

**Dragan Vukolić**

University of Business Studies  
Faculty of Tourism and Hotel Management  
Banja Luka

**Anđelka Popović**

Economic School "9 May"  
Sremska Mitrovica

**Tamara Gajić**

Geographical Institute "Jovan Cvijić" SASA  
Belgrade  
University of Business Academy  
Novi Sad

**Jovan Bugarčić**

Faculty of Hotel and Tourism Management  
University of Kragujevac  
Vrnjačka Banja

## THE TRANSFORMATION OF BUSINESS PRACTICES IN GASTRONOMIC MANAGEMENT: TRENDS SHAPING THE FUTURE OF HOSPITALITY ENTERPRISES

Transformacija poslovnih praksi  
u gastronomskom menadžmentu –  
Trendovi koji oblikuju budućnost ugostiteljskih preduzeća

### Abstract

This paper addresses the transformation of business practices in gastronomic management through the process of service digitalization, which represents one of the key trends shaping the future of hospitality. Digitalization plays a crucial role in enhancing efficiency, improving customer experience, and optimizing operations in hospitality establishments. The study examines the impact of modern trends, such as digitalization, automation, and sustainability, on the operational efficiency of hospitality businesses. Focusing on gastronomic management, the research is based on a sample of 104 managers and head chefs, with data analyzed using regression analysis. The results show that digitalization has the most significant impact on improving efficiency, while automation contributes to the optimization of operations and the reduction of errors in food preparation and service processes. Sustainability, though moderately represented, also has a notable impact on efficiency, particularly in the context of waste reduction and energy efficiency improvement. The study offers valuable insights for hospitality businesses aiming to remain competitive in the context of rapidly evolving technological trends and growing customer demands, while also contributing to the academic literature in the field of gastronomic management.

**Keywords:** *gastronomic management, hospitality, technology, artificial intelligence (AI), business practices*

### Sažetak

Ovaj rad se bavi transformacijom poslovnih praksi u gastronomskom menadžmentu kroz proces digitalizacije usluga, koji predstavlja jedan od ključnih trendova koji oblikuju budućnost ugostiteljstva. Digitalizacija igra važnu ulogu u unapređenju efikasnosti, poboljšanju korisničkog iskustva i optimizaciji operacija u ugostiteljskim objektima. Istraživanje ispituje uticaj savremenih trendova, kao što su digitalizacija, automatizacija i održivost, na operativnu efikasnost ugostiteljskih objekata. Sa fokusom na gastronomski menadžment, istraživanje se zasniva na uzorku od 104 menadžera i šefova kuhinja, pri čemu su podaci analizirani uz pomoć regresione analize. Rezultati pokazuju da digitalizacija ima najznačajniji uticaj na poboljšanje efikasnosti, dok automatizacija doprinosi optimizaciji operacija i smanjenju grešaka u procesima pripreme i servisa hrane. Održivost, iako umereno zastupljena, takođe ima značajan uticaj na efikasnost, naročito u kontekstu smanjenja otpada i poboljšanja energetske efikasnosti. Istraživanje pruža značajne smernice za ugostiteljske objekte koji žele da ostanu konkurentni u kontekstu brzo razvijajućih tehnoloških trendova i rastućih zahteva gostiju, istovremeno doprinoseći akademskoj literaturi u oblasti gastronomskog menadžmenta.

**Ključne reči:** *gastronomski menadžment, ugostiteljstvo, tehnologija, veštačka inteligencija (VI), poslovanje*

## Introduction

Gastronomic management represents a crucial component of the hospitality sector, encompassing the management of all aspects related to food within hospitality establishments. Successful gastronomic management involves efficient menu planning, inventory management, kitchen operations organization, and meeting customer demands through high-quality service [1]. However, market dynamics, technological innovations, and shifts in guest expectations necessitate the transformation of business practices in this sector. Traditional approaches are increasingly giving way to innovative solutions that optimize workflows and enable better resource management, resulting in higher profitability and customer satisfaction. These transformations are essential for ensuring sustainable growth in the hospitality industry [2].

Technology is having an increasingly significant impact on the development of the hospitality sector, with digitalization becoming one of the main trends transforming business operations in this industry [3]. Modern hospitality establishments are progressively adopting digital payment systems, mobile ordering applications, as well as tools for inventory management and customer data analysis [4]. Artificial intelligence (AI) enables the personalization of services, contributing to increased guest satisfaction and creating a competitive advantage [5]. Additionally, the concepts of sustainability and digital recommendations (eWOM) influence how consumers make decisions, while the automation of operations helps reduce costs and improve efficiency. These trends are shaping the future of hospitality and underscore the necessity of continuously integrating technology to meet the evolving demands of the market [3,4,5].

