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ANALYSIS AND INFLUENCE OF THE LEVEL OF INNOVATION & LEADERSHIP ON THE LEVEL OF ORGANIZATIONAL CHANGES

Oliver MOMČILOVIĆ[1], Slađana VUJIČIĆ[2], Dragan DOLJANICA[3*]

[1]*Faculty of Applied Management, Economics and Finance, University Business Academy in Novi Sad, Belgrade, Serbia, oliver.momciolovic@mef.edu.rs*
[2]*Faculty of Business, Economics and Entrepreneurship, Belgrade, Serbia, sladjanakonto@gmail.com*
[3]*Faculty of Applied Management, Economics and Finance, University Business Academy in Novi Sad, Belgrade, Serbia, dragan.doljanica@mef.edu.rs*

Abstract: *In order to improve both the internal and external functionality of the organization, organizational changes are increasingly sought. Changes are of great importance and without a doubt they are of crucial importance for strengthening and improving organizational efficiency. Organizational changes were always complemented by planned strategies and aligned with the organizational goal. The process of change is very challenging and important for organizations because it represents its path to success. Also, through organizational changes, organizations can be made capable of meeting future consumer demands and competing effectively with other market participants. However, many authors state that the changes are conditioned by a large number of factors. The aim of this paper is to examine the impact of leadership and innovation on the development of organizational changes in organizations in Serbia.*

Keywords: *innovation, leadership, organizational change, model, correlation, regression*

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1. Introduction

Globalization, technological progress, great scientific achievements and hyper competition create the conditions of a highly dynamic and difficult to predict environment at the global level (Lazarević Moravčević et al., 2018). Globalization, heightened competition, and quick technological progress (Hou & Cheng, 2022; Hameed et al., 2021; Skare & Soriano, 2021). According to Kanter et al. (1992) we live in a world that is constantly changing, and change has an impact on individuals and the organization as a whole. Change can be defined as the process of continuously renewing the direction, structure, and ability to meet the ever-changing needs of external and internal customers. Change is important to any organization both for its success and for its competitive advantage. Whether change will occur depends on several factors: environment, management, knowledge, willingness to change, resistance to change,

* Corresponding author

entrepreneurial spirit, motivation, risk. The content of organizational change can be presented through (Stanković & Radić, 2013):

- changes in the basic arrangement of the organization (structure, ownership, financial sources, ...);
- changes in tasks and activities (length of product/service line, market servicing, customers);
- changes in technology (equipment, tools, materials, hardware, software, ...);
- changes in the management structure (internal organization, decision-making and control procedures, etc.);
- changes in the culture of the organization (values, traditions, informal relations, ...);
- changes in people (management and employees, attitudes, motivation, behavior, ...);
- changes in the results of the organization (financial, economic, social, ...); and
- image changes in the environment, etc.

Today there are many factors that influence the development of organizational changes. However, there are several models of change management that imply a systematic approach to accepting new ideas, innovations and a global organizational approach to implementing changes in the organization. Therefore, the main aim of the paper is to examine the impact of leadership and innovation on the development of organizational changes in organizations in Serbia.

2. Organizational Changes

In an increasingly complex and dynamic business environment, organizations are constantly striving to change and adapt their operations (Jabri & Jabri, 2022; Buschow & Suhr, 2022; Sarta et al., 2021). Organizations are therefore required to invest significant resources to implement various changes. Change is a common thread that runs through all organizations regardless of size, age, industry. The concept of "change management" is well-known and is constantly being improved, but how and how successfully organizations manage changes has great variations and depends primarily on the people involved in the changes, how much they understand the change processes, the nature of the work, etc. This means that change management is a complex process but also a risky undertaking. Organizational change can occur when things are done differently to cope with growing changes in the organization's environment. A change in any part of the business can affect the entire organization. Several studies have highlighted that most organizational change initiatives fail, with an estimated failure rate of 60–70%. The high failure rate causes ongoing concern and interest in factors that can reduce failure and increase the success of organizational change. The basic goal of changes is to first remove or weaken the forces of resistance, and only then follows the strengthening of the activities of the driving forces in the organization. In their works, many authors examined different models of organizational change management and tried to identify the most important factors that influence the success of change management.

