphasize that structural and process formalization should not be understood as constraints, but rather as tools that enable adaptability and learning in dynamic environments (Daft, 2021; Mintzberg, 2023; Hatch, 2018).

This paper analyzes precisely these assumptions, whether and to what extent the organization and formalization of internal processes contribute to the development of innovative activities in small and medium-sized enterprises in Bosnia and Herzegovina. Through statistical processing of data collected from domestic enterprises, the main goal is to identify whether there is a clearly defined career path, formalized forms of mentoring and training of employees, and organizational innovations within the enterprise, which constitute the basis for the introduction of new or improvement of existing products, services and communication practices.

2. LITERATURE REVIEW

Organizational design refers to the structuring of roles, responsibilities, and processes within an organization, including key dimensions such as centralization and formalization (the degree to which procedures, rules, and policies are standardized). These structural features can significantly influence a company's ability to learn and innovate. According to organizational learning theory, companies that effectively acquire and share knowledge adapt and innovate more quickly (Argote & Miron-Spektor, 2011). On the other hand, rigid, bureaucratic structures can limit the

flow of information and learning, while a more flexible organization encourages creativity and experimentation (Nonaka & Takeuchi, 1995; Adler & Borys, 1996). At the same time, institutional theory emphasizes that organizational behavior occurs within a broader institutional environment – formal rules, regulations, and norms influence organizational design and the acceptance of innovations (DiMaggio & Powell, 1983; Scott, 1995).

In transition economies, where institutions are developing, there are often institutional pressures to formalize business, such as harmonization with EU regulations, but also the emergence of institutional gaps. For example, Kadriu et al. (2019) find that in 30 transition countries, bureaucracy and inflexible legislation represent obstacles to innovation, which companies often try to overcome through informal means such as bribery or other forms of benefits. These findings confirm the importance of institutional for the innovative behavior of SMEs.

The resource-based view provides an internal perspective, arguing that competitive advantage stems from the unique resources and capabilities of a company (Barney, 1991). In this context, innovation is viewed as the result of valuable resources – knowledge, technology, organizational processes – that a company possesses or develops. Formalization of internal processes can play a dual role, because on the one hand, formal processes can represent an organizational resource that contributes to the efficiency and reliability of innovation (Terziovski, 2010), while on the other hand, excessive formalization can stifle the flexibility necessary for creativity. Furthermore, contingency theory further emphasizes that there is no universally "best" organizational design, but that its suitability depends on the context (Donaldson, 2001). Burns and Stalker (1961) distinguished between mechanistic structures suitable for stable environments and organic structures that are suitable for dynamic, uncertain environments and encourage innovation. Later research confirmed that less centralized and less formal organizations are more likely to generate and adopt innovations, especially when faced with turbulent markets (Aiken & Hage, 1971; Jansen et al., 2006). It is important to mention here the examples of Jansen et al. (2006) who show that formalization and centralization particularly hinder exploratory (radical) innovations in companies operating in dynamic environments. On the other hand, a certain level of formalization can help new innovations, providing routines for the efficient application of new ideas (Adler & Borys, 1996). These theoretical perspectives together imply that the relationship between process formalization and innovative behavior in SMEs will depend on the organization's ability to learn, on the institutional environment in which it operates, on its internal resources, and on the fit of the structure with the context.

Innovative behavior in organizations has been intensively researched in recent decades (Anderson et al., 2014), with much of the research devoted to the role of organizational structure in encouraging or hindering innovation (Damanpour, 1991;

Covin & Slevin, 1988). In general, findings suggest that a high level of formalization – expressed through strict rules, procedures, and bureaucratic controls – can negatively affect employee creativity and the propensity to innovate. Formalization is negatively correlated with individual innovative behavior, since rigid rules limit employee autonomy and experimentation in the workplace. Empirical research confirms that companies with organic structures, which are flexible, poorly formalized, decentralized, tend to show higher levels of innovation than highly formalized and mechanistic organizations (Hirst et al., 2011; Rosenbusch et al., 2011). Thus, Hirst et al. (2011) find that bureaucratic work environments at the team level reduce creative output, suggesting that excessive formalization and strict rules can stifle individual creativity and learning. Similarly, a meta-analysis by Damanpour (1991) found that formalization and centralization are generally negatively associated with the adoption of innovation in organizations. However, more recent research highlights a somewhat different picture, especially in the context of SMEs. SMEs are often less formally structured than large companies, which gives them agility, but sometimes the lack of formal processes can limit their capacity to innovate (Kalay & Lynn, 2016; Fréchet & Goy, 2017). Kalay and Lynn's (2016) study in Turkey found that centralization had a significantly negative impact on innovation management, while the impact of formalization was not statistically significant. This result suggests that rigid hierarchies clearly inhibit the ability to introduce new practices, while written procedures themselves sometimes have no clear effect – possibly depending on how they are implemented.