Research findings show that the digitalization of business practices in gastronomic management has significantly contributed to the overall improvement of service quality and operational efficiency. The introduction of digital tools has enabled better resource management, reduced operational costs, and increased customer satisfaction through personalized services. The analysis of trends in the hospitality industry highlights the significant role of technology in shaping the future of this sector, where

automation and innovative practices have become essential for sustainable development. The research confirms that hospitality establishments that embrace digital innovations will be better positioned to address future challenges and maintain market competitiveness.

## Literature Review

Gastronomic management is essential for the overall success of hospitality establishments as it encompasses numerous key aspects that affect the quality of offerings and guest satisfaction. Successful gastronomic management involves the integrated oversight of all processes related to food preparation and service, including menu planning, inventory optimization, and kitchen staff organization [1,6,7]. These activities aim to ensure not only continuity in service delivery but also high-quality standards that meet the needs of contemporary consumers. Traditional practices in gastronomic management have largely relied on experience-based leadership with limited use of modern technological tools [8,9]. However, the growing demands of contemporary guests, along with global economic changes, have led to significant reevaluations of resource management practices within hospitality establishments. As technology has increasingly integrated into daily business activities, hospitality operators have begun adopting innovative tools and methods to improve both efficiency and service quality [8,10].

Gastronomic management today is characterized by significant changes, partly driven by technological innovations and shifting guest expectations [11]. For instance, the digitalization of business processes, such as inventory management systems and order automation, has significantly reduced operational costs and increased service speed [12]. In this context, innovative approaches, such as mobile ordering applications, digital menus, and customer data management systems, are becoming central to gastronomic management [13,14]. These tools not only enable faster and more accurate information processing but also enhance the overall guest experience. Technological innovations, as one of the key trends in hospitality, play a crucial role in transforming gastronomic management. The concept of digitalization has accelerated

changes in how hospitality operators manage resources, communicate with clients, and maintain service quality [15]. Artificial intelligence and big data have enabled service personalization and the prediction of customer behavior based on their previous activities [16]. This form of automation contributes to building stronger relationships with customers, which directly impacts their satisfaction and loyalty. Such approaches are increasingly gaining importance in hospitality, aiming to reduce waste, enhance resource efficiency, and contribute to global sustainability efforts. Thus, hospitality establishments position themselves as socially responsible organizations that respond to the growing demand for ethical and environmentally friendly business practices [17].

The transformation of business practices in gastronomic management allows hospitality establishments to meet increasingly complex market demands while ensuring long-term success. Research shows that hospitality establishments adopting digital innovations achieve better business results, as they can deliver greater value to their guests through personalized and more efficient services [5,7,17,18]. Particularly important is the role of personalization in creating a better customer experience, allowing hospitality operators to tailor services to the individual preferences of their guests. Additionally, the digitalization of business practices has the potential to improve operational efficiency through better inventory management and waste reduction [19]. For example, demand forecasting systems and real-time inventory tracking enable hospitality establishments to optimize purchasing and reduce food waste. In this way, digitalization contributes not only to economic gains but also to sustainability [20].

In recent years, the hospitality sector in the Republic of Serbia has undergone significant transformations influenced by global and local trends [20,21]. As in many other countries, digitalization and technological innovations are becoming central factors in the development of gastronomic management, directly influencing the evolution of the hospitality industry [20,22]. In the Republic of Serbia, this process is gaining momentum, with clear signs that hospitality establishments are adapting to modern trends to meet the needs of increasingly demanding guests and remain competitive in the market [21,23].

The digitalization of business is becoming an inevitable part of successful management in Serbian hospitality, especially in major urban centers such as Belgrade, Novi Sad, and Niš, where the market is most dynamic. More and more hospitality establishments in Serbia are using digital systems for managing reservations, food orders, and inventory control. Additionally, hospitality operators are increasingly relying on social media and digital marketing to attract guests and build their brands [15,20,21,24]. Social media not only serves to promote offerings but also acts as a tool for direct communication with guests, strengthening interaction and loyalty [25]. Previous research data indicate that electronic word-of-mouth (eWOM) is becoming one of the key factors in choosing restaurants and hospitality establishments, especially among younger generations, including Generation Z, which is highly active on social media [20,21,22,23,24,25].

