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HOTEL AND TOURISM MANAGEMENT

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FACULTY OF HOTEL MANAGEMENT AND TOURISM IN VRNJAČKA BANJA

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Editorial

Менаџмент у хотелијерству и туризму – Hotel and Tourism Management is an open access peer-reviewed journal which discusses major trends and developments in a variety of topics related to the hospitality and tourism industry. The Journal publishes both theoretical and applied research papers, giving full support to collaborative research efforts taken jointly by academia and industry. According to its editorial policy goal, *Менаџмент у хотелијерству и туризму – Hotel and Tourism Management* has constantly been striving to increase its quality by promoting the popularisation of science and providing significant scientific and professional contribution to the development of hospitality and tourism industry, both in Serbia and on the global scale. The Journal is published by the Faculty of Hotel Management and Tourism in Vrnjačka Banja, University of Kragujevac. Since launching the Journal in 2013, twenty-five issues have been published so far.

Менаџмент у хотелијерству и туризму – Hotel and Tourism Management includes the following sections: Original Scientific Paper, Review Article, Short or Preliminary Announcement and Scientific Critique. The Journal does not consider PhD theses as prior publication and welcomes excerpts from the author's dissertations. It is published semiannually. The Journal offers an open access of its contents, which makes research results more visible to a wider international academic community. All articles are published in English and undergo a double-blind peer-review process.

The main aspects taken into consideration in paper evaluation are the originality of the study, contribution to the theory and practice and the use of grammar and style (either American or British English are accepted). The expected turn-around period is one to two months following the date of receipt. The crucial requirements for the submission of a manuscript are that the manuscript has not been published before, nor is it under consideration for publication elsewhere. The manuscript will be initially checked to ensure that it meets the scope of the Journal and its formal requirements. Submitted content will be checked for plagiarism. The provided names and email addresses will be used exclusively for the purposes stated by the Journal and will not be made available for any other purpose or to any other party.

The Journal has a reputable international editorial board comprising experts from the United States, the United Kingdom, Australia, India, Sweden, Spain, Italy, Israel, the United Arab Emirates, Argentina, Slovenia, Bulgaria, Serbia, Croatia, Montenegro.

We are glad to announce that *Менаџмент у хотелијерству и туризму – Hotel and Tourism Management* is indexed in Web of Science (Emerging Sources Citation Index – ESCI), ERIHPLUS (European Reference Index for the Humanities and the Social Sciences), CABELLS Scholarly Analytics, CEEOL (Central and Eastern European Online Library), DOAJ (Directory of Open Access Journals), ProQuest, EBSCO (EBSCO Information Services), Ulrich's Web (Ulrich's Periodicals Directory), CAB Abstract, SCIndeks (Serbian Citation Index), Scilit, CNKI (China National Knowledge Infrastructure), CyberLeninka, WorldCat and Google Scholar databases.

We would like to use this opportunity to express our deep gratitude to the authors, reviewers, and members of the Editorial Board for their devoted time and efforts that have contributed to the development of our Journal. At the end, we are pleased to invite you to look into the latest research in the fields of hospitality and tourism presented in the current issue.

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CONTENT

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Understanding sport events organisational elements and impacts from the organiser and residents' perspective

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Abstract

Purpose – Sustainable sport tourism events require careful planning that considers all stakeholders' needs to enhance benefits and reduce negative impacts. This study, based on data from 670 respondents in Poreč and Zagreb (Croatia, Europe), hosts of major triathlon and skiing events in 2022 and 2024, examines the relationship between event impacts and organisational elements from the perspectives of organisers and residents. **Methodology –** Exploratory factor analyses was used to identify the dimensions of the impact of events and organizational elements. T-tests were used to analyse differences between the perception of two groups of stakeholders, and Pearson's correlations were used to identify links between the impact of events and organizational elements. **Findings –** Six dimensions of impact and three dimensions of organizational elements were identified, with event organizers and residents having different perceptions of these dimensions. There is a strong positive correlation between all three organizational elements and sociocultural, economic and reputational impacts, while environmental and safety principles, along with legacy planning, were mostly associated with organizational costs. **Implications –** Understanding these differing perceptions and their relationship to specific impacts can help organisers and policymakers develop more effective strategies to achieve sustainable outcomes.

Keywords: sporting events, impacts, sustainability, organisational elements, stakeholders
JEL classification: M20, Z20, Z32

Razumevanje organizacionih elemenata sportskih događaja i njihovog uticaja iz perspektive organizatora i stanovnika

Sažetak

Svrha – Održivi sportsko-turistički događaji zahtevaju pažljivo planiranje koje uzima u obzir potrebe svih stejkholdera kako bi se povećale koristi i smanjili negativni uticaji. Ovo istraživanje, zasnovano na podacima 670 ispitanika iz Poreča i Zagreba (Hrvatska, Evropa), domaćina velikih triatlonskih i skijaških događaja u 2022. i 2024. godini, ispituje odnos između uticaja događaja i organizacionih elemenata iz perspektive organizatora i stanovnika. **Metodologija –** Eksploratorna faktorska analiza korišćena je za identifikaciju dimenzija

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uticaja događaja i organizacionih elemenata. T-testovi su korišćeni za analizu razlika u percepciji između dve grupe stejkholdera, dok su Pirsonove korelacije korišćene za identifikaciju veza između uticaja događaja i organizacionih elemenata. **Rezultati** – Identifikovano je šest dimenzija uticaja i tri dimenzije organizacionih elemenata za koje su organizatori događaja i stanovnici imali različite percepcije. Postoji snažna pozitivna korelacija između sva tri organizaciona elementa i sociokulturnih, ekonomskih i reputacionih uticaja, dok su ekološki i bezbednosni principi, zajedno sa planiranjem nasleđa, uglavnom povezani sa organizacionim troškovima. **Implikacije –** Razumevanje ovih različitih percepcija i njihovog odnosa sa specifičnim uticajima može pomoći organizatorima i donosiocima odluka da razviju efikasnije strategije za postizanje održivih ishoda.