U savremenim studijama, organizacijski dizajn se posmatra kao višedimenzionalni dio formalizacije, centralizacije, specijalizacije i hijerarhije (Daft, 2021; Hatch, 2018; Mintzberg, 2023). Nedavni radovi Certa i Certa (2016) i Jonesa (2013) dodatno naglašavaju kako formalizacija procesa predstavlja jedan od najvažnijih mehanizama za postizanje kontrole i fleksibilnosti unutar preduzeća. Sa druge strane, Daft (2021) razlikuje i prisilne oblike formalizacije, gdje dodatno napominje da efikasne strukture mogu poticati kreativnost smanjenjem neizvjesnosti. Slično tome, Mintzberg (2023) ističe da pravilno uravnotežena formalizacija može stvoriti „stratešku koherentnost" unutar poduzeća, čime se usklađuju zadaci zaposlenih sa ciljevima organizacijskog učenja.

On the other hand, Gentile-Lüdecke et al. (2020) examining SMEs in China found somewhat different effects in that formalization negatively affected outbound open innovation. Here, we primarily mean the sharing of internal innovations to the outside, but it was positively associated with inbound open innovation, which involves the acceptance of ideas from outside. These results suggest that formal processes and clearly defined procedures can help small firms absorb and apply external knowledge more efficiently, which is crucial for innovation based on learning from others, while at the same time, excessive formality can hinder external collaboration and rapid knowledge exchange required for joint innovation.

Similarly, Fréchet & Goy (2017) found that formalized strategic planning can enhance innovation – especially as a mechanism to ensure that new ideas are systematically tracked and integrated into business processes. In other words, a certain degree of formalization in the form of strategies, plans, and systems for managing innovation can act as an enabling bureaucracy, which supports innovation, as opposed to a form of coercive bureaucracy that focuses solely on control (Adler & Borys, 1996). These findings are consistent with the argument that finding a balance is crucial for innovation – enough structure to enable the efficient implementation of ideas, but enough flexibility to generate ideas at all (Jansen et al., 2006; Covin & Slevin, 1988).

When it comes to SMEs in the European Union, research shows that the innovativeness of smaller companies significantly contributes to economic growth and competitiveness, but that many companies still do not use the full potential of innovation (OECD, 2019), where organizational design factors are part of a broader picture that needs to be considered. The study by Cosh, Fu & Hughes (2012) highlights that the link between organizational structure and innovation performance may depend on the external environment. In more stable conditions, formalization brings less harm, while in highly volatile conditions, innovative SMEs benefit more from organic design. At the regional level, the Central and Eastern European countries that are members of the EU have recorded an increase in SME innovation activities in recent years, but they still lag behind the EU average in innovation performance (Wierzbicka & Owczarczuk, 2022). Wierzbicka and Owczarczuk (2022) also further state that the innovativeness of the SME sector in Central and Eastern European countries is gradually increasing, with significant differences between countries.

Of particular interest are the findings from transition economies, which are characterized by rapid institutional changes, the presence of an informal economy, and limited access to resources, all of which affect firms' innovation behavior (Manolova et al., 2018). Hlioui (2022) investigated SME innovation in Eastern European transition countries and found that competition from informal business activities has a two-way effect on the innovation of formal SMEs. On the one hand, the pressure of the "grey economy" encourages legal firms to try to differentiate themselves in the market through innovation, which results in a direct positive effect on the probability of introducing innovations. On the other hand, the presence of the informal economy exacerbates the financial constraints of legal SMEs, which indirectly hinders their innovation. Interestingly, this study found that the formalization of strategic planning, specifically the development of a formal business plan, can mitigate the negative impact of credit constraints on innovation, acting as a moderating factor. In other words, SMEs that systematically plan and formally elaborate their innovation strategies more easily find ways to overcome financial constraints and achieve innovation goals. Such findings

highlight that formalizing certain internal processes can benefit innovation even (or especially) in conditions of imperfect external environments, such as those characteristic of transition economies.

Empirically, research in the Western Balkan countries is still limited, although there are indications that the innovation indicators of SMEs in the Western Balkan countries are below the EU average, and that they are classified as "modest" or "moderate innovators" (European Innovation Scoreboard, 2023). According to reports, all Western Balkan countries, except for Serbia to some extent, lag behind the EU average in terms of investment in research and development, the connection of the economy with science and overall innovative activity (Dollija, 2025). At the same time, state policies in the region seek to encourage the formalization of business and the modernization of SME management, primarily through the adoption of EU standards, digitalization of processes, etc., which suggests that SMEs in transition countries are faced with the challenge of establishing formal structures that can help their competitiveness without stifling entrepreneurial spirit and innovation.

