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***JEL: M15, Z32***
***Preliminary communication***
***https://doi.org/10.51680/ev.38.1.11***

*Received: February 29, 2024*
*Revision received: November 9, 2024*
*Accepted for publishing: December 24, 2024*



# DIGITAL TRANSFORMATION AS A FUNCTION OF RURAL TOURISM STRATEGIC DEVELOPMENT IN THE REPUBLIC OF CROATIA

**Abstract**

**Purpose:** The research, which holds significant importance, analyzes the key factors influencing the digital transformation in the strategic development of rural tourism in the Republic of Croatia. It aims to determine the impact of county locations, categorized into clusters: Adriatic Croatia, Continental Croatia, and Slavonia-Baranja. The study aims to investigate specific factors that support sustainable digital transformation in rural areas, which is a topic of increasing interest and relevance.

**Methodology:** Primary data were collected through survey questionnaires sent to relevant stakeholders in rural areas. The analysis was carried out using the Kruskal-Wallis test in the Jamovi application to assess the influence of an ordinal variable (location) on the factors of digital transformation, including external, technological, organizational, and socio-demographic factors.

**Results:** The results show significant differences among the clusters: Continental Croatia and Adriatic Croatia highlighted the importance of external factors (e.g., economic support) and technological factors (e.g., IT infrastructure), respectively, while socio-demographic factors were identified as key factors in the Slavonia-Baranja cluster. These findings confirm the need for a tailored regional approach.

**Conclusion:** The research conclusions underscore the practical implications of the identified factors for stakeholders in designing sustainable digitalization models. These findings can serve as actionable guidelines, equipping stakeholders with the necessary insights to increase the engagement of the local community in the digital transformation in the strategic development of rural tourism in Croatia. While the research acknowledges limitations, such as sample size and the subjectivity of responses, the results provide a valuable contribution to future research and the policy of digitalization of rural tourism strategic development in Croatia.

**Keywords:** Digital transformation, rural tourism, strategic development, Republic of Croatia

## 1. Introduction

Tourism has undergone intense transformation in recent decades. Its accelerated growth is a consequence of its connection with other economic sectors, making it one of the largest and most dynamic industries on a global scale (Parte & Alberca, 2021). Today, tourism is a powerful social, economic, and ecological driver, directly contributing to developing states, cities, and rural areas. With the advent of digital transformation and the concept of Industry 4.0, the tourism industry has experienced a revolution that has become essential for the competitiveness, growth, and sustainability of participants in the sector. Digital marketing, as one of the most effective tools, enables tourism stakeholders to reach the target audience and attract tourists effectively.

Although the relevance of digital marketing in rural tourism is widely recognized in the scientific literature, clear guidelines still need to be established for implementing digital transformation and identifying key factors that influence its success. In addition, the impact of digital technologies on tourist behavior and the development of rural areas still remains insufficiently explored. This research gap highlights the need for a deeper understanding to improve the management and promotion models of rural destinations.

One of the main challenges in the modern tourism market is growing competition, which leads to the need to develop new strategies. Modern tourists are increasingly looking for authentic experiences and destinations that allow them to get in touch with nature, history, and local culture (Lapuz, 2023). Individuals and organizations face pressure to redefine their approaches, focusing on innovative, sustainable, and technologically supported tourism attraction strategies. Adaptation that includes long-term thinking, active cooperation, and networking of all stakeholders is critical. New opportunities provided by digital technologies can significantly enhance the visibility of rural destinations, enabling personalized services and easy access to information (Zhu et al., 2023).

According to research by Maquera et al. (2022) and Roblek et al. (2021), digital technologies can improve the tourist experience and make the travel process less stressful. However, the problem arises due to fragmented and unreliable information, which makes planning difficult and requires significant time to find optimal options. Therefore, digitalization processes must be strategically implemented to enable better coordination of all stakeholders, including politicians, companies, and research centers, to stimulate economic development and increase the competitiveness of tourist destinations.

The research problem addressed in this paper concerns the impact of the digital transformation in the strategic development of rural tourism in the Republic of Croatia. The main questions to be answered are how various factors affect the digital transformation in rural tourism in the Republic of Croatia and whether there are differences between the factors referring to the position of individual counties.

The objectives of the research are:

- To investigate the influence of the analyzed factors using the Novianto model on the digital transformation in the strategic development of rural tourism in the Republic of Croatia.
- To analyze whether the county position influences the digital transformation factors.
- To identify the critical challenges in the process of rural tourism digitalization.
- To recommend the effective use of digital technologies in the strategic development of rural tourism.

In order to investigate the influence of the county position on the digital transformation factors in the strategic development of rural tourism in the Republic of Croatia, the authors divided all counties into three clusters according to the Novianto model.

*Table 1 Counties in the Republic of Croatia divided into clusters*

| Cluster name | Counties |
|---|---|
| Adriatic Croatia | Istria, Primorje-Gorski Kotar, Lika-Senj, Zadar, Šibenik-Knin, Split-Dalmatia, Dubrovnik-Neretva |
| Continental Croatia | Krapina-Zagorje, Varaždin, Međimurje, Koprivnica-Križevci, Zagreb County, City of Zagreb, Sisak-Moslavina, Karlovac, Bjelovar-Bilogora |
| Slavonia and Baranja | Osijek-Baranja, Vukovar-Srijem, Brod-Posavina, Virovitica-Podravina, Požega-Slavonia |

*Source: Authors*

In this research, a fundamental hypothesis was set that enables the examination of the influence of the position of individual counties on the digital transformation factors in the strategic development of rural tourism in the Republic of Croatia using the Novianto model. The null hypothesis (H0) is based on the assumption that the county position within the defined cluster has no statistically significant influence on the digital transformation factors in the strategic development of rural tourism in the Republic of Croatia. In contrast, the alternative hypothesis (H1) suggests that the county position within the defined cluster has a significant statistical influence on the digital transformation factors in the strategic development of rural tourism in the Republic of Croatia.