Ključne reči: sportski događaji, uticaji, održivost, organizacioni elementi, stejkholderi
JEL klasifikacija: M20, Z20, Z32

1. Introduction

Sport plays a vital role in tourism since it is an important motive for travel and content of stay (Perić et al., 2019). As a specific type of tourism, sport tourism is offering both active and passive forms of engagement (Buning & Gibson, 2016). In addition, sporting events are recognized as one of the most prominent products within the sport tourism (Poczta et al., 2020). These events involve numerous stakeholders such as organising teams, competitors, spectators and residents, each with unique roles and expectations (Wanyonyi et al., 2021). Organisers often focus on financial viability, while residents prioritize minimising negative impacts and maximising community benefits (Chersulich Tomino et al., 2020). Sporting events are indeed recognised as catalysts for social and economic development (Perić, 2018; Teixeira et al., 2023), but these positive outcomes do not occur by chance. Strategic planning and effective implementation are key to delivering sustainable events that balance social, economic, and environmental impacts (Duignan et al., 2023; McGillivray et al., 2020).

For structuring a sustainable sporting event, a business model approach that explains how value is created, delivered, and captured, offers a practical framework for structuring sustainable sporting events (Lorenz et al., 2024; Perić et al., 2018). Defining business model elements: resources, actions, and desired community outcomes, early in the planning phase aligns strategies with stakeholders shared goals (Kim & Kaplanidou, 2019). Pre-event period is particularly critical in laying the groundwork for long-term legacies (Mair & Smith, 2021). A shared understanding of stakeholder interests enhances strategy development and long-term community support (Byun et al., 2021; Hutte et al., 2022; Isa et al., 2024). Existing literature also links sustainability and legacy planning with event success (Parra-Camacho et al., 2023; Pourpakdelfekr & Oboudi, 2022), and practical frameworks like the Gold Framework (UK Sport, 2018) and Olympic Agenda 2020+5 (IOC, 2021) integrate sustainability principles. However, the connection between specific organisational elements that are the part of planning stage and resulting impacts remains underexplored.

This study fills a gap in current research by examining the relationship between organisational elements, particularly business model components, and the specific social, economic, or environmental impacts of outdoor sporting events. It aims to understand: (1) organisers and residents' perception of the importance and the intensity of the impacts as well as organisational elements of events, (2) whether there are differences between these two groups in their perception, and (3) whether the perceived importance of certain organisational elements correlates with the perceived importance of impacts. This study therefore builds on recent research exploring residents' views of major sporting events (Feilhauer et al., 2023, 2024) as well as mega events in general (Kovačević et al., 2024).

Focusing on organisers and residents, considered the key stakeholders in long-term sustainability, the study excludes short-term visitors, who may lack insights into lasting community effects (Basham et al., 2024). Understanding the differing perceptions helps organisers tailor strategies that generate the desired outcomes while securing local support, crucial for sustaining future event editions.

2. Literature review

2.1. Sporting event impacts

Sporting events generate a wide range of short- and long-term economic, socio-cultural, and environmental impacts (Matsuoka et al., 2024; Parra-Camacho et al., 2023). Positive impacts include increased sport participation (Storm & Denstadli, 2024), improved quality of life (Yanling et al., 2021), social cohesion (Zhou & Kaplanidou, 2018), community pride (Mutz & Gerke, 2024), and cultural exchange (Kobierecki & Strożek, 2021) to residents. Negative impacts are increasingly acknowledged too. These include financial burdens such as high organisational costs, increased taxes, and living expenses, as well as social issues like traffic congestion, crime, and resident-visitor conflicts (Ahmed, 2017; Elahi et al., 2021). Environmental concerns, particularly for events in fragile outdoor spaces, include CO_2 emissions, waste, and pollution (Grofelnik et al., 2023). While events are often promoted as drivers of development and progress, poor planning and limited community involvement can limit their long-term value (Duignan et al., 2023). As Martins et al. (2024) note, the pursuit of global visibility may overshadow local needs. Thus, strategic planning focused on legacy and community benefit is essential to ensure that sporting events contribute meaningfully to sustainable development and leave lasting, positive impacts for future generations (Koenigstorfer et al., 2023).

2.2. Building blocks for sustainable sporting events

The concept of the business model gained academic traction in the 1990s, initially focusing on value creation and capture for organisations (Lorenz et al., 2024). It later expanded to include environmental and community perspectives. Stubbs and Cocklin (2008) introduced the Sustainability Business Model (SBM), integrating ecological, social, and economic goals into business strategies. In sports tourism and events, SBM principles have guided planning, implementation, and legacy development (Perić et al., 2018). Much of the existing research has focused on event-specific features, such as entertainment, amenities, and activities, that influence participation and satisfaction (Aicher & Newland, 2018; Buning & Gibson, 2016). Practical sustainability frameworks, like Olympic Agenda 2020+5 (IOC, 2021), offer broader guidance. Zhang and Park (2015) identified five success factors for sustainable outdoor events: human health and education, legacy planning, natural resource conservation, policy integration, and monitoring. They emphasized social and cultural legacies, community involvement, and economic contributions. These elements support urban regeneration and environmental preservation. As key decision-makers, event organisers play a crucial role in engaging communities and building stakeholder networks. However, research on planning sustainable sporting events, particularly in environmentally sensitive open areas, remains limited and requires further attention.

2.3. Stakeholders of sporting events

Organising sporting events involves a diverse network of stakeholders contributing to planning, execution, and legacy (Wanyonyi et al., 2021). These stakeholders, ranging from organisers to local communities, play key roles in driving economic growth, cultural exchange, and social engagement (Chang et al., 2020; Rejón-Guardia et al., 2020). Effective event delivery depends on addressing all stakeholder interests and forming a cohesive organising team (Swart et al., 2018). Crucially, local support is essential, especially for events that rely on public institutions, companies, and volunteers (Buning & Gibson, 2016). Residents may engage as volunteers, subcontractors, contestants, or spectators, contributing significantly to event success (Bazzanella et al., 2019). Even passive residents, though less involved, are often highly aware of the event's effects (Herbold et al., 2020). As Johnston et al. (2023) note, community support depends on how well residents perceive the balance of benefits and costs. Given the limited insight of short-term visitors, this study focuses on organisers and residents as the key stakeholders in understanding event impacts and sustainability.