Additionally, the geographical focus of previous research leaves gaps. Many studies rely on examples from developed countries, such as the European Union, the USA and China, or on large companies, while SMEs in transition countries are less represented in academic works. As Hlioui (2022) points out, certain interactions between the formalization of business strategy and innovation in Eastern European countries have not been examined so far. This is precisely where the importance of future research lies, namely how to address the specificities of transition contexts. Institutional changes, the presence of the informal economy, cultural attitudes towards formal rules and limited resources make the Western Balkans, Eastern Europe and other transition regions an area that is suitable for investigating the impact of organizational design on innovation.

In recent years, various studies have been conducted in organizational design and innovation that have significantly moved away from the previous view that formalization is exclusively an obstacle to creativity. This is confirmed by the latest works (Patel & Kehoe, 2020; Kwon & Cho, 2021; Daft, 2021; Mintzberg, 2023) that primarily emphasize that modern organizational design is based on the concept of enabling formalization, which provides clarity and stability, while at the same time not stifling flexibility and creative thinking among employees. The formal structure of an organization, when viewed in this context, begins to act as a framework that enables coordination and reduces entropy, which ultimately contributes to the emergence of innovation (Wang et al., 2022). For this reason, formalization is increasingly treated as a dynamic process in recent literature, especially in small and medium-sized enterprises (Tavassoli & Karlsson, 2021; Li et al., 2021).

Recent literature also introduces the concept of "dynamic formalization", which is becoming crucial to better understand the relationship between structure and innovation in this new digital age. According to Snihur and Wiklund (2023), successful organizations in the era of digitalization redefine formal rules to facilitate knowledge exchange and collaboration between teams within the company, thus encouraging open innovation. Li, Chen and Xu (2021) add that digital transformation leads to a change in the way formalization manifests itself, primarily through software systems and various digital procedures, which allows for faster response in case of need, as well as reducing errors in the innovation process. In such circumstances, formalization becomes a digital mechanism for coordinating innovation activities. Accordingly, Duradoni, Paolucci and Guazzini (2023) confirm that a people-based approach in the digital design of organizations is crucial for creating a work environment that fosters creativity, psychological safety and interdisciplinary collaboration.

Other contemporary research shows that structural factors alone are not sufficient to create innovation, unless they are accompanied by appropriate forms of leadership and organizational culture (Ahsan & Fernhaber, 2022; Duradoni et al., 2023). Managerial cognition, which can be explained as the ability of leaders to recognize opportunities, plays a key role in shaping the structures that lead to the emergence of experiments, and ultimately to risk-taking. In this sense, organizations that have an established system of mentoring and organizational learning become a bridge between formal procedures and informal knowledge sharing, which is confirmed by recent findings from the OECD (2023) and the European Innovation Scoreboard (2024), according to which companies that simultaneously invest in mentoring and the development of managerial competencies achieve a higher level of innovation.

If we look at the European and transitional context, innovative behavior within SMEs is increasingly linked to institutional reforms and digital convergence processes. In this context, we can find in the literature that Tavassoli and Karlsson (2021) and OECD (2023) believe that countries that implement policies that encourage "soft formalization", which is a combination of process standardization, digital tools and managerial autonomy, achieve faster growth in productivity and export capacity. The European Commission (European Innovation Scoreboard, 2024) indicates that the integration of digital infrastructure and flexible formal rules is the main predictor of the innovation competitiveness of SMEs in the new EU member states. In this sense, the concept of organizational design in recent research (Snihur & Wiklund, 2023; Wang et al., 2022; Patel & Kehoe, 2020) is becoming synonymous with strategic change management, where formalization, digitalization and human capital together form the basis of an innovative ecosystem.

3. RESEARCH METHODOLOGY

The above research was designed as a quantitative analysis with the aim of examining the connection between organizational design, formalization of internal processes and innovative behavior in small and medium-sized enterprises in Bosnia and Herzegovina. The research was conducted during 2023. The sample included 304 SMEs operating in four major sectors: manufacturing, trade, services, and information and communication technology. Data were collected through an online and field survey distributed to enterprise managers and owners. The questionnaire was developed based on existing scales used in previous studies (Terziovski, 2010; Kalay & Lynn, 2016) and adjusted to the context of transition economies. The reliability and validity of the measurement instrument were assessed using Cronbach's alpha and exploratory factor analysis, with all constructs demonstrating acceptable reliability ($\alpha > 0.7$).

The research framework is based on the quantitative processing of primarily collected data, using correlation analyses and regression models. The theoretical framework includes the assumptions of organizational learning and the resource base, whereby the relationships between internal formalized practices and various aspects of innovation are structured and tested.