The methodological approach includes comparative, qualitative, and quantitative analysis. Primary research includes in-depth semi-structured survey questionnaires with key stakeholders, followed by quantitative and qualitative data analysis. The collected data comes from primary and secondary sources, emphasizing the latest trends in digital transformation and the strategic development of rural tourism. The Jamovi application was used to analyze the correlations between the variables that analyze the influence of the county position on the digital transformation factors.

The structure of the paper is as follows: The first section provides a detailed overview of rural tourism and considers the impact of digital transformation on its strategic development. The second section focuses on the analysis of the stakeholder approach to rural tourism. The third section describes the methodology used and presents the research results. The fourth section discusses the obtained results, while the final section presents key findings and recommendations for future research and practical applications, highlighting the novelty of the research to engage the reader.

## 2. Theoretical framework - digital transformation and the stakeholder approach in the strategic development of rural tourism

As pointed out by Istanti (2021), as a form of travel that occurs in rural areas, rural tourism offers a distinct experience. These areas, characterized by agriculture as the primary source of income, low population density, and a rich, authentic culture, provide a unique window into different lifestyles and cultures connected to natural environments. Thilakarathne & Dassanayake (2020) further underline that rural tourism is currently one of the fastest growing forms of tourism, offering travelers a unique experience. The need to implement new development dynamics in rural regions is one of the critical topics of the rural tourism sector, especially considering that the digital transformation process is currently starting through the adoption of advanced digital technologies and tools (Rodrigues et al., 2021). The literature emphasizes that digital marketing, as a tool with high promotional potential, enables a more efficient and successful reach of a broader target audience. The lack of a conceptual and functional vision for planning and implementing these initiatives points to the need to develop a model that would improve the destination's image and influence tourists' decisions about visiting.

Although there is a global focus on research and understanding of digital transformation, whereby authors strive to define the topic precisely, there is no established definition, which is why each author interprets it in their own way (Kraus et al., 2021). The one by Hinings et al. (2018) stands out among the more recent definitions. It is defined as "the combined effect of several digital innovations that bring about new players, structures, practices, values and beliefs that change, threaten, replace or complement the existing rules of the game within organizations, ecosystems, industries, or fields." Digital innovations have a significant impact on the tourism industry as they enable the creation of a more inclusive experience for tourists and improve their overall satisfaction. According to Kindzule-Millere and Zeverte-Rivza (2022), information, communication, and digital technologies have become a global phenomenon and a constant driver of tourism. Digital technologies are crucial to making rural communities active, "smart," and sustainable tourist destinations, reducing distance problems, and improving access to services, information, and quality (Vučetić, 2012). Rural tourism plays an important role and is one of the drivers of rural development (Jurakić et al., 2020). Digital transformation has turned tourist destinations, including rural ones, into intelligent destinations. In this process, decision-makers in tourism destinations should consider the knowledge they use to develop their development strategies, information systems, traveler behavior, marketing, urban plan-

ning, destination management, administration, and increasingly important data analysis and data science (Roblek et al., 2021).

Digitalization and computerization have become essential in the socio-economic development and improvement of the quality of life. Digitalization processes have become essential for directing the tourist destination to innovation initiatives and networking with all stakeholders (from politics and companies to universities and research centers) to work together toward a more successful economic development. The processes above enable the regional transformation of rural areas into innovative regions (Roblek et al., 2021). The development of an intelligent economy is based on creating new companies and business models based on digitalization processes and developing and implementing citizen-oriented technologies. In this context, people are essential and key to achieving development strides and represent qualified human capital for working in new digital ecosystems (Sepasgozar et al., 2019).

Similarly, ICT enables a reduction in production costs, increases productivity, improves the efficiency and effectiveness of companies in rural tourism, and positively affects the performance, growth, and development of new products (Vučetić, 2017). Intelligent villages aim to bring together different policies to find better and more innovative ways to promote rural development. Namely, it is about exploiting existing and new social innovation technologies to add value to the lives of both tourists and citizens. It is essential to equip rural areas with the tools to address their challenges while also contributing to solving society's more significant challenges (Hogan, 2018). Modern digital travelers are today keen to participate more actively in the processes that concern them, and they are also increasingly interested in using social tools to highlight their identity and reputation (Roblek et al., 2021). They also evaluate and purchase tourism products and services and express their perceived value. New technologies have increased the tendency of tourists to participate in the co-production and evaluation of tourism products (Roblek et al., 2021).