2.4. Hypothesis development

The Social Exchange Theory (SET) offers a relevant framework for analysing stakeholder interactions in management of tourism and sporting events. SET views social change as a process of negotiated exchanges, where participation is driven by anticipated benefits (Hritz & Ross, 2010). In the context of sporting events, this theory explains how organisers and residents form attitudes based on their perceived benefit–cost balance. When benefits outweigh costs, support is likely, otherwise, opposition may grow (Ahmed, 2017; Matsuoka et al., 2024).

Stakeholders engage in events differently and thus have varying expectations. Organisers and local authorities, often responsible for financing, typically focus on the economic viability of events and may overemphasise potential economic returns, especially for large-scale events (Perić & Vitezić, 2023). However, they are also expected to consider broader social and economic benefits such as increased tourism, local investment, and employment (Parra-Camacho et al., 2023). Event deficits may stem not only from mismanagement but also from political pressures (Becker et al., 2023). From the residents' perspective, infrastructure costs may be viewed less as a burden and more as a long-term legacy. Even with minimal direct economic benefits, communities often value increased pride, cohesion, visibility, and long-term development (Custódio et al., 2018). Residents commonly see media exposure and international recognition as significant indirect benefits (Mair et al., 2023). Since stakeholders assess and prioritise event impacts through the lens of their roles and interests (Bazzanella et al., 2019; Orthodoxou et al., 2021), the following hypotheses are proposed:

H_1: There is a statistically significant difference between residents and organisers in their perception of the importance of individual impacts of outdoor sporting events.

H_2: There is a statistically significant difference between local population and organisers in their perception of the intensity of a certain impact of outdoor sports events.

To ensure sustainable success, event organisers must focus on business model elements that align with shared goals. This involves setting clear objectives, implementing strategic actions, and evaluating results (Mascarenhas et al., 2024). Attendee satisfaction, driven by attractions, entertainment, safety, and environmental measures, also shapes participation and loyalty (Perić et al., 2019; Zhang & Park, 2015)). Basic organisational needs, such as marketing, safety, and waste management, are considered essential. However, stakeholders view these elements differently. Organisers might prioritise public communication and sustainable procurement (Jones, 2017; Siakwah et al., 2020), while residents often focus on community involvement (Alananzeh et al., 2022).

H_3: There is a statistically significant difference between the perception of local population and the organisers about elements necessary for the organisation of sustainable outdoor sporting events.

Finally, when someone perceives a specific type of impact as most important during the initial preparatory phase of a sporting event, they will prioritise relevant elements and attributes that directly contribute to achieving that impact (Chersulich Tomino et al., 2020; Kerschbaum, 2022). For example, for someone who finds the improvement of urban development in the host destination as the most important impact of the event, parts of event planning related to urban renewal and regeneration or encouragement of participants to get involved should be perceived as more important than other elements (Kerschbaum, 2022). Therefore, the following hypothesis is posed:

H_4: There is a correlation between the importance of impacts of sport-tourism events perceived by key stakeholders and the importance of some elements necessary for the organisation of sustainable sporting events.

3. Methodology

3.1. Research context

The empirical research was conducted in two Croatian cities, Poreč and Zagreb, during major international sporting events: the *Plava Laguna IRONMAN 70.3 Poreč* in October 2022 and the *Snow Queen Trophy* skiing event in January 2023. These outdoor events differ in sport type but are similar in scale and regional importance. Ironman in Poreč, the largest triathlon in Central and Eastern Europe in 2022, included swimming (1.9 km), cycling (90 km), and running (21 km). The Snow Queen Trophy, part of the FIS World Cup, took place at Sljeme hill near Zagreb, Croatia's inland capital and largest urban centre. While Poreč is a coastal city focused on summer tourism business season and holidays, Zagreb is an urban hub and city break destination. However, both cities have hosted international events multiple times and share a strong tourism economy. This makes residents of these two cities experienced hosts and their perception more valuable.

3.2. Questionnaire design

This research was conducted using a questionnaire developed in Croatian, which included three sections relevant to this study. The first section assessed how respondents perceived the intensity of a certain impact of the hosted sporting event and how important they considered each impact, using statements adapted from Lesjak et al. (2014), and Perić (2018) (e.g., "The trade for local businesses increased"). The second section focused on elements necessary for organising sustainable sporting events, based on Zhang and Park (2015) and tailored to the local context (e.g., "A recycling program was implemented at the event"). Respondents rated their agreement (1 = strongly disagree to 5 = strongly agree) and importance (1 = least important to 5 = most important) on a five-point Likert scale. The third section gathered demographic data, including age, gender, education, occupation, and the respondent's role or involvement in the event.

3.3. Data collection

The questionnaire was distributed after the events in Poreč (October 2022–January 2023) and Zagreb (January–May 2023), targeting two key stakeholder groups: the event organising team and residents. Participation was voluntary. Trained field researchers approached passers-by in public areas, asking if they were residents. Both tourists and non-residents were excluded. Willing residents completed the questionnaire on the spot or received a QR code link. Organisers were asked to complete the questionnaire after fulfilling their event responsibilities. In total, 714 questionnaires were collected, with 670 fully completed and valid for analysis—240 from the Ironman and 430 from Snow Queen.

3.4. Sample profile

Regarding the respondents from the Ironman event, 210 (87.5%) were residents and 30 (12.5%) were organisers, while Snow Queen included 405 (94.2%) residents and 25 organisers (5.8%). Gender representation was balanced, with slightly more men than women. There were 125 men (52.1%) and 115 (47.9%) women at Ironman and 218 (50.7%) men and 212 (49.3%) women at Snow Queen). Most respondents were adults aged 19–54, especially in the 25–44 range. Educational levels were high overall with more than 47% of respondents with academic degree. Ironman had 156 (65%) respondents and Snow queen had 250 (58%) respondents with at least an academic degree. Professionally, the majority worked in the private sector (46%, 121 in Ironman and 188 in Snow Queen) and public sector employees were the second-largest group (21%). There were also students, retirees, unemployed individuals, and others with diverse roles. The data reflects a highly educated, working-age population with a nearly equal gender split and a strong mix of residents and organisers. Both events successfully engaged a broad cross-section of the community.