3. Innovations

The concept of change management is very closely related to the concept of innovation management, considering that innovations use changes, and also lead to them (Radović-Marković, 2008). In the modern environment, they become one of the most important sources of a company's competitive advantage. The importance of innovation for gaining a competitive advantage imposes the necessity of detailed and analytical planning of this process (Vujičić et al., 2021). From innovative activities carried out by organizations and their success, but also

their position on the market (Scaliza et al, 2022; Opland et al., 2022; Ambos & Tatarinov, 2022; Sareen & Pandey, 2022).

Innovations have a direct impact on increasing productivity and increasing competitiveness, and continuous business innovation implies constant adaptation and the ability to navigate the competitive market (Šormaz, 2021). Innovations that lead to new products or services expand business diversity and build productive knowledge (Toerien, 2018). An innovative organization will constantly search for innovative solutions, which leads to the introduction of new or improved existing products and business processes (Ravić, & Gavrić, 2015).

4. Leadership

According to most authors, leaders are the basis and key to the success of today's organizations (Badura et al., 2022; Banks et al., 2022; Mirčetić et al., 2022; Vujić et al., 2019; Vujić et al, 2018). The role of the leader is to create an organization that will be flexible enough, not only to adapt to changes, but also to be their initiator. As we all know, organizational change is a big challenge for any organization. Therefore, there is a need for effective leadership in the organization to adopt successful organizational changes. Embracing change is essential to the long-term sustainability of any organization. If they do not prepare themselves according to changing circumstances they cannot survive and may lose reputation and market share. Many authors also concluded that the role of the leader is significant because it is the leader who brings about effective change for the organization. The basic functioning of the leader is focused on a series of activities related to the following contents (Grubić-Nešić, 2008):

- is bound to a change and works outside the boundaries of procedures;
- involves risk and uncertainty;
- constant interaction with followers;
- leadership is happening;
- has influence beyond formal authorities;
- each retains its specificities;
- markets ideas that can be processed;
- the leader's openness to new ideas; and
- communication is based on the voluntariness of followers-collaborators.

5. Research Methodology

The research model consists of 2 independent variables: Innovation (abbr. A1) & Leadership (abbr. A2) and 1 dependent variable Organizational change (abbr. A3) shown in figure1.

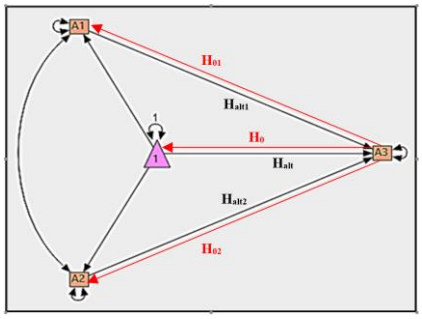

Figure 1. Research Model
Source: Authors

The research sample was completed by 138 respondents from the territory of the Republic of Serbia. The research tasks are:

- Determine whether the Level of innovation affects or does not affect the Level of organizational changes?
- Determine whether the Level of leadership affects or does not affect the Level of organizational changes?
- Determine whether the Level of innovation and leadership influence or not the Level of organizational changes?

Auxiliary hypotheses in the research are:

- H01: Level of innovation does not affect Level of organizational changes.
- Halt1: Level of innovation, affects the Level of organizational changes.
- H02: Level of leadership does not influence Level of organizational changes.
- Halt2: Level of leadership, affects the Level of organizational changes.

The main null hypothesis is:

- H0: Level of innovation and leadership do not affect the Level of organizational changes.
- Halt: Level of innovation and leadership, influence the Level of organizational changes.

5.1. Basic Descriptive Statistics

In table 1 are given the frequencies and percentage representation for all statements made in the Questionnaire. We can see that position 4 = partially agree for statement *a11* is the most represented and it amounts to 72 or 52.2% of the total of 138 respondents. The least represented attitude is 1 = I totally disagree for statements: *a21*, *a22*, *a23* and *a32* and it amounts to 1 or 0.7% of a total of 138 respondents.