The data were collected through a structured survey questionnaire, which was distributed among representatives of companies of different sectors and sizes. A total of 304 companies were analyzed, which enabled the conduct of reliable statistical analyses. The survey contained questions that quantify formalization in the segments of career advancement, mentoring, education, training and financial support for employees, as well as self-assessment of the presence of innovations in business. The dependent variables referred to four dimensions of innovative behavior: innovations in work organization, innovations in communication with clients, product innovations and service innovations. In addition, an aggregate variable of total innovation (Innovation_Total) was constructed, and for the needs of individual tests, a binary dependent variable (Innovation_Binary) was created, which distinguishes companies that have introduced at least one innovation from those that have not.

Given the nature of the hypotheses, various statistical methods were used. To assess the impact of clearly defined career paths on the probability of innovation, a logistic regression model was applied, where the dependent variable was binary. To examine the impact of several independent variables related to employee development on the level of organizational innovation, multiple linear regression was used. Pearson correlation was also used to analyze the interrelationships of innovation dimensions, especially the relationship between innovation in

organizational processes and in customer communication. Finally, the multiple regression model was also used to test the hypothesis of the cumulative effect of formalized processes on the overall innovation potential.

The variables used were previously tested for the basic assumptions of normality, multicollinearity and linearity of the relationship using SPSS software version 27.0. The research design followed ethical principles of anonymity and voluntary participation. The results obtained were interpreted through coefficient analysis, p value, R^2 coefficient, as well as visually presented through various graphs such as scatter plots, boxplots and regression diagrams. The entire analysis was conducted in statistical software using standard significance thresholds ($p < 0.05$). The research is subject to certain limitations, since it includes only the territory of Bosnia and Herzegovina, which may limit the generalization of the results.

3.1. RESEARCH PROBLEM AND OBJECTIVES

Innovation is one of the key sources of long-term competitive advantage for companies regardless of size, but in the context of SMEs, the role of internal organizational factors that can enable or hinder innovative behavior of companies is often overlooked. In Bosnia and Herzegovina, as a country in transition, innovation in the SME sector is mainly viewed through the prism of certain external obstacles, such as difficult access to finance or lack of institutional support. However, significantly less attention has been paid to the analysis of internal organizational structure and the degree of formalization of business processes as possible determinants of innovation.

The main research problem addressed in this paper relates to understanding the role that organizational structure and the formalization of internal processes play in encouraging innovative behavior of SMEs. Namely, the question arises to what extent clearly defined organizational structures, formal mechanisms for employee professional development - including mentoring, training and specialization, as well as institutionalized procedures for knowledge development and exchange, can contribute to the development of innovation within the organization.

Based on this, this paper has the following objectives:

1. To examine whether the existence of clearly defined career paths and organizational structure affects innovative behavior in SMEs.
2. To analyze the effects of formal mechanisms of mentoring, training and specialization of employees on the emergence of innovations in the organization of work.
3. To determine whether there is a connection between innovations in internal processes and innovations in communication with customers.

4. To assess the extent to which a higher degree of formalization of internal processes correlates with a wider range of innovative activities, including product and service development.
5. To provide empirically based recommendations for organizational practices that can improve the innovative capacity of SMEs in Bosnia and Herzegovina.

3.2. RESEARCH HYPOTHESES

Based on a review of relevant literature and the specifics of small and medium-sized enterprises in Bosnia and Herzegovina, the following research hypotheses were formulated that operationalize the relationship between organizational characteristics and innovative behavior:

- H1 - The existence of a clearly defined organizational structure and career paths positively affects the likelihood that a company will introduce innovations.
- H2 - Formalized mechanisms for mentoring, education and professional development of employees increase the likelihood of introducing innovations in work organization.
- H3 - Companies that introduce innovations in work organization are also more likely to introduce innovations in communication with customers.
- H4 - A higher degree of formalization of internal processes positively correlates with a wider scope of innovative activities, including products, services, processes and communication.

3.3. RESEARCH QUESTIONS

In accordance with the above hypotheses, the following research questions were posed, which elaborate in more detail the relationship between organizational assumptions and innovative behavior:

1. Do companies with clearly defined career paths show a greater willingness to introduce innovations in different segments of their business?
2. To what extent do formal mechanisms of mentoring, training and education of employees contribute to the emergence of innovations in the organization of work?
3. Is there a statistically significant relationship between innovations in internal organizational processes and innovations in communication with customers?
4. Do companies with a higher degree of process formalization simultaneously show a wider level of innovative activities in products, services, organization and communication?

3.4. PRESENTATION OF RESULTS

This section presents the results of a statistical analysis conducted to test four hypotheses examining the relationships between organizational design elements, internal process formalization, and various dimensions of innovative behavior in small and medium-sized enterprises in Bosnia and Herzegovina. The analysis used methods including logistic regression, multiple linear regression, and Pearson correlation, depending on the nature of the variables and the objectives of the test. The analysis was conducted on a sample of 304 enterprises, and the data were processed using standard statistical procedures. The variables were previously tested for normality of distribution, multicollinearity, and basic assumptions for the application of regression models.