3.5. Data Analysis

Descriptive analysis was used to examine the characteristics of the study sample. Exploratory Factor Analysis (EFA) with direct oblimin rotation and Principal Axis Factoring was applied to reduce 33 impacts and 22 organisational elements. The Kaiser criterion (eigenvalues ≥1) guided factor retention (Meyers et al., 2006). Bartlett's Test of Sphericity ($p < .000$) and the Kaiser-Meyer-Olkin (KMO) measure confirmed data suitability, with KMO values of .933 (elements) and .921 (impacts) (Kaiser, 1974). In phase two, only factor loadings above 0.40 were retained. In phase three, factors with at least two items were kept, aligning with literature that allows two-item factors in some cases (Chaieb & Chaieb, 2023; Nemec Rudež, 2023). The EFA process refined the factor structure by removing or merging items to improve validity (Mitchell & Greatorex, 1993). Despite unequal respondent group sizes, data showed normal distribution. A bivariate parametric t-test (H1–H3) assessed significant group differences, and Cohen's d-value was used to indicate practical significance and distribution overlap (Cohen, 1988). Finally, the Pearson correlation test was applied to measure the relationship between organisational elements and event impacts (H4), as perceived by stakeholders.

4. Results

4.1. Differences between perceived impacts of local population and organising team

Exploratory Factor Analysis (EFA) identified 31 items across six factors with eigenvalues >1, explaining 72.484% of the variance. Two items with low factor loadings (<0.4) were removed to enhance validity and interpretability. The resulting dimensions of event impacts were: Economic and socio-cultural benefits (12 items), Environmental, social, and economic concerns (8 items), Traffic disorders (3 items), Destination image and reputation (2 items), Organisational costs (2 items), and Community pride and identity (4 items). These factors represent key impact areas of the two analysed outdoor sporting events.

Table 1: Differences between two groups in their perception of the importance of impact

Organising and holding events…	Organising team (N=55)		Residents (N=650)		t	p (2-tailed)	Cohen's d
	M	SD	M	SD			
1. ECONOMIC AND SOCIO-CULTURAL BENEFITS	3.96	.689	**4.62**	.766	-2.810	.005	.906
The trade for local business increased	4.07	.836	4.27	.882	-1.608	.108	.233
The economic conditions of the host destination have improved.	4.05	1.096	4.27	.884	-1.396	.168	.221
The employment opportunities for residents were created.	3.85	.911	**4.24**	.934	-2.930	.004	.423
The understanding between cultures and societies has increased.	3.71	1.165	**4.22**	.939	-3.148	.003	.428
Communication, cultural and intellectual exchange with peoples from other countries have improved.	3.84	.977	**4.29**	.879	-3.616	.000	.484
The number of tourists in a host destination has grown.	4.35	.799	4.33	.814	.163	.871	.025
New knowledge and learning opportunities were provided to the local population.	3.65	1.109	**4.19**	.943	-3.450	.001	.524
The urban development in the host destination has generally improved.	3.49	1.184	**4.15**	.943	-4.032	.000	.617
An incentive for the preservation of local culture was provided.	3.55	1.214	**4.20**	.960	-3.909	.000	.594
The visibility of the host destination in the media has improved.	4.42	.832	4.24	.885	1.472	.142	.214
Information about the host community in the world has increased.	4.29	.854	4.28	.874	.118	.906	.012
The need for volunteer work in the host destination has increased.	3.93	1.103	**4.25**	.897	-2.471	.042	.318
2. ENVIRONMENTAL, SOCIAL AND ECONOMIC CONCERNS	**2.71**	1.186	2.02	1.106	4.417	.000	.602
The air pollution level in the host destination has increased.	**2.60**	1.448	2.01	1.272	2.940	.005	.433
Public disorder, vandalism and hooliganism have increased in the host destination.	**2.38**	1.509	1.81	1.143	2.757	.008	.426
The noise level in the host destination has increased.	**2.51**	1.345	1.95	1.189	2.990	.004	.411
The degradation and destruction of natural resources in the host destination have increased.	**2.80**	1.580	2.02	1.307	3.534	.001	.538
The prices of goods and services in the local community have increased.	**2.64**	1.406	2.10	1.250	2.730	.008	.406
Cultural conflicts between visitors and locals were generated.	**2.71**	1.511	1.92	1.163	3.772	.000	.586
The prices of local products and services at the venue have increased (food, drinks, souvenirs).	**2.75**	1.456	2.15	1.298	2.909	.005	.435
The amount of waste in the host destination has increased.	**3.27**	1.326	2.16	1.333	5.939	.000	.835
3. TRAFFIC DISORDERS	**3.17**	1.250	2.23	1.283	5.216	.000	.742
The traffic jams in the host destination have increased.	**3.29**	1.370	2.26	1.338	5.480	.000	.761
The road closures/disruptions have increased in the host destination.	**3.35**	1.280	2.23	1.337	5.959	.000	.856
The availability of parking spaces in the host destination has decreased.	**2.87**	1.402	2.20	1.317	3.585	.000	.493
4. DESTINATION IMAGE AND REPUTATION	4.46	.6726	4.36	.772	.977	.329	.138
The positive image of the host destination in the world has improved.	4.53	.716	4.36	.791	1.475	.141	.225
The reputation of the host destination on the international level was strengthened.	4.40	.784	4.35	.806	.417	.677	.063
5. ORGANISATIONAL COSTS	**3.65**	1.054	2.30	1.390	7.023	.000	1.095
The costs for preparing the sport venue for holding the event are high.	**3.69**	1.136	2.31	1.415	8.431	.000	1.076
The costs for the new infrastructure needed to organise the event are high.	**3.62**	1.080	2.30	1.402	8.465	.000	1.055
6. COMUNITY PRIDE AND IDENTITY	3.93	.972	4.19	.864	-1.896	.063	.283
Pride within the local community was strengthened.	3.96	1.122	4.14	.990	-1.239	.216	.170
The community spirit has strengthened.	3.91	1.023	**4.20**	.915	-2.262	.024	.299
The feeling of belonging to the community is strengthened.	3.82	1.188	**4.15**	.979	-2.009	.049	.322
The local community's identity was supported.	4.04	.962	4.27	.865	-1.703	.094	.251

Source: Authors' research

Table 1 shows that the organising team rated the importance of negative economic and environmental impacts slightly higher, with significant differences on Environmental, social, and economic concerns, Traffic disorders, and Organisational costs, though overall mean values were low. Residents rated Economic and socio-cultural benefits and Community pride higher, supporting H1.