Table 1. Frequencies and percentage representation of the offered views on the stated claims

		Response					
		1	**2**	**3**	**4**	**5**	**Total**
Response	a_{11}	5 3.6%	16 11.6%	18 13.0%	72 52.2%	27 19.6%	138
	a_{12}	2 1.4%	8 5.8%	16 11.6%	70 50.7%	42 30.4%	
	a_{13}	2 1.4%	21 15.2%	7 5.1%	61 44.2%	47 34.1%	
	a_{21}	1 0.7%	12 8.7%	18 13.0%	64 46.4%	43 31.2%	
	a_{22}	1 0.7%	24 17.4%	9 6.5%	65 47.1%	39 28.3%	
	a_{23}	1 0.7%	28 20.3%	6 4.3%	55 39.9%	48 34.8%	
	a_{31}	2 1.4%	11 8.0%	10 7.2%	70 50.7%	45 32.6%	
	a_{32}	1 0.7%	20 14.5%	21 15.2%	60 43.5%	36 26.1%	
	a_{33}	2 1.4%	22 15.9%	11 8.0%	50 36.2%	53 38.4%	

Source: Authors

5.1.1. Correlation and regression analysis

The research used correlation and regression analysis, which was processed in the statistical software SA JMP Pro v16.

Correlation and regression analysis for variables (A1 - A3)

Figure 2 shows the theoretical system model consisting of the independent variable Level of (A_1) and the dependent variable Level of (A_3).

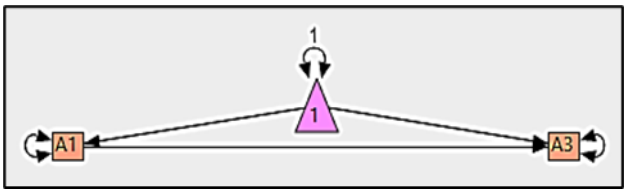

Figure 2. Theoretical system model (A1 - A3)
Source: Authors

On figure 3 the basic standard evaluation of the system model was performed. The coefficient of determination is 0.631845, which means that with 63.18% the dependent variable Level of (A_3) can be explained by the independent variable Level of (A_1). Based on that, we can conclude that the correlation coefficient between the independent variable Level of (A_1) and the dependent variable Level of (A_3) is 0.794887 and that there is a strong correlation - connection between them.

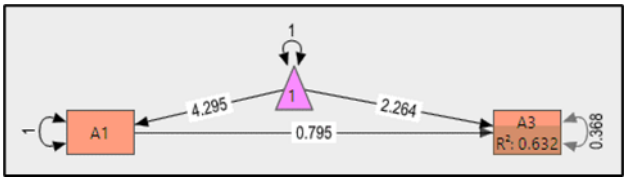

Figure 3. Standard contribution sizes (A1 - A3)
Source: Authors

The assessment of statistical significance is given in table 2 and it amounts to [F(1,136)= 233.4101, p<0,0001].

Table 2. ANOVA (A_1 - A_3)

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	41.765392	41.7654	233.4101
Error	136	24.335252	0.1789	**Prob > F**
C. Total	137	66.100644		<0.0001

Source: Authors

Based on the obtained results, the alternative hypothesis $\mathbf{H_{alt1}}$: **Level of innovation affects the Level of organizational changes,** can be confirmed.

Non-standard contribution sizes for the set system model are given in figure 4.

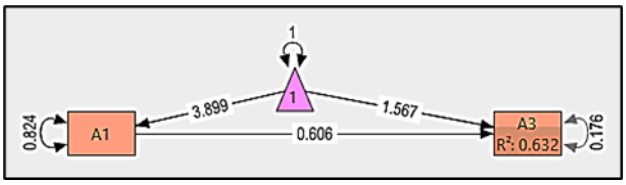

Figure 4. Non-standard contribution sizes (A_1 - A_3)
Source: Authors

The mean value of the grade for the independent variable Level of (A_1) is 3.8985507. The size of the variance for the independent variable Level of (A_1) is 0.8238465, and the variance for

the dependent variable Level of (A_3) is 0.1763424. Based on the data presented, a regression equation (formula 1 and 2) can be formed, which reads:

$$Y = 1.567033 + 0.6061018 \cdot x_1 \quad (1)$$

or

$$\text{Level of organizational changes} = 1.567033 + 0.6061018 \cdot \text{Level of innovations} \quad (2)$$

Figure 2 shows the diagram of the regression equation for the variables (A_1 - A_3). It can be said that as the Level of innovation increases, so does the Level of organizational changes.

Correlation and regression analysis for variables (A_2 - A_3)

Figure 5 shows the theoretical system model consisting of the independent variable Level of (A_2) and the dependent variable Level of (A_3).