To provide a quick overview of the key findings, a summary of the results for each individual hypothesis is presented below in Table 1. The first hypothesis, which examined whether clearly defined career paths affect innovative behavior, was tested using logistic regression and was not confirmed ($p = 0.669$). The second hypothesis, regarding the impact of mentoring and training on organizational innovation, was tested using multiple linear regression and was partially confirmed, as the Mentorship variable was statistically significant ($p = 0.027$). The third hypothesis, examined the relationship between organizational innovation and customer communication style, using Pearson correlation. Testing this hypothesis confirmed a statistically significant positive correlation ($r = 0.194$, $p < 0.01$). The fourth hypothesis, examined whether process formalization affects overall innovation, also using multiple linear regression. The results indicate partial confirmation, as Mentorship remained a significant predictor ($p = 0.030$), while the overall model was at the border of statistical significance ($p = 0.0526$).

Table 1: Summary of Hypotheses, Analytical Methods, and Key Findings

Hypothesis	Description	Type of Analysis	Key Finding	Conclusion
H1	Career pathways influence innovative behavior	Logistic regression	Not confirmed; $p = 0.669$	Hypothesis not confirmed
H2	Mentorship and training influence organizational innovation	Multiple linear regression	Partially confirmed; Mentorship $p = 0.027$	Partial confirmation
H3	Organizational innovation is associated with client communication	Pearson correlation	Confirmed; $r = 0.194$ ($p < 0.01$)	Hypothesis confirmed
H4	Process formalization affects overall innovativeness	Multiple linear regression	Partially confirmed; Mentorship $p = 0.030$, model $p = 0.0526$	Partial confirmation

Source: Author's creation

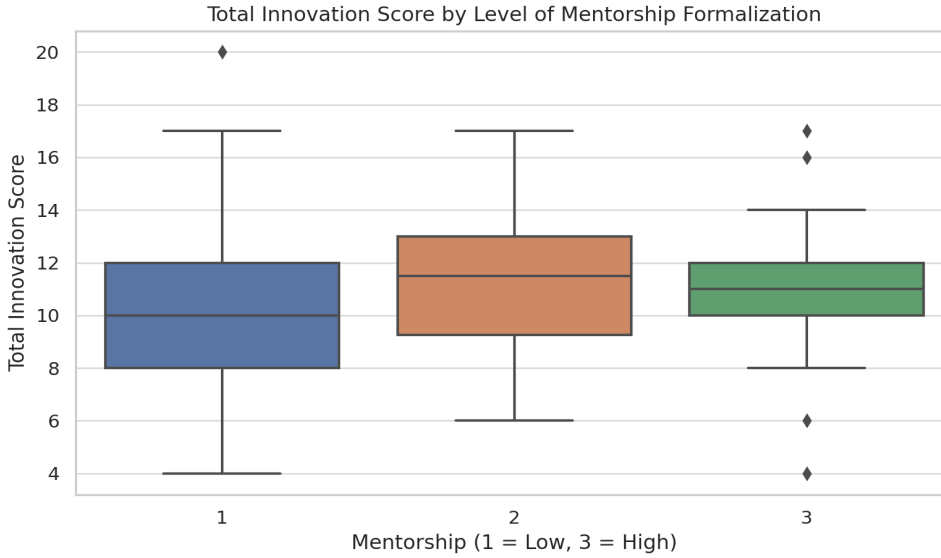
To test the first hypothesis, which assumed that the existence of clear and formalized career paths within SMEs positively affects the innovative behavior of employees, logistic regression analysis was used. The reason for using this statistical approach is due to the binary nature of the dependent variable, which is whether a company can be classified as innovative or not, based on the threshold value of the total innovation score. The model included variables related to the existence and clarity of career paths as main predictors, while company size, sector and level of digital sophistication were used as control variables. The results of the analysis did not support the hypothesis. The coefficient for the variable measuring the formalization of career paths was not statistically significant ($p = 0.669$), indicating that within the observed sample there is no significant association between career structures and the likelihood of a company behaving innovatively. These findings suggest that there may be a gap between career development strategies and innovation activities within SMEs in developing countries. One possible reason may be that career paths, although formally existing, are often not sufficiently developed or operationalized in practice, making them ineffective in encouraging employee innovation. Alternatively, it can be assumed that innovative behavior in this context depends more on other organizational factors, such as informal support, autonomy or leadership, than on established promotion structures.

The second hypothesis tested the assumption that formalized mentoring and training systems within SMEs have a positive impact on organizational innovation. To test this claim, a multiple linear regression analysis was used, where the dependent variable was represented by the organizational innovation index, while the independent variables included measures related to mentoring, training and other relevant factors. The results showed partial confirmation of this hypothesis, with the mentoring variable having statistical significance ($p = 0.027$), while the other components of the model did not have a significant individual association with organizational innovation. However, the overall model indicated a moderate association, which tells us that mentoring, as a specific organizational practice, can have a significant impact on encouraging innovation in management, internal communication or in the process of establishing structures.