Statistically significant differences ($p < 0.05$) were found between organisers and residents in their perceptions of intensity of impact. Residents rated cultural exchange, learning, and cultural preservation higher, while organisers rated destination image and waste increase higher (Table 2; only statistically significant results were shown). These findings support H2.

Table 2: Differences between two groups of stakeholders in their perception of the intensity of the impact

Organising and holding events…	Organising team (N=55)		Residents (N=615)		t	p (2-tailed)	Cohen's d
	M	SD	M	SD			
1. ECONOMIC AND SOCIO-CULTURAL BENEFITS	3.87	.746	3.96	.814	-.803	.422	.115
Communication, cultural and intellectual exchange with peoples from other countries have improved.	3.80	1.026	**4.10**	.981	-2.159	.031	.178
New knowledge and learning opportunities were provided to the local population.	3.53	1.274	**3.95**	1.022	-2.390	.020	.364
An incentive for the preservation of local culture was provided.	3.25	1.350	**3.70**	1.068	-2.368	.021	.370
2. ENVIRONMENTAL, SOCIAL AND ECONOMIC CONCERNS	2.23	1.106	1.98	.995	1.663	.101	.238
The amount of waste in the host destination has increased.	**2.87**	1.428	2.18	2.463	2.058	.040	.650
3. TRAFFIC DISORDERS	2.92	1.359	3.26	1.195	-2.004	.045	.266
4. DESTINATION IMAGE AND REPUTATION	**4.33**	.818	3.73	1.193	4.998	.000	.587
The positive image of the host destination in the world has improved.	**4.36**	.825	3.75	1.215	5.040	.000	.587
The reputation of the host destination on the international level was strengthened.	**4.29**	.875	3.70	1.229	4.611	.000	.553
5. ORGANISATIONAL COSTS	3.44	1.217	3.25	1.426	.945	.345	.143
6. COMUNITY PRIDE AND IDENTITY	3.71	1.106	3.59	.947	.894	.372	.117

Source: Authors' research

To check how homogenous residents and organisers are, we have further split these two groups based on events to test differences between (i) perception on impacts of organising teams and (ii) perception on impacts of local population in different destinations. Regarding organising teams, Ironman organising team perceived some items related to environmental and economic costs (air pollution, t=2.143, p= .037; noise level, t=3.356, p=.001; prices in the community, t=2.767, p=.008; prices at the venue, t=2.506, p=.015; waste, t=2.779, p=.008) and the factor Traffic disorders (t=3.543, p=.003) to a greater extent than Snow queen organising team. On the other hand, the latter are more concerned about the organisational costs (t=-3.228, p=.002) but feel the event provides the incentive for preservation of local culture as a socio-cultural benefit (t=-2.675, p=.010). Regarding residents, Poreč residents expressed considerable higher mean values for the factor Destination image and reputation (t=7.516, p=.000) and items related to pride within community (t=1.629, p=.104), community spirit (t=2.637, p=.009), feeling of belonging to community (t=2.039, p=.042), and community identity (t=2.956, p=.003), and the improvement of urban development (t=2.154, p=.032). They also recognized stronger the factor Environmental, social, and economic concerns (t=4.049, p=.000), but mean values were quite low. Zagreb residents perceived the factor Organisational costs (t=-8.849, p=.000), decreased availability of parking spaces (t=-3.100, p=.002) and employment opportunities (t=-2.803, p=.005) to a greater extent than their counterparts in Poreč.

4.2. Differences between stakeholders regarding their perception of organisational elements

EFA identified 20 items across three factors of perceived organisational elements with eigenvalues >1, explaining 67.803% of the variance. The factors are: Environmental and safety principles (13 items), Promotion and key stakeholders' involvement (3 items), and Legacy planning (3 items). Two low-loading items were removed to ensure the reliability and clarity of the factor structure.

Table 3 suggests that event organising team expressed higher mean values for the factor Environmental and safety principles and all related items. There were no differences between local population and organising team regarding their perception of promotional and legacy planning dimensions of organisational elements. Therefore, the H3 is accepted.

Table 3: Differences between stakeholders in their perception of the importance of organisational elements

Organising and holding events…	Organising team (N=55)		Residents (N=615)		t	p (2-tailed)	Cohen's d
	M	SD	M	SD			
1. ENVIRONMENTAL AND SAFETY PRINCIPLES	**3.20**	.842	2.36	.956	6.276	.000	.933
Information was provided to participants on sustainability initiative seeking their participation and cooperation.	**2.84**	1.288	2.25	1.090	3.281	.002	.495
A public communications campaign on sustainability existed.	**2.64**	1.238	2.22	1.093	2.668	.008	.360
Recycling program was present at the event.	**3.40**	1.180	2.43	1.152	5.955	.000	.026
A set of sustainability principles have been developed and adopted by local organising committee.	**3.24**	1.154	2.26	1.122	6.186	.000	.861
Controls existed to ensure the recycling programme is as successful as possible.	**2.93**	1.230	2.25	1.088	4.370	.000	.586
A set of safety protective measures have been developed by competent authorities.	**3.44**	1.358	2.38	1.189	6.216	.000	.831
The number of visitors is monitored in accordance with the instructions of the competent authorities.	**3.91**	1.110	2.43	1.189	8.907	.000	1.287
Purchasing of local products was preferred through a sustainable procurement process.	**3.11**	1.257	2.56	1.136	3.429	.001	.459
A sustainable procurement processes existed to minimise non-recyclable waste.	**3.51**	1.153	2.50	1.146	6.281	.000	.879
The local population encouraged the initiative for the sustainability of the event.	**3.16**	1.288	2.28	1.103	5.633	.000	.734
Non-polluting public transport was used for getting to the venue.	**2.80**	1.177	2.33	1.152	2.884	.004	.404
Safety protocols existed at the venue in accordance with the recommendations of the competent authorities.	**3.98**	1.080	2.55	1.279	9.261	.000	1.208
There were organised workshops and educations on the sustainability of events.	**2.62**	.952	2.26	.960	2.663	.008	.377
2. PROMOTION AND STAKEHOLDERS' INVOLVEMENT	4.26	.841	4.32	.702	-.536	.592	.077
The event was promoted through social networks.	4.44	.938	4.38	.796	.462	.644	.069
The event was promoted in neighbouring countries.	4.31	1.069	4.33	.836	-.214	.862	.021
Key stakeholders were involved in the organisation.	4.22	.994	4.30	.793	-.695	.487	.089
The local community was involved in the event.	4.09	.948	4.25	.806	-1.414	.158	.182
3. LEGACY PLANNING	3.45	1.025	3.62	.884	-1.373	.230	.178
Urban renewal and regeneration were parts of event planning.	3.29	1.272	3.33	1.061	-.247	.805	.034
Biodiversity and preservation areas were parts of the event strategy.	3.62	1.163	3.92	1.006	-1.856	.068	.276
Participants were encouraged to contribute to the local economy.	3.44	1.288	3.62	1.044	-1.016	.314	.154