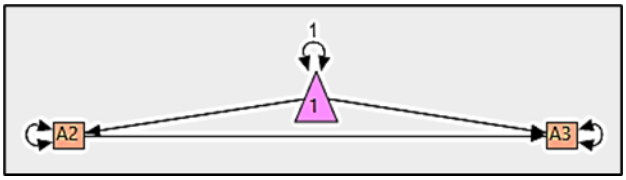

Figure 5. Theoretical system model (A_2 - A_3)
Source: Authors

On figure 6 the basic standard evaluation of the system model was performed. The coefficient of determination is 0.189372, which means that with 18.61% the dependent variable Level of (A_3) can be explained by the independent variable Level of (A_2). Based on this, we can conclude that the correlation coefficient between the independent variable Level of (A_2) and the dependent variable Level of (A_3) is 0.4351696 and that there is a relatively weak correlation - connection between them.

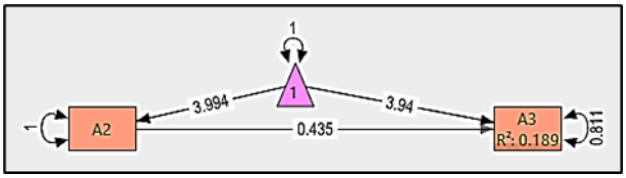

Figure 6. Standard contribution sizes (A_2 - A_3)
Source: Authors

The assessment of statistical significance is given in table 3 and it amounts to [F(1,136)= 31.7713, p<0.0001].

Table 3. ANOVA (A_2 - A_3)

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	12.517651	12.5177	31.7713
Error	136	53.582993	0.3940	**Prob > F**
C. Total	137	66.100644		<0.0001

Source: Authors

Based on the obtained results, the alternative hypothesis **H_{alt2}: Level of leadership affects the Level of organizational changes,** can be confirmed.

Non-standard contribution sizes for the established system model are given in figure 7.

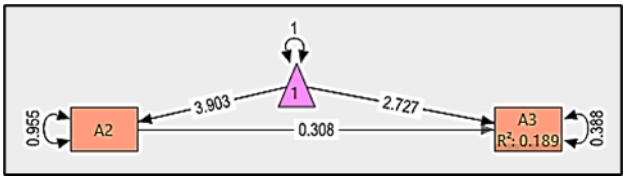

Figure 7. Non-standard contribution sizes (A_2 - A_3)
Source: Authors

The mean value of the grade for the independent variable Level of (A_2) is 3.9033816. The size of the variance for the independent variable Level of (A_2) is 0.9552382, and the variance for the dependent variable Level of (A_3) is 0.3882826. Based on the data shown, a regression equation can be formed (formula 3 and 4), which reads:

$$Y = 2.7271139 + 0.3081527 \cdot x_1 \quad (3)$$

or

$$\text{Level of organizational changes} = 2.7271139 + 0.3081527 \cdot \text{Level of leadership} \quad (4)$$

In figure 2 is given the diagram of the regression equation for variables (A_2 - A_3). It can be said that as the Level of leadership increases, so does the Level of organizational changes.

Multiple correlation and regression analysis for variables (A_1 - A_2 - A_3)

Figure 8 shows the theoretical system model consisting of the independent variables Level of (A_1) and Level of (A_2) and the dependent variable Level of (A_3).

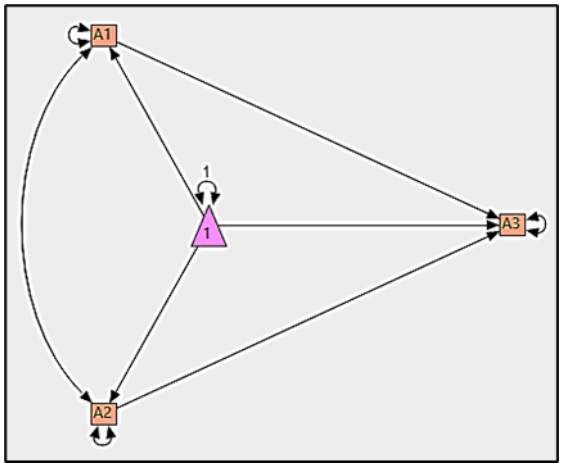

Figure 8. Theoretical system model (A_1 - A_2 - A_3)
Source: Authors

The coefficient of determination is 0.80015, which means that with 80.01% of the variability, the dependent variable (A_3) can be explained by the other independent variables (A_1 and A_2). The correlation of variables exists. The highest correlation between the independent variable (A_1) of innovation and the dependent variable (A_3) of organizational change is 0.7949 and it is strong. The smallest correlation is between the independent variables (A_1) innovation and (A_2) leadership, it is insignificant and amounts to 0.0316. On (Image 9) the basic standard evaluation of the system model was performed. The independent variable (A_1) innovation has a greater influence on the dependent variable (A_3) of organizational change and it is 0.7819132, and the independent variable (A_2) leadership has a smaller influence and it is 0.4104545.