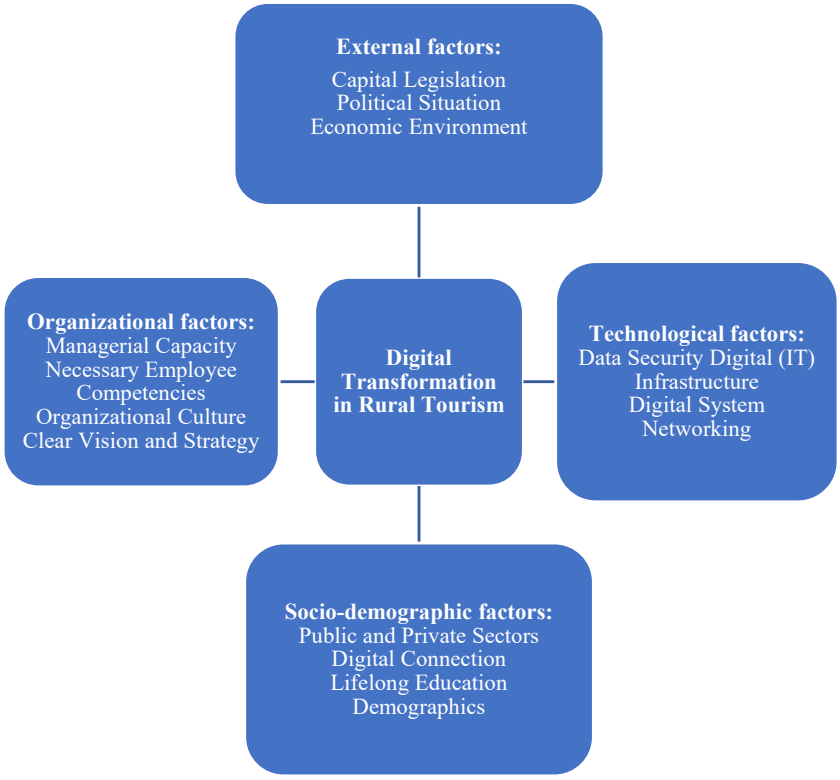
Companies should choose and decide which digital technologies they need and want to implement because each has a crucial role in creating a specific solution or providing a new experience. Digital transformation is critical in rural tourism because it can be used to reach solutions related to the process, functionality, performance, and the experience of all participating stakeholders. Murphy (1983) first noticed the stakeholder approach in tourism because he claimed that tourism is based on resources. A symbiotic relationship should be developed to ensure the industry's survival. Stakeholder cooperation represents two competitive advantages for tourism service providers, namely the active participation of stakeholders in the development of the tourism region and broader support for tourism development (Lankford & Howard, 1994). As far as rural tourism is concerned, cooperation between stakeholders can be demonstrated in different ways. For example, joint efforts can maintain the competitiveness of a region or its destination image or protect the heritage and tourism industry in a particular region (McComb et al., 2017). On the other hand, stakeholder networks can be viewed as collaborative networks in which a limited number of entities (e.g., hotels) work together toward a common goal but retain control over their resources (Raab & Kennis, 2009).

For an effective process of community cooperation in tourism, it is necessary to create a cooperative or reference organization that helps in the development and growth of tourism and the joint formulation of the vision and strategic goals of the destination (Eskerod & Larsen, 2018). Stakeholder access is critical to rural tourism development, and attention should also be paid to digitalization. Namely, it permeates the daily lives of both individuals and businesses because people learn through social media, communicate with intelligent machines in the workplace, transmit and receive data through tablets or smartphones, and benefit significantly from integrated, shared, and updated mobility systems in real time. Given the broad impact of digitalization, stakeholders must face digital change systematically.

The authors adapted the model used in this research according to Novianto (2023, pp. 180-181). The research results showed that external, technological, organizational, and socio-demographic factors influenced the digital transformation in rural tourism. External factors include capital, legislation, political situation, and economic environment, while technological factors comprise data security, digital (IT) infrastructure, and digital system networking. Organizational factors include management capacity, required employee competencies, organizational culture, clear vision and strategy, whereas socio-

demographic factors are the digital connection of the public and private sectors, lifelong education and demographics (Brunetti et al., 2020). Below is a figure representing the model.

***Figure 1 Model of digital transformation in rural tourism***




*Source: Created by the authors according to the Novianto model (2023), pp. 180-181*

## 3. Research methodology and results

This research analyzes the influence of the position of a particular county in the Republic of Croatia on the factors of the digital transformation in the strategic development of rural tourism in the Republic of Croatia using the data obtained through primary research in the entire Republic of Croatia. The research was conducted in two phases. During the first phase, which lasted from September 20 to October 27, 2024, primary research was conducted throughout the entire Republic of Croatia. From each county, including the City of Zagreb (a total of 21), four tourist boards, three communal companies, and two agencies operating in rural areas were selected. The survey questionnaires were sent to legal representatives of those bodies so that they could fill out the survey questionnaires. A total of 189 questionnaires were sent. The authors collected 72 fully completed questionnaires (38.1%) and 18 incomplete questionnaires (9.5%) that were not considered valid. In total, 31 questionnaires were received from the Primorska Croatia cluster, 27 from the Continental Croatia cluster, and 14 from the Slavonia and Baranja cluster. The questionnaire consisted of both closed and open-ended questions, and the research results were analyzed using the adapted Novianto model.

In defining the structured questions, to which the respondents answered by circling their responses, the authors began with a general question about the impact of the examined factors on the digital transformation in the strategic development of rural

tourism. This was followed by a question in which the respondents assessed the level and intensity of the influence of each factor on the digital transformation of rural tourism strategic development. General questions were followed by questions in which the respondents assessed the intensity of individual factors of external, organizational, technological, and socio-demographic factors. In the end, the respondents assessed the potential impact of individual stakeholders on the digital transformation in the strategic development of rural tourism, including the key challenges that need to be overcome along the way and the positive effects of digital transformation in rural tourism. In the last question, the respondents were allowed to suggest in an unstructured way what their organization can do to achieve long-term sustainable development of the digital transformation in the strategic development of rural tourism. After processing all the received questionnaires, the data were analyzed and presented in graphical form.