Source: Authors' research

4.3. Correlations between key stakeholders perceived importance of impacts and elements

Table 4 shows a strong positive correlation between all three organisational dimensions and the impacts of Economic and socio-cultural benefits, Destination image and reputation, and Community pride and identity. Moderate negative correlations exist between Environmental and safety principles and Legacy planning with Traffic disorders and Organisational costs. Weak negative correlations were found with Environmental, social, and economic concerns. These findings support H4 and highlight key relationships between perceived impacts and organisational elements.

Table 4: Correlation between importance of impacts and elements

IMPACTS / ELEMENTS		1. E&SCB	2. ESEC	3. TD	4. DI&R	5. OC	6. CPI
	N	670	670	670	670	670	670
1. ENVIRONMENTAL AND SAFETY PRINCIPLES	Pearson Correlation	.651	-.296	-.382	.482	-.414	.655
	p (2-tailed)	.000	.000	.000	.000	.000	.000
2. PROMOTION AND KEY STAKEHOLDERS' INVOLVEMENT	Pearson Correlation	.653	-.232	-.216	.656	-.208	.611
	p (2-tailed)	.000	.000	.000	.000	.000	.000
3. LEGACY PLANNING	Pearson Correlation	.671	-.281	-.361	.502	-.384	.663
	p (2-tailed)	.000	.000	.000	.000	.000	.000

Note: E&SCB = Economic and socio-cultural benefits; ESEC = Environmental, social and economic concerns; TD = Traffic disorders; DI&R = Destination image and reputation; OC = Organisational cost; CPI = Community pride and identity.
Source: Authors' research

5. Discussion and conclusion

This study identified six dimensions through which organising teams and residents perceive the impacts of outdoor sporting events, Economic and socio-cultural benefits, Environmental, social, and economic concerns, Traffic disorders, Community image and reputation, Organisational costs, and Community pride and identity. These dimensions align well with Triple Bottom Line (TBL) models presented in prior studies (Chersulich Tomino et al., 2020).

When examining the perceived importance of these impacts (H1, Table 1), both groups rated economic and socio-cultural benefits and community pride highly, but residents gave them more importance (mean > 4.15). In contrast, organising teams focused more on organisational costs and logistics, such as traffic and parking, as these factors directly affect event operations (Ahmed, 2017). Still, these concerns were moderate in intensity. Environmental and economic issues received low importance overall, though organisers rated them slightly higher, showing awareness of potential problems like air pollution, noise, and rising local prices (see Chersulich Tomino et al., 2020; Maguire, 2022). These results further support the findings of Elahi et al. (2021), who highlighted that residents tend to understate certain negative externalities unless they directly affect quality of life, such as traffic and noise, whereas organisers anticipate a wider range of environmental and economic challenges.

However, the perception of the intensity of impact differs between the two stakeholder groups (H2, Table 2). Residents emphasized economic and socio-cultural benefits more strongly, particularly in areas like improved communication, cultural exchange, learning opportunities, and cultural preservation, echoing findings by Parra-Camacho et al. (2023). Conversely, organising teams valued improved destination image and media exposure more, reflecting their awareness of events as marketing tools (Perić & Vitezić, 2023). They also noted higher concern over waste generation, which aligns with literature connecting sustainability and operational responsibility (Carswell et al., 2023). Further analysis revealed that there are differences in the perception of the impacts of residents and organisers of one event compared to the organisers and residents of another, confirming the complexity of stakeholder groups (Lu, 2021; Wanyonyi et al., 2021). This stakeholder-specific divergence is also in line with findings by Mair et al. (2023), who stress that mega-event impacts are often filtered through differing stakeholder values, particularly when comparing long-term residents and mobile event organisers.

To explore sustainable event organisation (H3), three core business model elements were identified, Environmental and safety principles, Promotion and key stakeholders' involvement, and Legacy planning. These partially overlap with Zhang and Park's (2015) five-dimension model but introduce a new emphasis on stakeholder involvement. Both groups agreed on the critical role of promotion and engagement, and ranked legacy planning second, with no statistical differences in perception (Table 3). Environmental and safety principles received the lowest importance ratings overall, but with statistically significant differences: organising teams showed slightly higher awareness than residents. This is concerning, as previous research warns of the environmental risks from poorly planned infrastructure and crowd management (Ahmed, 2017; Lesjak et al., 2014). Interestingly, a study by Pourpakdelfekr and Oboudi (2022) also underscores that sustainability solutions, especially environmental mitigation measures, tend to be perceived as 'add-ons' by residents unless directly connected to visible benefits.