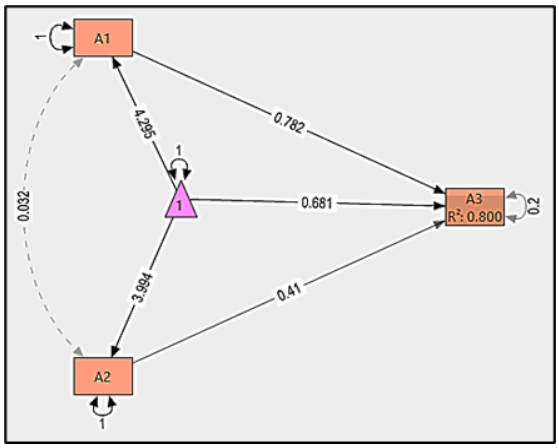

Figure 9. Standard contribution sizes (A_1 - A_2 - A_3)
Source: Authors

The assessment of statistical significance is given in table 3 and it amounts to [F(2,135)= 270.2534, p<0.0001].

Tabel 3. ANOVA (A_1 - A_2 - A_3)

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	2	52.890434	26.4452	270.2534
Error	135	13.210211	0.0979	**Prob > F**
C. Total	137	66.100644		<0.0001

Source: Authors

Based on the obtained results, the alternative hypothesis **H_{alt}: Levels of innovation and leadership influence the Level of organizational changes,** can be confirmed.

Non-standard contribution sizes for the set system model are given in figure 10. The highest mean score is for the independent variable (A_2) and is 3.9033816, and the lowest for the independent variable (A_1) is 3.8985507. The largest size for the variance is the size of the independent variable (A_2) 0.99552382, and the smallest variance is for the dependent variable (A_3) and is 0.0957262. The covariance between the independent variables (A_1) and (A_2) is 0.0316085.

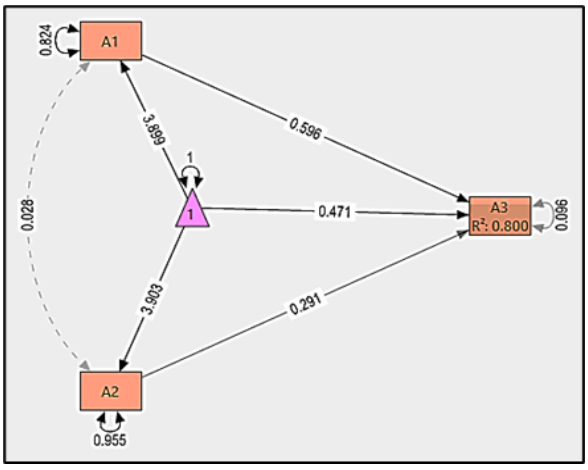

Figure 10. Non-standard contribution sizes (A_1 - A_2 - A_3)
Source: Authors

Based on the presented data, a multiple regression equation can be formed (formula 5 and 6), which reads:

$$Y = 0.4710762 + 0.596092 \cdot x_1 + 0.2906515 \cdot x_2 \quad (5)$$

or

Level of organizational changes

$$= 0.4710762 + 0.596092 \cdot \text{Level of innovations} + 0.2906515 \cdot \text{Level of leadership} \quad (6)$$

Figure 3 shows the diagram of the multiple regression equation for the variables (A_1 - A_2 - A_3). It can be said that as the Level of innovation and Level of leadership grow, so does the Level of organizational change.

Conclusion

Innovation management as a process clearly dominates and takes precedence over change management in relation to leadership, which with its specificity leads to the processing of planned ideas. Leaders must use different mechanisms to encourage innovation in modern organizations and, through the application of modern solutions, create new models that will contribute to the creation of new value. In order to achieve the best possible results, modern companies are based on the concept of knowledge management in the direction of finding innovative solutions that can provide adequate answers to permanent challenges in the business environment. By adequately managing innovations, business entities maintain the necessary level of changes and create the potential for performance development and growth of business results.

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