Technological innovations are not limited to client communication but increasingly influence internal business processes [26]. Modern software for inventory management and menu planning enables hospitality establishments in Serbia to manage their resources more efficiently, reduce waste, and optimize costs. For example, some restaurants have begun using applications that analyze raw material consumption and assist in inventory planning, reducing food waste and improving overall efficiency [27].

Artificial intelligence (AI) and data analysis tools are also beginning to find their place in this sector [28]. Although the application of these technologies in Serbia is still in its early stages, there are examples where restaurants and hotels use AI to personalize services, analyze guest feedback, and predict their needs based on previous visits. These innovations can contribute to higher guest satisfaction, which is crucial for maintaining competitiveness in the market [28,29].

Sustainability and environmentally friendly practices are also becoming increasingly important factors in Serbian hospitality. More and more hospitality establishments are introducing ecological standards into their operations, reducing plastic use, transitioning to biodegradable materials, and introducing energy-efficient technologies in their kitchens [20,21,30]. This trend is particularly pronounced among newer restaurants and hotels that aim

to attract environmentally conscious consumers, especially tourists from Western countries who are increasingly sensitive to sustainability when choosing destinations and hospitality establishments [31].

Although it is clear that Serbian hospitality is embracing global trends, there are certain challenges in their full implementation [32]. The biggest challenge is access to modern technologies and underdeveloped infrastructure in smaller towns and rural areas. While large companies and restaurants in Belgrade and other major centers can invest in modern technologies and systems, smaller establishments often face financial and technological constraints. In the future, it is expected that Serbia will continue to follow global trends in hospitality, with greater emphasis on digitalization and sustainability [32,33]. The development of the tourism sector and increasing foreign visitor numbers will serve as additional incentives for hospitality establishments to continue introducing innovations into their operations [34]. This will strengthen Serbian hospitality's position in both regional and global markets.

The results of this research indicate that the adoption of digital tools in gastronomic management is one of the key factors for maintaining the competitiveness of hospitality establishments in the global market [30,31,33,34]. The integration of new technologies, such as artificial intelligence and automation, allows hospitality operators to improve service quality, reduce costs, and simultaneously meet the needs of modern guests who increasingly value efficiency and a personalized approach [35]. The transformation of business practices in gastronomic management through digitalization represents a critical step toward ensuring long-term success in hospitality. The future of this sector depends on the ability of hospitality establishments to adapt to technological innovations and continually improve their approach to resource and service management [33,36].

While existing studies consistently highlight the role of digitalization, automation, and sustainability in improving efficiency, the literature reveals substantial differences across regions and market structures. Research from technologically advanced hospitality markets (e.g., Western Europe, UAE, and East Asia) often reports higher performance gains from digital transformation

due to greater technological readiness and investment capacity. In contrast, studies from emerging or transitional economies indicate slower adoption trajectories, structural constraints, and more modest effects of automation on operational outcomes. These variations suggest that contextual factors such as infrastructure quality, workforce digital skills, and institutional support shape the extent to which technological and sustainable practices translate into measurable performance improvements.

Despite the breadth of international research, few studies have examined how these global trends manifest in transitional hospitality markets such as Serbia, where digital maturity, resource availability, and organizational readiness differ markedly from those in developed economies. Moreover, most existing studies focus on hotels, while empirical evidence from restaurant based gastronomic management remains limited. This gap underscores the need to better understand how digitalization, automation, and sustainability jointly influence operational efficiency in settings characterized by uneven technological adoption and heterogeneous market conditions.

In researching the transformation of business practices in gastronomic management, three key questions are essential for understanding the impact of contemporary trends on the future of hospitality:

**RQ1:** What are the most significant technological trends affecting the transformation of business practices in gastronomic management, and how are they shaping the future of hospitality?

The first question relates to identifying the technological trends that most influence this sector. With the increasing application of digital solutions such as artificial intelligence, automation, and online ordering platforms, hospitality operators need to understand how these innovations enhance business operations and elevate competitiveness in the market. Analyzing these trends provides a deeper understanding of the industry's direction [20,29,31,32,37].

**RQ2:** How do digitalization and innovations affect operational efficiency and service quality in gastronomic management?

The second question focuses on the impact of digitalization on operational efficiency and service quality. Digital tools allow for faster order processing, better

inventory management, and the provision of personalized services, resulting in more satisfied guests and greater profitability. This question is crucial for understanding how technology can transform traditional business models and deliver additional value to hospitality establishments [21,22,38,39].