The final part of the study examined the relationship between perceived event impacts and key organisational elements (H4). A strong positive correlation was found between all organisational dimensions and positive impacts such as economic benefits, social value, and community pride (Table 4). Notably, promotional efforts and stakeholder involvement were strongly linked to enhanced destination image and reputation. This highlights the need for strategic planning to strengthen positive event outcomes (Đurkin Badurina et al., 2021; Lu et al., 2021). Prior studies confirm that satisfaction with event attributes, beyond basic entertainment, affects participation and loyalty (Chersulich Tomino et al., 2020). Moderate negative correlations were found between environmental/safety planning and traffic concerns, and between legacy planning and event costs. This suggests that thoughtful planning in these areas can reduce logistical burdens and keep ticket prices manageable, which is key for maintaining attendance (Zarei et al., 2018). A weak negative correlation also appeared between promotion/stakeholder involvement and environmental/economic concerns. Strong communication and inclusion of stakeholders may help mitigate negative impacts and contribute to broader sustainable development goals (Parra-Camacho et al., 2023). Lastly, all organisational elements showed weak links to broader environmental, social, and economic concerns, reinforcing the idea that a holistic understanding of stakeholder needs is crucial. This supports Kerschbaum's (2022) argument that integrating diverse perspectives can improve event outcomes, enhance legacy potential, and align sporting events more closely with sustainable development principles.

This study contributes to sport, stakeholder, and sustainable event management theory by exploring the perceived impacts and strategic elements of sustainable outdoor sporting events from the perspectives of both organising teams and local communities. The proposed conceptual framework offers a foundation for future research in planning and managing such events. Unlike prior studies that focused mainly on residents, this research includes organising teams, enriching stakeholder management theory. It highlights differing perceptions between organisers and residents, supporting calls for resident involvement in event planning (Đurkin Badurina et al., 2021; Johnston et al., 2023). Findings reveal that strategic planning across all organisational dimensions is essential for achieving positive event impacts. The study empirically confirms the relationship between stakeholders' perceptions and sustainable outcomes, reinforcing the role of sustainability in fostering support for sporting events. This supports broader goals of the 2030 Agenda, emphasizing the growing importance of aligning event management with sustainable development objectives.

Regarding managerial implications, this study offers a sustainable framework to guide event organisers and policymakers in planning and implementing outdoor sporting events. By understanding stakeholder attitudes, especially residents' perceptions of event impacts and sustainability elements, organisers can improve community engagement and gain broader support. Residents emphasized economic and socio-cultural benefits, suggesting strong connections to community pride and identity. Organisers, in contrast, expressed slightly more concern about environmental pollution, traffic and economic risks, highlighting areas where further education and awareness are needed. Identifying key sustainability elements during the planning phase can help organisers avoid common pitfalls and manage future challenges. The findings suggest that organisers should enhance sustainability programs through communication campaigns, recycling efforts, visitor monitoring, use of local products, non-polluting transport, and safety protocols. Although individually modest, these actions can collectively have significant impact when applied across events. Promoting these elements helps align event outcomes with public expectations, increasing perceived value and support. This research empowers organisers and decision-makers to strategically design events that are impactful, community-oriented, and aligned with long-term sustainability goals.

6. Limitations and future research

This study is context-specific, focusing on two outdoor sporting events with shared characteristics but differing in location and scope. Future research should explore events in other cities and of varying types and sizes to enhance generalizability. Introducing destination image as a variable may help standardize comparisons across cities and clarify stakeholder perceptions. Methodologically, this study did not determine the causal relationship between perceptions of impacts and organisational elements. Future studies should apply advanced techniques like regression analysis or structural equation modelling to better understand these relationships. Incorporating psycho-demographic variables such as environmental awareness or pro-environmental behaviour could reveal further influences on attitudes toward sustainability. In addition, since SET underpins this study, its limitations should be addressed, particularly the neglect of hedonic aspects such as enjoyment. Future research could therefore explore how the pleasure of attending or hosting events shapes stakeholder perceptions.

Another limitation relates to the sample because residents can typically assess only visible implementations (e.g., safety protocols, recycling programs) but may lack insight into internal organisational strategies (e.g., sustainable procurement). While event organisers often communicate their strategies publicly, limited resident awareness could reflect shortcomings in both implementation and communication. Since this study focused on host city residents, future studies should include residents of neighbouring areas to assess potential spill over effects and compare perceptions between host and non-host communities. This study also implied that the attitudes within particular stakeholder groups might differ, which opens a room for new studies. Lastly, including the perceptions of participants and spectators in future studies, despite their limited local knowledge, could offer valuable insights, as they also influence event success. All of this would deepen the understanding of stakeholder dynamics and contribute to the broader literature on event management and sustainability.

CRediT author statement

Ana Chersulich Tomino: Writing – review & editing, Writing – original draft, Data collection, Methodology, Formal analysis, Conceptualization. **Marko Perić:** Writing – review & editing, Validation, Supervision, Conceptualization.

Declaration of generative AI in the writing process

During the preparation of this work the authors did not use generative AI and AI-assisted technologies in the writing process.

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Conflict of interest

The authors declare no conflict of interest.

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The impact of sustainable practices on competitiveness in the hospitality industry

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Abstract

Purpose – This study investigates the impact of sustainability practices on the competitiveness of hospitality establishments in the Czech Republic, measured through customer ratings. **Methodology** – Data were collected from 429 accommodation facilities using stratified random sampling. The sample included hotels, guesthouses, and apartments. Chi-square tests examined relationships between categorical variables, and one-way ANOVA assessed differences in means across groups. Regression analysis was then employed to evaluate the influence of sustainability on customer ratings, with multiple regression identifying specific sustainability practices affecting customer satisfaction. **Findings** – Overall sustainability levels did not significantly differ between facility types, though certain practices varied by operational characteristics. Underused practices – such as electric car charging stations and the use of 100% renewable electricity – represent potential for improvement. A weak but positive correlation was found between overall sustainability and customer ratings, with waste management practices showing the strongest association. **Implications** – This study shows that sustainability contributes modestly but positively to customer satisfaction, extending previous research by including a broader range of lodging facilities. Hospitality managers should focus on high-impact practices, particularly in waste management, to enhance the guest experience. Sustainability should be seen as a complementary element of service quality, supporting environmental goals and competitiveness.