In the second phase of the research, an analysis of the relationship between the variables was conducted using the Jamovi program (Jamovi, 2024). The analysis focused on the relationship between one ordinal variable with three classes (county locations divided into clusters) and four additional variables (external, technological, organizational, and socio-demographic factors) that were not adequately distributed, employing a non-parametric statistical method. Since the data do not meet the assumption of normal distribution, a non-parametric test is the optimal approach to analysis. To analyze the relationship between the ordinal variable and other dependent variables, the Kruskal-Wallis test was used, which is a non-parametric equivalent of ANOVA for comparing multiple groups. This test enables a comparison of the median among the three classes of an ordinal variable, providing insight into the differences between groups without the need for a standard data distribution. The Kruskal-Wallis test was used to determine whether there was a statistically significant difference between the groups with respect to the dependent variables. The test results showed a statistically significant influence on three variables, while one variable was found to have no statistically significant influence. The analysis was carried out using the Jamovi statistical software, where the ordinal variable with three classes was set as a group variable. In contrast, the other four variables were included as dependent variables. The results generated in Jamovi will show information on the significance of differences between groups.

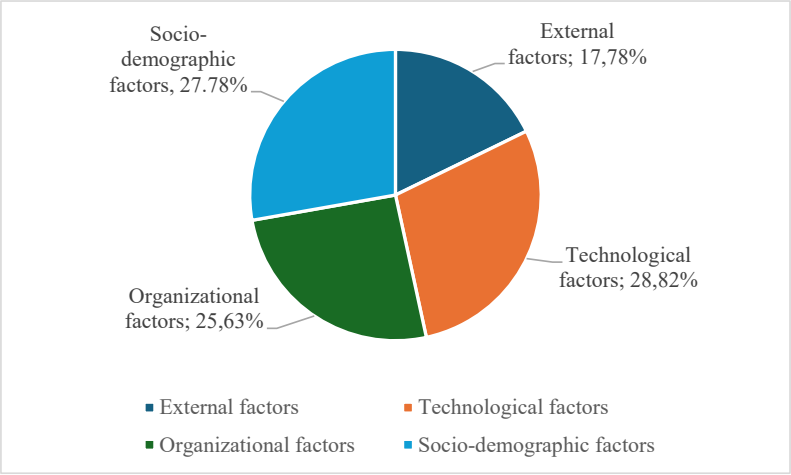
The application of the Kruskal-Wallis test and accompanying procedures will enable a reliable and detailed analysis of the relationship between the ordinal variable and other dependent variables, despite the irregular distribution of the data. The statistical significance of the correlations was assessed at the $p<0.01$ and $p<0.05$ levels. Particular emphasis is placed on determining the role of the location of an individual county in the digital transformation factors, that is, the analysis of whether the location of the county affects a particular digital transformation factor and to what extent.

It is important to note that this research has certain limitations. For instance, the selection of tourist boards, utility companies, and agencies to which the questionnaires were sent could be perceived as subjective. It is possible that a different selection could have resulted in different research outcomes. Additionally, there is a chance that some questionnaires were filled out by individuals who may not have the most relevant information about the subject. However, it is important to emphasize that this is only a potential assumption.

The following is an analysis and graphical representation of the research results.

The following graph shows the views of the respondents on the impact of individual factors on the digital transformation in the strategic development of rural tourism.

***Chart 1 The impact of the examined factors on the digital transformation in the strategic development of rural tourism***

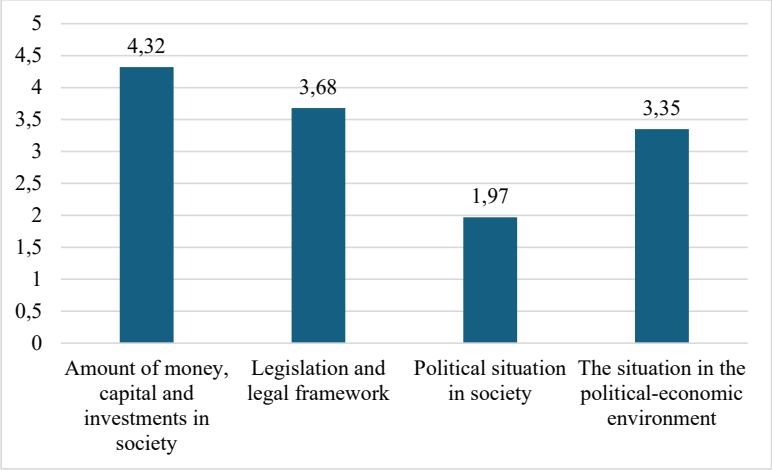



*Source: Authors*

It is obvious from the views of the respondents in the pie chart above that the digital transformation in the strategic development of rural tourism is most affected by technological factors, followed by socio-demographic and organizational factors, while it is least affected by external factors.

The following chart shows the views of the respondents on the intensity of the influence of certain external factors on the digital transformation in the strategic development of rural tourism.