These results are further illustrated by the visualization in Figure 1, which shows the distribution of the total innovation score depending on the level of formalization of mentoring in the organization. What is clearly observed is that companies with a higher degree of formalized mentoring have a higher innovation score on average, which visually strengthens the statistical finding from the regression model. The display in Figure 1 contributes to the interpretation of the results by indicating the

existence of a clear pattern, although it cannot be claimed that it is universal, where mentoring can act as a platform for knowledge transfer, trust building and initiation of innovative ideas. This partial confirmation of H2 shows us that the potential of mentoring in SMEs in transition countries is still not sufficiently exploited, but that in cases where it is institutionalized, it can represent a valuable tool for generating organizational innovations.

Figure 1: Total Innovation Score by Level of Mentorship Formalization

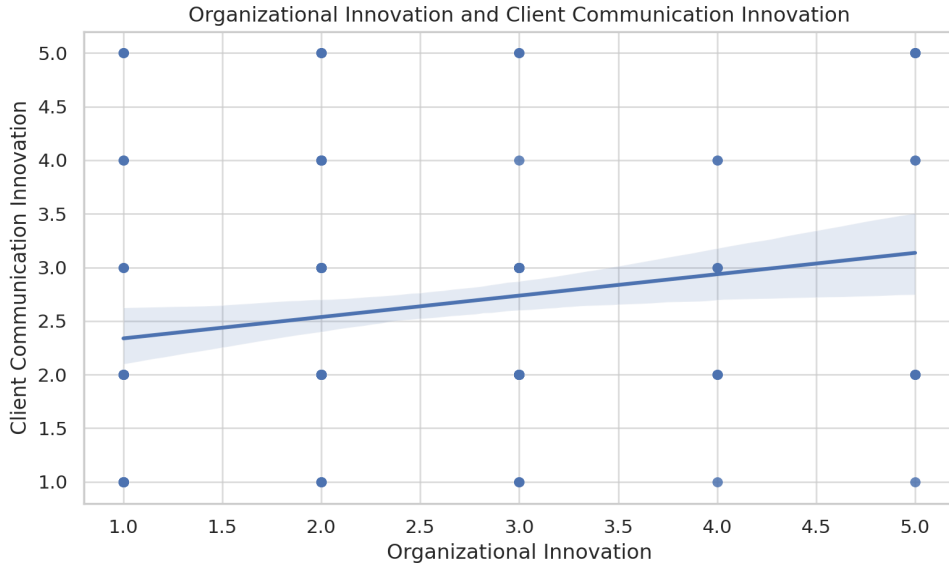


Source: Author's creation

The third hypothesis assumed that there is a positive relationship between the level of customer communication and the degree of organizational innovation within SMEs. In order to examine this relationship, Pearson correlation analysis was applied, given that both variables are continuous and satisfy the basic assumptions of normality. The results obtained showed a statistically significant positive correlation between these two aspects of innovation, with a correlation coefficient of $r = 0.194$ and $p < 0.01$. It is important to emphasize that the coefficient indicates a relatively weak, but clear positive relationship, statistical significance confirms the existence of a connection where companies that communicate more intensively with their customers, more often simultaneously implement organizational innovations related to the way of working, internal management, procedures and business structure. These results are additionally presented graphically in Figure 2, where a slight, but visible upward trend line is visible. The figure shows that with the increase in communication activities towards customers, the organizational innovation index also increases, indicating that

inputs coming directly from the market, such as feedback, requests, suggestions or new needs, act as an external stimulus for adaptation and innovation within the company. These results confirm hypothesis H3, emphasizing the importance of external information and two-way communication with customers as a key element of the innovation capacity of SMEs. In the context of countries in transition, where Bosnia and Herzegovina is located, these results are particularly significant, as they show us the need to develop a market orientation and a culture of adaptability towards customers, all with the aim of strengthening competitive position through innovation.