**RQ3:** To what extent does the implementation of sustainable business practices affect the competitiveness and long-term success of hospitality establishments?

The third research question considers the importance of sustainable business practices. With the growing demand for environmentally friendly products and services, hospitality establishments that implement sustainable practices become more competitive in the market. This question explores how sustainability influences long-term success and guest loyalty, and what are the best ways to integrate these practices into daily operations [20,27,40,41].

These three questions provide a comprehensive insight into the transformations shaping the future of hospitality, particularly through the lens of technology and sustainability.

The conceptual model illustrates the hypothesized relationships between digitalization, automation, sustainability, and their combined influence on operational efficiency in hospitality establishments (Figure 1).

## Methodology

The research was conducted in the Republic of Serbia between June and September 2024, with the aim of analyzing trends in gastronomic management and their impact on the future of the hospitality industry. The study employed a convenience sampling approach, selecting respondents based on their availability and willingness to participate. A total of 55 hospitality establishments from seven cities Belgrade, Novi Sad, Sremska Mitrovica, Subotica, Vrnjačka

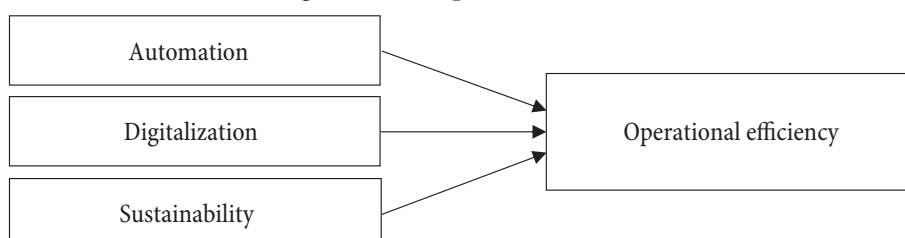
Banja, Šabac, and Kragujevac participated in the study. Data were collected from 55 managers and 52 head chefs of these establishments. However, three surveys completed by the head chefs were not properly filled out and could not be processed, resulting in a final sample of 49 head chefs. Three incomplete questionnaires were excluded from the dataset using listwise deletion, as the extent of missing data prevented reliable statistical processing.

The data collection tool was a questionnaire composed of questions regarding trends in gastronomic management and assessments of future business changes in the hospitality sector. Respondents expressed their views on various aspects of digitalization, automation, sustainability, and service personalization, as well as how these trends might impact their future business operations. The questionnaire was structured using a 5-point Likert scale, where respondents ranked their agreement with statements from “strongly disagree” to “strongly agree.” This scale facilitated the quantification of respondents’ attitudes and perceptions, simplifying the statistical data analysis. The questionnaire was based on items from various academic papers addressing similar topics [42,43,44,45].

Before the research was conducted, the questionnaire was tested for reliability and validity. Cronbach’s alpha coefficient was used to assess the internal consistency of the scale. The statistical software SPSS was employed for data processing, enabling the analysis of various relationships between variables. Descriptive statistics were first conducted to describe the basic characteristics of the sample. Then, regression analysis was used to test the hypotheses and determine the extent to which specific trends, such as digitalization and automation, influence the perceptions of managers and head chefs regarding future business operations.

During the analysis, the regression method allowed for the determination of the influence of independent

**Figure 1. Conceptual Framework**



variables (such as digitalization and sustainability) on dependent variables (perceptions of the future and competitiveness of the establishments). This analysis provided insights into which factors most significantly influence the transformation of business practices in hospitality establishments. Control variables such as establishment size and service type were not included in the regression model due to the exploratory scope of the study and the intention to preserve statistical power given the sample size.

## Results

In this study, data were analyzed from a total of 104 respondents, consisting of 55 hospitality managers and 49 head chefs in Serbia. Regarding the age structure of the respondents, the majority of managers and head chefs fell within the 35-44 age group (42%), with the second most represented group being those aged 45-54 (30%). Respondents younger than 35 years comprised 15% of the sample, while those over 55 years made up 13%. These findings indicate that the majority of respondents are middle-aged individuals with significant work experience in the hospitality industry.

In terms of gender distribution, men dominated the sample, accounting for 68% of the total respondents, while women represented 32%. This gender imbalance can be attributed to the predominance of men in leadership positions in the hospitality industry, particularly in kitchen management. The educational background of the respondents shows that most held a university degree (51%), while 35% had completed secondary education. The remaining 14% had higher vocational education or specialized professional certifications in hospitality and gastronomic management. These data suggest that the respondents are generally well-qualified for their positions, which is crucial for an accurate understanding of trends and innovations in business practices.