***Chart 2 The impact of EXTERNAL factors on the digital transformation in the strategic development of rural tourism***



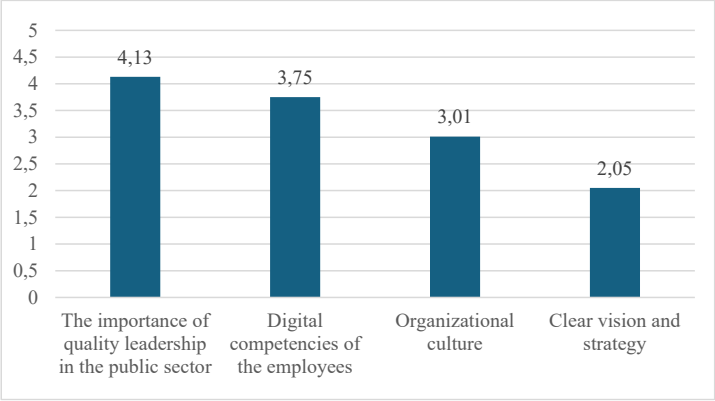

*Source: Authors*

By analyzing the respondents' answers, it was concluded that of all the external factors, the amount of money and capital invested in that sector, but also in society in general, had the greatest impact on the digital transformation in the strategic development of rural tourism. This is followed by legislation, the

legal framework and the situation in the political-economic environment, while the political situation in society has the least influence.

The chart below shows the views of the respondents on the impact of organizational factors on the digital transformation in the strategic development of rural tourism.

***Chart 3 The impact of ORGANIZATIONAL factors on the digital transformation in the strategic development of rural tourism***

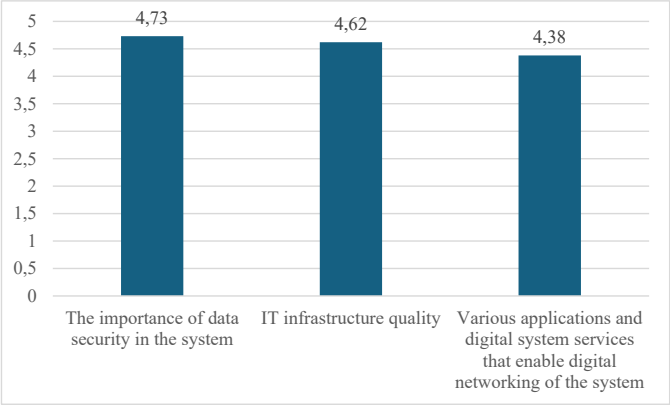



*Source: Authors*

The analysis of the graph leads to the conclusion that the respondents believe that quality leadership is the most important organizational factor that affects the digital transformation in the strategic development of rural tourism. This is followed by the digital competencies of employees and organizational culture, while the respondents believe that a clear vision and strategy have the least influence.

The following graph shows the respondents' views on the impact of technological factors on the digital transformation in the strategic development of rural tourism.

***Chart 4 The impact of TECHNOLOGICAL factors on the digital transformation in the strategic development of rural tourism***

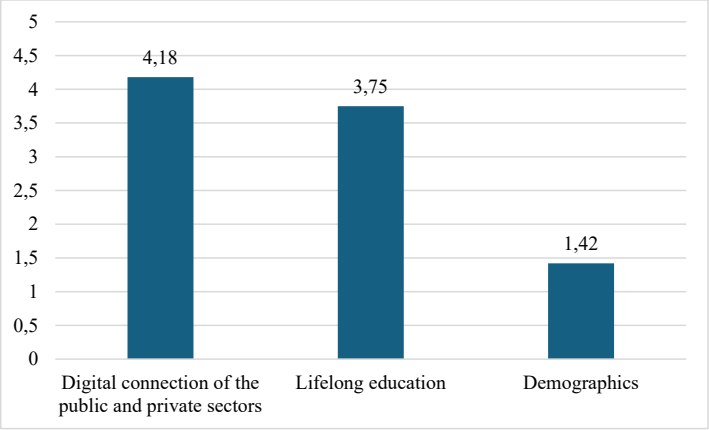



*Source: Authors*

By analyzing the views of the respondents on the impact of technological factors on the digital transformation in the strategic development of rural tourism, it is concluded that the respondents believe that technological factors have the greatest impact on this development. All factors received nearly maximum scores.

The following graph illustrates the views of the respondents on the impact of socio-demographic factors on the digital transformation in the strategic development of rural tourism.

***Chart 5 The impact of SOCIO-DEMOGRAPHIC factors on the digital transformation in the strategic development of rural tourism***

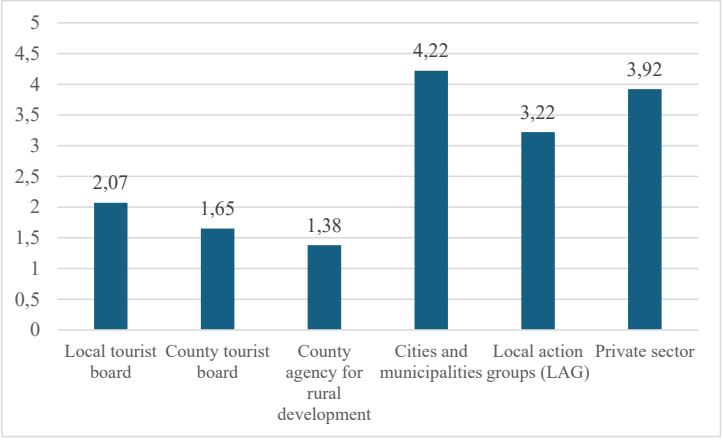



*Source: Authors*

The respondents stated that among all socio-demographic factors, the digital connection between the public and private sectors had the greatest influence on digital transformation, followed by lifelong education. They believed that demographics had the least influence, as it is not directly related to digital transformation.