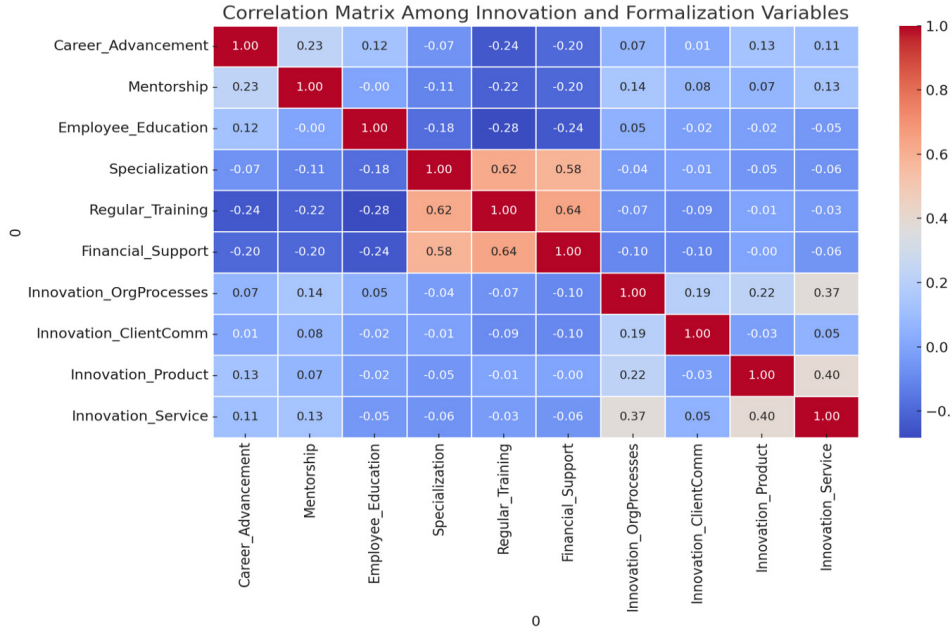
Figure 2: Organizational Innovation and Client Communication Innovation



Source: Author's creation

An additional value in interpreting the results for the third hypothesis H3, but also for the introduction to the next hypothesis, is represented by the correlation matrix that shows the interrelationships between the key variables used in the analysis, which is shown in Figure 3. This matrix confirms a positive and statistically significant relationship between customer communication and organizational innovation, which strengthens the previous conclusion. It is important to emphasize, however, that the correlation matrix also reveals significant interdependencies between the formalization of organizational processes and the overall innovation score, as well as between formalization and some individual dimensions of innovation, which makes these relationships directly relevant to testing the fourth hypothesis.

Figure 3: Correlation Matrix Among Innovation and Formalization Variables



Source: Author's creation

The fourth hypothesis investigated whether the formalization of internal business processes within SMEs acts as a significant predictor of the overall innovativeness of these companies. To test this hypothesis, multiple linear regression was applied, where the dependent variable is represented by the summary innovation index, and the independent variables included process formalization, mentoring, sector affiliation, firm size, and the presence of process digitalization as control variables.

The results of testing this hypothesis showed that the model as a whole is close to statistical significance ($p = 0.0526$), while the mentoring variable had a statistically significant coefficient ($p = 0.030$), while process formalization by itself did not reach the significance threshold in this model. However, the presence of significant correlations in the previous correlation matrix, which is visible in Figure 3, as well as the relative proximity of the threshold value for the entire model, suggest that there is a certain interaction and possible potential of formalization as a factor of innovation, which is not fully clarified in this model. These results provide partial confirmation of hypothesis H4, with particular emphasis on the fact that process formalization, although in itself may not always be a sufficient condition for innovation, in combination with other organizational elements, such as mentoring, decision-making structure and communication, can represent a basis for the systematic creation and implementation of innovations.

4. DISCUSSION

This research has yielded several findings and conclusions that provide a better understanding of the factors shaping the innovative behavior of SMEs in the context of transition countries, with a particular focus on organizational design and process formalization. The four hypotheses tested showed a wide range of results, from full to partial confirmation, as well as one unsuccessful confirmation, which indicates the complexity of innovation trends within the SME sector in Bosnia and Herzegovina.

Hypothesis H1, which predicted that career paths influence innovative behavior, was not confirmed, so this result can be interpreted in light of the literature suggesting that formal career progression is still not established as a mechanism for encouraging innovation in transition countries (Ejdys, 2020; Dziedzic & Szromek, 2021). In the context of Bosnia and Herzegovina and the wider region, where organizational structures are often unclearly established and career development is linear or slow, employees do not have clear motivational incentives for innovative behavior through hierarchical advancement, which ultimately opens up space for redefining the approach to career management in SMEs that want to strengthen innovation potential.

On the other hand, hypotheses H2 and H4, which relate to mentoring, training and process formalization, were partially confirmed in this study. The results clearly show that mentoring is a significant predictor of both organizational and overall innovation, which is in line with the findings of several authors such as Duradoni et al. (2023) and Tseng (2021), who emphasize the importance of informal knowledge transfer in stimulating innovative activities of companies. Although process formalization did not have statistical significance in testing H4, the model as a whole was very close to significance, indicating that formalization can have an indirect or interactive effect depending on the context in which it is located. This interpretation is consistent with the findings of Felin and Powell (2005), who emphasize that rigid formalization can be a barrier to innovation.