With respect to work experience, the majority of respondents (58%) had over 10 years of experience in hospitality, making them highly experienced in the field. About 25% of respondents had between 5 and 10 years of experience, while 17% had less than 5 years of work

experience. These data indicate that most participants are well-acquainted with hospitality business practices, contributing to the quality and reliability of the collected data. This analysis of respondents' demographic characteristics provides a clearer understanding of the sample structure and suggests that the research included a diverse group of professionals who can meaningfully contribute to the assessment of trends in gastronomic management and hospitality.

**Table 1. Demographic characteristics of the respondents**

Characteristic	Category	N (%)
Gender	male	68%
	female	32%
Age	18-34	15%
	35-44	42%
	45-54	30%
	More than 55	13%
	Education	high school
	college or university degree	51%
	master or PhD	14%
Work experience	Up to 5 years	17%
	From 5 to 10 years	25%
	More than 10 years	58%

Source: Author's research

The reliability of the questionnaire was tested using the Cronbach's alpha coefficient, which is a standard method for measuring internal consistency or the homogeneity of a set of questions within a study. The obtained Cronbach's alpha value was 0.833, indicating a high level of reliability for the questionnaire. In social science research, alpha values above 0.70 are considered satisfactory, while values above 0.80 are deemed very good. A value of 0.83 suggests that the respondents answered the questions consistently and that there is a high degree of correlation between the different items in the questionnaire.

Table 2 presents the research results regarding the impact of various factors on the transformation of business practices in gastronomic management and the trends shaping the future of hospitality. Respondents evaluated statements within five categories: business practice transformation, digitalization, automation and innovation, sustainability, and the future of hospitality. Mean values (m) and standard deviations (SD) were used to analyze the respondents' perceptions.

**Table 2. Descriptive statistics of factors and statements in the analysis of the transformation of business practices in gastronomic management and trends that can shape the future of hospitality**

Factor	m*	SD*		m*	SD*
Transformation of Business Practices Digitalization in Hospitality	3.21	0.718	Our hospitality establishment has adapted its business practices to meet the new market demands.	3.12	0.718
			The change in business processes in our establishment has led to an increase in operational efficiency.	3.01	0.778
			The transformation of gastronomic management is essential for maintaining competitiveness in the hospitality industry.	3.15	0.659
			Adopting innovative business solutions has had a positive impact on guest satisfaction.	3.19	0.892
Automation and Innovation Sustainability in Hospitality Transformation of Business Practices	3.09	0.819	Our establishment uses digital tools for inventory management and ordering supplies.	3.05	0.974
			Digital platforms for online reservations and food delivery have become an integral part of our business.	3.66	0.673
			Digitalization has significantly improved operational efficiency in our establishment.	3.75	0.813
			Using mobile applications for services allows us to communicate more effectively with guests.	3.44	0.739
			The integration of digital tools has positively impacted the revenues of our hospitality establishment.	3.55	0.679
Digitalization in Hospitality Automation and Innovation	3.10	0.859	Our guests increasingly expect our services to be accessible via digital platforms.	3.15	0.856
			The introduction of automated systems in kitchen operations has reduced food preparation time.	3.55	0.811
			Automation in our food preparation and service processes has contributed to reducing errors and improving service quality.	3.95	0.677
			Our establishment uses innovative technologies to enhance food safety.	3.15	0.560
Sustainability in Hospitality	3.55	0.826	The integration of automated systems in our operations has led to a reduction in labor costs.	3.85	0.771
			Our establishment has introduced measures to reduce waste in both kitchen and service operations.	4.90	0.496
			The use of environmentally friendly materials and practices is an important aspect of our business.	3.05	0.883
			Using local and organic ingredients has become one of the priorities of our establishment.	3.19	0.961
Transformation of Business Practices	4.12	0.898	Our establishment actively implements strategies to improve energy efficiency.	4.08	0.954
			I expect digitalization trends to continue shaping the future of the hospitality industry.	4.15	0.846
			Our establishment plans to continue investing in new technologies to maintain competitiveness.	4.22	0.790
			Technological innovations will be crucial for market survival in the coming years.	4.26	0.791
			Personalized services and interaction with clients will be essential for the future success of hospitality establishments.	3.72	0.736
			Sustainable development will become increasingly important for the survival of hospitality establishments in the global market.	3.89	0.887
			Our establishment is ready to embrace new trends and adapt to market changes.	3.97	0.910