The following graphs show the respondents' views on the potential influence of stakeholders on the digital transformation in the strategic development of rural tourism, the key challenges or threats of digital transformation in rural tourism, and the potentially most important effects of digital transformation in rural areas.

***Chart 6 The impact of STAKEHOLDERS on the digital transformation in the strategic development of rural tourism***

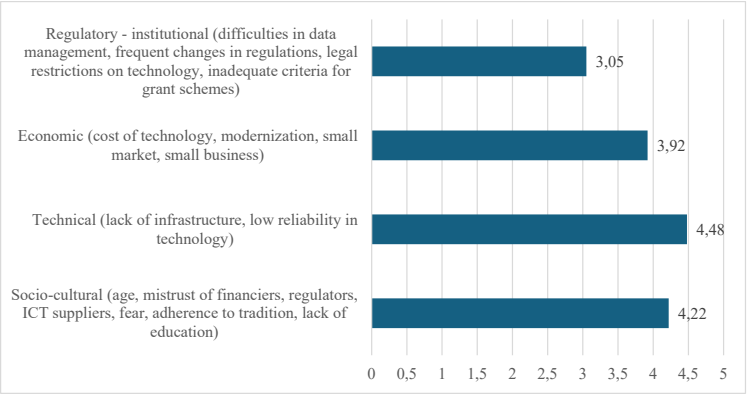



*Source: Authors*

The survey showed that respondents believe cities, municipalities, and the private sector can have the greatest influence on the development of digital transformation in rural tourism, followed by local action groups and the local tourist community. The respondents expect the least influence from the county tourist board and the county development agency.

The graph below presents the key challenges or threats of the digital transformation in the strategic development of rural tourism.

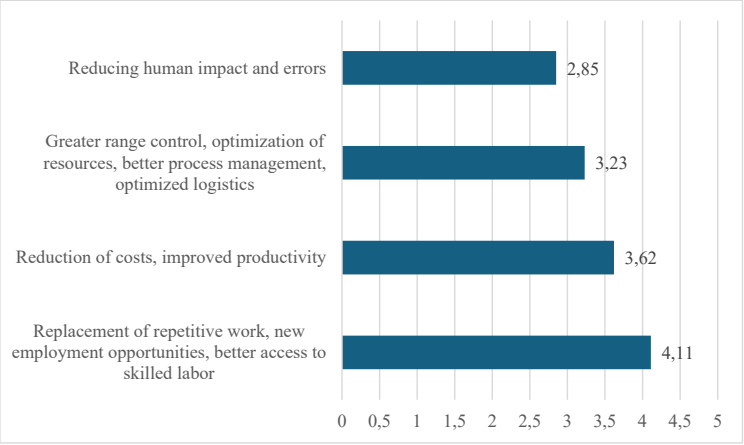
***Chart 7 Key challenges (or threats) of applying the digital transformation in the strategic development of rural tourism***




*Source: Authors*

In addition to quantified values and structured questions, the respondents were offered the option to independently write what they consider to be the greatest threat or challenge to the future digital transformation in the strategic development of rural tourism. By analyzing all the answers, it was concluded that the respondents believed that additional threats to the accelerated development of digital transformation could include young people leaving the countryside, unstimulating subsidies for young people, a very complex procedure for obtaining EU funds, and the higher cost of living in the countryside due to the distance from larger urban areas.

***Chart 8 The most important positive effects of digital transformation in rural areas***




*Source: Authors*

In addition to the structured responses, the respondents also mentioned other positive effects of digital transformation. They repeatedly highlighted the benefits of better connectivity between people in rural areas, the ability to perform most jobs through digital applications, saving on travel costs, the potential for digitizing agricultural processes or mechanization, as well as the much greater availability of information and the latest knowledge online.

As shown in the previous charts, all stakeholders, municipalities and cities have the greatest potential impact on the digital transformation in the strategic development of rural tourism, followed by the private sector and local action groups, and only then tourist boards and agencies involved in rural development. The respondents believe that the greatest threat to the future development of digital transformation is of technical nature, i.e. insufficient development of digital infrastructure, followed by socio-cultural and economic factors, and finally the legislative-institutional framework. They believe that the development of digital transformation in rural areas could contribute most in cases involving repetitive actions, then to the reduction of business costs in general and the optimization of business processes, and slightly less to the reduction of human influence and errors.

The final question in the questionnaire was unstructured, allowing the respondents to express their own opinions on how the public organization they work for could influence the digital transformation in the strategic development of rural tourism. Dozens of responses were received, which the authors grouped, concluding that public organizations could actively participate in the digital transformation in the strategic development of rural tourism in the following ways:

- Additional employee education and transfer of knowledge to potential users
- Organization of additional training for end users
- Organization of study trips to regions with positive examples of good practice
- Creating basic conditions to prevent young people from leaving rural areas
- Informing owners of rural facilities about current trends in the tourism market
- Subsidizing the start-up of activities in rural areas
- Subsidizing production in rural areas
- Creating a range of events that will attract guests throughout the year.

The following is a crucial overview of the Kruskal-Wallis test results, a significant tool that demonstrates the impact of a county's location on various digital transformation factors in the strategic development of rural tourism clusters in the Republic of Croatia.