Hypothesis H3 was confirmed and proved a clear and positive relationship between customer communication and organizational innovation. This result reinforces the arguments from the literature that highlight market orientation and open communication as key elements in the emergence of innovative activities of companies (Hervas-Oliver et al., 2021; Gault, 2018). The visualization that was made as part of the presentation of the results of this analysis confirms this connection and visually demonstrates the existence of a positive trend. In practice, this means that SMEs that systematically collect feedback from customers better understand market needs and more effectively revise their internal processes accordingly, which ultimately confirms that innovations are not only the result of internal processes, but also of real interaction and communication with the external environment.

The correlation matrix presented in the paper further confirms the interrelationships between key variables, suggesting that innovation activity in SMEs is not a purely linear phenomenon, but rather arises as a result of a complex network of factors. It is important to emphasize that the interaction that occurs between communication, mentoring, formalization and digital sophistication indicates that innovations most often occur in systems that simultaneously develop multiple organizational capacities, rather than relying on individual interventions.

Finally, all the results of this research contribute to the literature by further indicating the mechanisms through which organizational design and processes influence the innovative activities of enterprises in the context of less developed economic systems, especially in developing countries. The results also have practical implications for policymakers and managers in SMEs, who need to consider how to synergistically develop mentoring, communication, as well as formalization of processes and career paths within organizational management, in order to create an environment conducive to innovation.

CONCLUSIONS

The research conducted as part of this paper aimed to examine the connection between organizational structure, process formalization and innovative behavior within small and medium-sized enterprises in Bosnia and Herzegovina, taking into account the experiences and models developed in transitional and European countries. The results obtained showed that there is no single, unique factor that dominantly determines innovation within small and medium-sized enterprises, but that it results from the interaction of multiple organizational components.

The hypothesis that examined the influence of career paths was not confirmed, indicating that formal structures of advancement in the analyzed context do not play a significant role in stimulating innovation. In contrast, other factors such as mentoring and internal training showed a statistically significant, albeit partial, connection with organizational and overall innovation. It is particularly important to highlight a significant finding related to the confirmation of the positive relationship that exists between the intensity of communication with customers and the presence of organizational innovation, which emphasizes the importance of external input in the emergence and occurrence of internal changes.

The previous conclusions have a number of important implications. First, in the theoretical part, they contribute to a better understanding of innovation in the context of SMEs operating in environments with limited resources and institutional constraints and barriers. Second, on the practical side, the results suggest that efforts to foster innovation should focus on strengthening informal learning patterns, communication channels and flexible approaches to formalization, rather than solely on rigid career development structures.

The research also indicates the need for further examination of the role of organizational culture, digital literacy and external networks in fostering innovation. Future research should consider other approaches to detect changes over time, and introduce additional moderators and mediators to explain why certain factors have a stronger or weaker impact on innovation behavior.

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ORGANIZACIJSKI DIZAJN I FORMALIZACIJA PROCESA KAO PREDUVJETI ZA INOVATIVNO PONAŠANJE U MALIM I SREDNJIM PREDUZEĆIMA

SAŽETAK

Ovaj rad istražuje odnos između organizacijske strukture, formalizacije procesa i inovativnog ponašanja u malim i srednjim preduzećima u Bosni i Hercegovini. Oslanjajući se na teorijske osnove institucionalne ekonomije i organizacijskih inovacija, ovo istraživanje testira četiri hipoteze koristeći logističku regresiju, višestruku linearnu regresiju i Pearsonovu korelacijsku analizu. Studija je koristila kvantitativni pristup koristeći podatke prikupljene tokom 2023. godine iz uzorka od 304 mala i srednja preduzeća koja posluju u sektorima proizvodnje, trgovine, usluga i informaciono-komunikacijskih tehnologija u Bosni i Hercegovini. U analizi su primijenjene logistička regresija, višestruka linearna regresija i Pearsonova korelacija za testiranje četiri hipoteze. Rezultati pokazuju da formalizovani karijerni putevi nemaju značajan uticaj na inovativnost, dok mentorstvo i obuka pokazuju djelimičan, ali statistički značajan efekat. Također, potvrđena je pozitivna korelacija između intenziteta komunikacije s kupcima i nivoa organizacijske inovacije, što ukazuje na važnost eksternih povratnih informacija koje služe oblikovanju internih promjena. Formalizacija procesa pokazala je djelimičan uticaj na ukupni nivo inovacija. Dobijeni rezultati doprinose boljem razumijevanju faktora koji oblikuju inovacijski kapacitet malih i srednjih preduzeća u tranzicijskim ekonomijama i naglašavaju potrebu za sveobuhvatnim pristupom koji kombinuje razvoj ljudskog kapitala, fleksibilne organizacijske strukture i aktivno uključivanje vanjskog okruženja.

Ključne riječi: *MSP, inovacije, organizacijski dizajn, formalizacija, mentorstvo, tranzicijske ekonomije, Bosna i Hercegovina*

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