Source: Author's research

The Transformation of Business Practices received an average score of 3.21, indicating moderate agreement regarding changes in business operations. Respondents moderately rated their adaptation of practices to new market demands ( $m = 3.12$ ) and the resulting improvements in efficiency ( $m = 3.01$ ). Standard deviations were relatively small ( $SD = 0.718$ ), reflecting similar views among respondents. It was noted that the transformation of gastronomic management was not universally accepted as crucial for competitiveness ( $m = 3.15$ ), suggesting room for further development. Digitalization in Hospitality was rated with an average score of 3.09, indicating moderate acceptance of digital tools in business operations. The statements most highly rated concerned the positive impact of digitalization on operational efficiency ( $m = 3.75$ ) and the use of digital platforms for reservations and deliveries

( $m = 3.66$ ). The standard deviation for these statements was relatively small ( $SD = 0.673$ ), indicating uniformity in respondents' views. However, there was slightly more variation in the use of digital tools for inventory management ( $SD = 0.974$ ), suggesting that digitalization in this area is still not widely accepted.

In the Automation and Innovation group, the average score was 3.10, indicating moderate acceptance of automation and innovations in hospitality. Respondents particularly emphasized that automation contributed to reducing errors and improving service quality ( $m = 3.95$ ), with minimal variation in responses ( $SD = 0.677$ ). The integration of automated systems was also rated positively in terms of cost reduction ( $m = 3.85$ ), indicating that innovations in this domain bring tangible benefits to hospitality operators. Sustainability in Hospitality received an average score

of 3.55, indicating somewhat higher agreement among respondents regarding the implementation of sustainable practices. The highest-rated statement was the application of measures to reduce waste ( $m = 4.90$ ), accompanied by a low standard deviation ( $SD = 0.496$ ), indicating universal implementation of this practice. On the other hand, practices such as the use of local and organic ingredients were rated more moderately ( $m = 3.19$ ), indicating lesser adoption of these sustainable practices.

The highest average score belonged to the Future of Hospitality factor ( $m = 4.12$ ), indicating strong agreement regarding the importance of future trends. Respondents particularly highlighted that technological innovations will be key to market survival in the coming years ( $m = 4.26$ ), with minimal variation in responses ( $SD = 0.791$ ). Similarly, respondents were confident that they would continue investing in new technologies to maintain competitiveness ( $m = 4.22$ ). In this study, following the descriptive analysis, regression analysis was employed to further explore the relationships between variables and provide answers to the research questions. Descriptive analysis offers an initial overview of the basic statistical characteristics of the data, such as mean values, standard deviations, and the distribution of responses among participants. This approach is crucial for better understanding the nature of the sample and the behavior of respondents in the context of the transformation of business practices in gastronomic management. However, descriptive statistics alone are insufficient to understand the complex relationships between independent and dependent variables. To address research questions such as: “How do digitalization and innovations affect operational efficiency and service quality in gastronomic management?” and “To what extent does the implementation of sustainable business practices influence the competitiveness of hospitality establishments?”, more advanced statistical methods are needed. Regression analysis enables the evaluation of the impact of multiple independent variables on a single dependent variable, which is essential for testing the hypotheses in this study. Through regression analysis, the impact of digitalization, automation, and sustainability on the perception of competitiveness and efficiency in hospitality establishments can be examined. This analysis

provides answers to whether and to what extent these trends truly shape the future of hospitality and how they can be leveraged to optimize business operations. Therefore, regression analysis naturally builds upon the descriptive analysis, offering deeper insights into the relationships between variables, which allows for the drawing of relevant conclusions and recommendations based on the research data.

**Table 3. Results of regression analysis**

Variable	Standardized $\beta$ Coefficient	t-value	p-value
Digitalization	0.482	5.321	< 0.001
Automation	0.326	3.674	< 0.01
Sustainability	0.214	2.491	< 0.05
Constant		1.573	0.121
R <sup>2</sup>			0.612
F-value			24.376
p-value (F)			< 0.001