***Table 2 Kruskal-Wallis test results on the influence of the location of an individual county on various digital transformation factors in the context of rural tourism clusters in the Republic of Croatia***

| Kruskal-Wallis test | | | |
|---|---|---|---|
| | $\chi^2$ | df | P |
| EXTERNAL FACTORS | 15.82 | 2 | < .001 |
| TECHNOLOGICAL FACTORS | 9.87 | 2 | 0.007 |
| ORGANIZATIONAL FACTORS | 2.19 | 2 | 0.334 |
| SOCIO-DEMOGRAPHIC FACTORS | 6.25 | 2 | 0.044 |

*Source: Created by the authors based on research using the Jamovi application (Jamovi, 2024)*

The table shows the Kruskal-Wallis test results, which was used to examine the impact of various factors on the digital transformation in the strategic development of rural tourism, grouped according to clusters of counties. The test showed statistically significant differences for some factors, but not for all. External factors (EXTERNAL)–($\chi^2 = 15.82$, df = 2, $p < .001$) show a vital statistical significance. This means that external factors vary significantly across the clusters, which supports the claim that exter-

nal factors are more pronounced in the Continental Croatia cluster. Technological factors (TECHNOLOGICAL)–($\chi^2$ = 9.87, df = 2, p = 0.007) also show a statistically significant difference between the clusters. This result indicates that the Adriatic Croatia cluster is probably more focused on technological factors, confirming the previous analysis. Organizational factors (ORGANIZATIONAL) are not statistically significant ($\chi^2$ = 2.19, df = 2, p = 0.334), meaning that they do not differ significantly between clusters and do not constitute significant variability in this analysis. Socio-demographic factors (SOCIO-DEMOGRAPHIC)–($\chi^2$ = 6.25, df = 2 and p = 0.044) show a statistically significant difference between the clusters, but at a slightly lower level. This result supports the claim that the socio-demographic aspect is more pronounced in the Slavonia-Baranja cluster.

These results show that external, technological, and socio-demographic factors significantly differ between clusters, confirming the existence of regional differences in approaches to and readiness for the digital transformation in the strategic development of rural tourism. Organizational factors, however, do not show significant differences between clusters, suggesting that regional specificities do not strongly impact this aspect. The following table shows the average distribution of digital transformation factors by clusters in Croatia.

***Table 3 Average distribution of digital transformation factors by clusters in the Republic of Croatia***

| Cluster | External Factors | Technological Factors | Organizational Factors | Socio- Demographic Factors | Total |
|---|---|---|---|---|---|
| Adriatic Croatia | 16.45 | 30.32 | 25.81 | 27.42 | 100.00 |
| Continental Croatia | 20.00 | 27.41 | 25.93 | 26.67 | 100.00 |
| Slavonia and Baranja | 16.43 | 28.21 | 24.64 | 30.71 | 100.00 |

*Source: Authors*

The data analysis, performed using the Kruskal-Wallis test, refuted the initial null hypothesis (H0), which suggested that the location of the county has no significant influence on the digital transformation factors in the strategic development of rural tourism in the Republic of Croatia. Instead, the results showed a statistically significant difference between the groups, supporting the alternative hypothesis (H1). Namely, the position of the county within the defined cluster has a significant influence on most digital transformation factors. External factors are more pronounced in the Continental Croatia cluster, which suggests the importance of external influences such as economic opportunities and support from the local community. On the other hand, technological factors are more pronounced in the Adriatic Croatia cluster, indicating that the region shows greater readiness for and access to new technologies that support digital transformation. The Slavonia-Baranja cluster stands out for its more pronounced socio-demographic factors, where the population's demographic characteristics significantly influence the approach to digital transformation.

The obtained conclusions suggest that each cluster shows specific characteristics that influence the development of digital transformation in rural tourism, emphasizing the need for adapted strategies that will consider local needs and potentials. Further analysis could help understand the specific factors within each cluster and enable the adaptation of policies and strategies for rural tourism development to regional differences.

## *4. Discussion of research results*

Research conducted on a sample of all counties in the Republic of Croatia showed that the position of the county significantly affects the digital transformation factors in the strategic development of rural tourism. Using the Kruskal-Wallis test, the cluster differences were statistically significant in most critical factors. Based on the obtained results, the null hypothesis (H0) was refuted, which was based on the assumption that the position of the county has no statistically significant influence on the digital transformation factors. The alternative hypothesis (H1), which suggests that the position of

the county within the cluster influences the digital transformation factors, was supported. The analysis showed that external factors are more pronounced in the Continental Croatia cluster than technological factors in the Adriatic Croatia cluster. In contrast, the Slavonia-Baranja cluster is particularly sensitive to socio-demographic factors.

The obtained results reveal the complexity of the influence of location on the digital transformation of rural tourism in different regions of Croatia. External factors, which include economic and local community support, are most pronounced in the Continental Croatia cluster. This can be attributed to the need for financial and economic investments in this region, as it traditionally has a weaker tourism infrastructure. These factors emphasize the importance of external funding sources, such as state grants or international funds that could stimulate digital transformation in the continental parts of Croatia. Technological factors are most significant in Adriatic Croatia, which is not surprising given the development of the tourism infrastructure along the coast and the higher share of investments in digital technologies. The Adriatic region already has experience using technology to promote and provide tourism services, which is further reinforced by the need to attract international visitors, who expect a strong digital presence and availability. Technological infrastructure, including digital systems, applications, and quality IT support, are critical to coastal tourism facing growing global competition. The Slavonia-Baranja cluster shows significant sensitivity to socio-demographic factors. Since this region faces the challenges of depopulation and low economic activity, socio-demographic factors play a crucial role in the digital transformation process. The importance of the digital connection of the public and private sectors and lifelong education, which enables the inclusion of the local population in digitized tourist activities, was particularly emphasized. In such regions, training the local population to use new technologies and supporting small and medium-sized enterprises in their digitalization efforts could significantly contribute to the development of rural tourism.

This analysis confirms the findings of previous research that highlighted the importance of contextual factors in the success of digital transformation in tourism. Thees et al. (2021) and Roblek et al. (2021) also concluded that factors such as technology and demographic characteristics play an essential role in the digitalization of tourism. However, most previous studies focused on the general impact of these factors, while this research analyzes their specific roles within each cluster in Croatia. This approach enables a deeper understanding of the specifics of digital transformation in rural parts of the country, which is particularly important for developing regionally adapted strategies. The literature also emphasizes the importance of involving all stakeholders in the digital transformation process, which the research further confirms. Digital transformation is not only a technical process. However, it involves the coordination of the public and private sectors, the involvement of the local community, and the adaptation of technology to the specific needs of different stakeholder groups (Ferrari et al., 2021). As shown by the results, the success of digital transformation largely depends on each region's social, economic, and cultural factors.

These findings have significant practical implications for the implementation of the digital transformation in the strategic development of rural tourism. For example, in the Continental Croatia cluster, it is necessary to provide greater economic support and encourage the local community to get involved in digital projects. This may include subsidies for digitalization and strengthening cooperation between local authorities and tourism boards. In Adriatic Croatia, the focus should be on the further development and integration of advanced technologies that enable an improved digital presence. The development of applications and digital solutions for visitors can further improve the tourist experience. In the Slavonia-Baranja cluster, socio-demographic factors such as education and digital connectivity should be a priority. The organization of lifelong education and programs focused on digital literacy could significantly improve local readiness for digital transformation, which would encourage the retention of young people in rural areas and reduce economic migration. Also, the adaptation of technological solutions to the older population, which is often less inclined to use digital tools, can help in the integration of all demographic groups in the tourism digitalization process, thereby making digital transformation more inclusive.

The limitations of this study include a small sample size per cluster, which may limit the ability to obtain more accurate data at the national level. Another limitation relates to the subjectivity in the selection of respondents. For example, some questionnaires

may not fully reflect the real challenges of digital transformation, as they were completed by individuals who lacked complete insight into the topic.

Future research could include a more comprehensive national level and more respondents from all clusters, thus obtaining a more representative sample. International comparative research could also enable a deeper understanding of how cultural and social factors influence the digital transformation in the strategic development of rural tourism in different countries. Qualitative methods, such as interviews with local stakeholders, could provide additional insights into each region's specific challenges and opportunities, and enrich the understanding of the interaction between stakeholders in the transformation process.

In conclusion, this research underscores the importance of context in digital transformation. Different clusters within the Republic of Croatia exhibit specific characteristics in terms of access to and readiness for the digital transformation in the strategic development of rural tourism. While Adriatic Croatia is focused on technological factors, Continental Croatia emphasizes external factors, and Slavonia-Baranja highlights socio-demographic aspects. These findings highlight the need for regionally adapted strategies and policies that will take into account local characteristics, needs, and potential. The approach to the digital transformation in the strategic development of rural tourism requires the systematic involvement of all stakeholders, from the local community and the private sector to state bodies and institutions. Developing regional strategies for digital transformation in rural areas could significantly improve the competitiveness and sustainability of tourism in Croatia. This paper opens up guidelines for future research that can further shed light on the interrelationships of the digital transformation factors.

## *5. Conclusion*

This research identified key factors influencing the digital transformation of rural tourism in the Republic of Croatia, emphasizing regional differences between clusters. Using the Kruskal-Wallis test, it was determined how specific factors differ between the clusters of Adriatic Croatia, Continental Croatia, and Slavonia-Baranja. Thus, the research provided clear answers to the research questions, confirming that the county's location significantly influences the digital transformation factors. The results of this research highlight the importance of contextual factors, such as economic support, technological infrastructure, and demographic characteristics, in shaping the approach to digital transformation. This further expands the existing knowledge about digitalization in tourism, highlighting specific opportunities and challenges for rural tourism within different clusters. Understanding how socio-economic conditions and local specificities can influence the application of digital technologies is essential, as it contributes to the more effective implementation of policies and strategies for developing rural tourism. Among the main limitations of the research are the size of the sample and its representativeness by clusters, which can affect the generality of the conclusions for all rural parts of Croatia. Another limitation lies in the possible subjectivity of the responses, as some participants may have needed more insight into all aspects of digital transformation. With this in mind, future research could include more extensive and diverse samples and expand to an international level, enabling comparative analysis and a deeper understanding of the role of cultural and social factors. Further research could also use qualitative methods, such as in-depth interviews, to explore specific challenges and opportunities in the digital transformation in the strategic development of rural tourism. This would provide additional insights into the interaction of different stakeholders in the transformation process, which could facilitate the application of tailored and sustainable digital strategies. In conclusion, this research highlights the importance of adapting strategies for the digital transformation in the strategic development of rural tourism to local conditions. A stakeholder-based approach can significantly improve the effectiveness of digital transformation, fostering the sustainable development of rural communities. The findings of this study offer valuable guidelines for further research and practical interventions, contributing the development of competitive and technologically advanced rural tourism in Croatia.

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