Source: Author’s research

The results of the regression analysis indicate a clear relationship between the three independent variables digitalization, automation, and sustainability, and the dependent variable of operational efficiency in hospitality establishments. This analysis was conducted to determine the impact of these contemporary trends on improving business performance in the gastronomic management sector. The first independent variable, digitalization, showed the greatest impact on operational efficiency, with  $\beta = 0.482$  and a p-value of less than 0.001, meaning this effect is statistically highly significant. This suggests that the implementation of digital tools, such as inventory management systems, mobile ordering applications, and digital platforms for reservations and guest communication, can significantly enhance the efficiency of hospitality operations. These results confirm previous findings that digitalization plays a key role in modernizing and optimizing operations in hospitality, enabling faster and more precise operations, error reduction, and better resource management. The second independent variable, automation, also shows a significant impact on operational efficiency, with  $\beta = 0.326$  and a p-value of less than 0.01. This indicates that hospitality establishments using automated systems in food preparation and service processes are able to improve their efficiency. Automation reduces the

time required for food preparation, minimizes errors in processes, and thus improves overall guest satisfaction. This finding aligns with trends in modern hospitality, where automated systems help improve productivity and reduce operational costs.

The third independent variable, sustainability, showed a moderate impact on operational efficiency, with  $\beta = 0.214$  and a p-value of less than 0.05. Although this effect is not as strong as that of digitalization and automation, it is still statistically significant. This indicates that hospitality establishments that implement sustainable practices, such as waste reduction, the use of local and organic ingredients, and energy-efficient systems, can improve their operational efficiency. While sustainability does not contribute to efficiency to the same extent as technology, it plays an important role in maintaining long-term competitiveness and enhancing the reputation of hospitality establishments, which is especially significant in the context of increasing demands for environmental responsibility. The  $R^2$  value of 0.612 shows that 61.2% of the variance in operational efficiency is explained by this model, indicating a strong fit. This means that digitalization, automation, and sustainability are key factors that significantly influence the performance of hospitality establishments, as confirmed by the F-value of 24.376 and a p-value of less than 0.001, indicating the statistical significance of the overall model.

## Discussion

This study examined the impact of contemporary trends in gastronomic management on the operational efficiency of hospitality establishments, focusing on digitalization, automation, and sustainability as key independent variables. The results of the regression analysis provide a clear insight into how these trends contribute to improving business efficiency and shaping the future of the hospitality industry. Digitalization has the strongest impact on operational efficiency, which aligns with previous studies that have demonstrated the significant enhancement of business performance through the application of digital tools in hospitality. Inventory management systems, digital platforms for reservations,

and online ordering allow hospitality establishments to optimize their operations and reduce errors in daily processes. The results show that digitalization is a crucial factor that not only contributes to efficiency but also enhances guest satisfaction and the overall experience at the establishment. This finding is particularly important in the context of consumers' increasing reliance on technology and digital services, making digitalization essential for maintaining competitiveness. Automation, as the second important factor, also has a significant impact on improving efficiency, confirmed by a high  $\beta$  coefficient and statistical significance. This finding indicates that automated systems in kitchen operations and service not only reduce the time required for food preparation and service but also minimize the possibility of errors, thereby directly improving service quality. According to this study, automation plays a key role in modernizing hospitality establishments, in line with global trends in the industry. Moreover, the introduction of automation has the potential to reduce operational costs, which is particularly important for sustainability and long-term profitability.

The third factor, sustainability, showed a moderate but significant impact on operational efficiency. Although its effect is not as strong as that of digitalization and automation, the results indicate that hospitality establishments that implement sustainable practices, such as waste reduction, the use of local ingredients, and energy-efficient systems, also improve their business performance. This finding is particularly important in the context of global demands for environmental responsibility and the growing demand for sustainable products and services. Sustainability not only contributes to the improved reputation of hospitality establishments but also reduces their environmental impact, which is becoming an increasingly important aspect for modern consumers. Beyond the Serbian context, these findings are consistent with global hospitality research showing that digitalization, automation, and sustainability jointly shape operational performance and competitive positioning. International studies emphasize similar efficiency gains from digital tools and AI-supported processes, confirming that technology-enabled workflow integration reduces variability, increases service accuracy,

and enhances overall guest experience. At the same time, research from various markets indicates that the impact of sustainability depends on the depth of implementation and alignment with consumer expectations, which may explain the moderate coefficient observed in our model. Despite these convergences with global evidence, the present study has several limitations that should be acknowledged. The single-country and cross-sectional design limits generalizability and prevents causal interpretation, while reliance on self-reported data may introduce response bias.

### Theoretical Implications

This study contributes to the theoretical understanding of the impact of contemporary trends, such as digitalization, automation, and sustainability, on operational efficiency in hospitality. The first theoretical contribution lies in expanding the literature on gastronomic management, particularly in the context of integrating modern technologies and sustainable business practices. The research shows that digitalization and automation are not just trends that facilitate operations but fundamentally improve business performance, confirming the hypothesis that technological innovations significantly contribute to increasing efficiency and guest satisfaction. The second theoretical aspect relates to the role of sustainability in hospitality, which extends existing theories on sustainable business practices in gastronomy. This study shows that sustainable practices not only improve efficiency but also contribute to the long-term success and reputation of establishments. Although the impact of sustainability is moderate, this paper highlights its importance in the context of contemporary demands for environmental responsibility, which is significant for future research in this field. The third theoretical implication relates to understanding the synergy between different trends in hospitality. This study demonstrates how the combination of digitalization, automation, and sustainability creates an integrated approach that enhances competitiveness. These results can serve as a foundation for further research that would focus on the cross-influence of these trends on different aspects of hospitality management.

### Practical Implications

In addition to theoretical contributions, the results of this study have significant practical implications for hospitality establishments. The first key implication is the importance of digitalization as a tool for improving operational efficiency. Practically, hospitality operators who adopt digital tools such as inventory management systems, digital reservation platforms, and mobile applications for guest communication can improve service speed and accuracy, reduce costs, and increase customer satisfaction. This suggests the need for investment in new technologies to ensure sustainable growth and competitiveness. Automation, as the second key aspect, allows hospitality establishments to improve their operations by reducing errors and speeding up processes in the kitchen and service areas. The practical implication of this is that restaurants and hotels that invest in automated systems can not only reduce operational costs but also improve service quality, which is crucial for enhancing the overall guest experience. This research suggests that automation is the future of modern hospitality and should be a key part of any growth strategy. Sustainability, although with a moderate impact in this study, is gaining increasing importance in the eyes of consumers, especially in the context of environmental awareness. The practical implication is that hospitality establishments that adopt sustainable practices, such as waste reduction, the use of local ingredients, and increasing energy efficiency, can build a better reputation and attract guests who increasingly value ethical and sustainable business operations. This indicates that hospitality operators must strategically approach the integration of sustainable business models to ensure long-term success.

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#### **Dragan Vukolić**

is a distinguished theorist and practitioner in the fields of hospitality, gastronomy, and tourism, with extensive experience in education, scientific research, and international cooperation. He is employed at the "9th May" Economic School in Sremska Mitrovica as a teacher holding the title of pedagogical advisor, and also serves as a senior teaching assistant at the Faculty of Tourism and Hospitality in Banja Luka. He actively participates in several international Erasmus+ projects and serves as a reviewer for prominent international scientific journals. He is the author of more than 80 scientific and professional publications in both national and international journals, and has also developed multiple teaching materials for undergraduate students. His primary research interests include tourism, hospitality, gastronomy, management, and business.



#### **Andjelka Popović**

is employed at the "9th May" Economic School in Sremska Mitrovica as a teacher of hospitality-related subjects. She actively participates in numerous seminars and professional training programmes in the fields of tourism, hospitality, and gastronomy, which also represent her main areas of research interest. She obtained her master's degree in management from the Faculty of Sciences at the University of Novi Sad, where she defended her thesis in the field of tourism and hospitality management. She previously completed separate undergraduate academic studies in both tourism and gastronomy. She has received several medals at international gastronomic competitions.



**Tamara Gajić**

is a recognised scholar and practitioner in the field of tourism and hospitality management, with a profound understanding of contemporary technological advancements and their application within the tourism industry. Her research spans a wide range of areas within sustainable tourism, including ecotourism, geotourism, rural and urban tourism, adventure tourism, health and wellness tourism, gastronomic tourism, as well as cultural and heritage tourism. She places particular emphasis on the economic and financial dimensions of tourism, focusing on the analysis of economic impacts, the development of financial strategies, and the optimisation of resources in the tourism and hospitality sectors. She is the author of over 200 scientific and professional publications, including several monographs. She has also delivered numerous lectures in countries such as Russia, Portugal, Switzerland, and Bosnia and Herzegovina.



**Jovan Bugarčić**

is employed at the Faculty of Hotel Management and Tourism in Vrnjačka Banja, University of Kragujevac, where he teaches courses in the field of gastronomy. His professional engagement includes participation in numerous national and international seminars, conferences, and professional training programmes, with a focus on contemporary trends in gastronomic tourism and hospitality management. He actively contributes to various institutional and industry initiatives aimed at improving the quality of gastronomic and hospitality services. His areas of interest include food and beverage management, culinary heritage, service quality, and tourism destination development. He is the author of several scientific and professional papers and is particularly noted for his collaboration with international researchers.