Keywords: sustainability, competitiveness, hospitality, customer ratings, Booking.com
JEL classification: L83, Q56, D40

Uticaj održivih praksi na konkurentnost u ugostiteljstvu

Sažetak

Svrha – Ova studija istražuje uticaj praksi održivosti na konkurentnost ugostiteljskih objekata u Češkoj Republici, mereno kroz ocene kupaca. **Metodologija** – Podaci su prikupljeni iz 429 smeštajnih objekata korišćenjem stratifikovanog slučajnog uzorkovanja. Uzorak je obuhvatao hotele, pansione i apartmane. Hi-kvadrat testovi su primenjeni za ispitivanje odnosa između kategorijskih varijabli, a jednosmerna ANOVA je korišćena za

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procenu razlika u srednjim vrednostima između grupa. Zatim je korišćena regresiona analiza za procenu uticaja održivosti na ocene kupaca, pri čemu je višestruka regresija identifikovala specifične prakse održivosti koje utiču na zadovoljstvo kupaca. Svi testovi su sprovedeni na nivou značajnosti od $p < 0{,}05$. **Rezultati** – Ukupni nivoi održivosti nisu se značajno razlikovali između tipova objekata, iako su se određene prakse razlikovale po operativnim karakteristikama. Nedovoljno korišćene prakse – kao što su stanice za punjenje električnih automobila i korišćenje 100% obnovljive električne energije – predstavljaju potencijal za poboljšanje. Pronađena je slaba, ali pozitivna korelacija između ukupne održivosti i ocena kupaca, pri čemu prakse upravljanja otpadom pokazuju najjaču povezanost. **Implikacije** – Ova studija pokazuje da održivost skromno, ali pozitivno doprinosi zadovoljstvu kupaca, proširujući prethodna istraživanja uključivanjem šireg spektra smeštajnih objekata. Menadžeri u ugostiteljstvu trebalo bi da se fokusiraju na prakse sa velikim uticajem, posebno u upravljanju otpadom, kako bi poboljšali iskustvo gostiju. Održivost treba posmatrati kao komplementarni element kvaliteta usluge, koji podržava ekološke ciljeve i konkurentnost.

Ključne reči: održivost, konkurentnost, ugostiteljstvo, ocene kupaca, Booking.com
JEL klasifikacija: L83, Q56, D40

1. Introduction

Sustainability concerns are gaining increasing significance across various industries, including tourism and hospitality, where businesses face growing pressure to adopt practices that not only minimize environmental impact but also support long-term economic viability and social responsibility. For clarity, green practices refer specifically to environmental actions (e.g., waste reduction, energy efficiency), while sustainability practices encompass a broader framework that includes economic and social dimensions. The methods, practices, and communication of entrepreneurial initiatives are crucial. The 1987 report by the World Commission on Environment and Development (WECD), often referred to as Our Common Future, underscores the idea that all of us bear the responsibility for fostering sustainable development. This concept, as defined by the Commission, involves meeting present-day requirements without jeopardizing future generations' capacity to fulfill their own needs (WECD, 1987). In the hospitality industry, implementing sustainable initiatives presents challenges from both competitive and ethical viewpoints, as these practices may not always offer clear economic advantages or align with all customer priorities. These initiatives play a vital role in applying the triple bottom line concept, wherein the enduring prosperity of a company and its stakeholders depends on prioritizing all three facets of sustainability: economic, environmental, and social (Amini & Bienstock, 2014; Zhang et al., 2012). However, the effectiveness of these practices in enhancing a company's competitiveness remains contested, particularly in contexts where cost efficiency and customer experience dominate consumer decision-making processes.

Many studies (e.g., Dimitrova et al., 2022; Nekmahmud et al., 2022; Saari et al., 2021) have presented the premise that consumers are inclined to adopt green or sustainable choices in their own lives to ensure a habitable planet for future generations. Within the hospitality industry, there is a noteworthy phenomenon in which a subset of customers look for accommodations that prioritize eco-friendliness and sustainability. As more customers actively seek out such options, the hospitality industry is motivated to align with these preferences, adapting its practices and offerings to cater to this increasing demand for sustainability (Buffa et al., 2018; Cvelbar et al., 2017).

Zhang et al. (2012) state that to stand out in a competitive hospitality market, it is essential to communicate sustainability practices and initiatives to potential and existing customers. Apart from the traditional marketing communication strategies of lodging facilities, new opportunities for sustainability practice communication appear on Online Travel Agencies (OTAs) such as Booking.com. Booking.com's Travel Sustainable program recognized over 500,000 accommodations for their sustainability efforts in 2023 (Sustainable Travel Report, 2023). Lodging facilities using Booking.com can join the program to showcase their sustainability practices. However, it remains unclear how effectively this visibility improves competitiveness through customer ratings, warranting further investigation.

The sustainability criteria information in Booking.com facility profiles allowed us to analyze its impact on the competitiveness of hospitality establishments, as seen in customer ratings. While sustainability efforts can enhance customer perceptions, their effectiveness as a key factor in competitiveness needs further examination. Customer ratings are an important factor in a company's competitiveness (Abrudan et al., 2020; Nguyen & Malik, 2021). In the competitive hospitality industry, online reviews and ratings serve as powerful marketing tools, offering objective feedback that attracts new customers. (Nguyen & Malik, 2021). Positive customer reviews can provide a competitive edge by demonstrating quality and satisfaction to potential buyers (Abrudan et al., 2020).

While sustainability in hospitality has been widely studied, most research has concentrated on hotels, with limited attention to guesthouses and apartments. Moreover, little is known about the effectiveness of communicating sustainability practices via online platforms such as Booking.com, and the impact of specific practices on customer ratings remains unclear. This study therefore examines how sustainability practices influence competitiveness in Czech hospitality establishments, with a focus on identifying the most relevant practices and comparing engagement across facility types. The paper contributes by broadening the scope beyond hotels, providing evidence from a Central European context, and offering practical implications for managers seeking to align sustainability with competitiveness.

2. Theoretical background

This study addresses the research question of whether sustainability practices affect customer ratings. Several studies conducted in the hospitality industry have discussed similar issues: sustainability practices affect tourists' satisfaction and loyalty (Gerdt et al., 2019; Olya et al., 2021), form a competitive advantage (Abdelkader, 2022), and influence tourists' hotel choice decisions (Verma & Chandra, 2018). Other studies are concerned only with the environmental pillar of sustainability and green practices. A summary table of the available studies on the topics addressed is presented in Appendix A. The table outlines the context of each study, its methodology, and key findings, and includes only those studies that are most relevant to the research questions and published within the last 15 years.

Sustainability practices facilitate a hotel's performance in several ways. Olya et al. (2021) showed a positive relationship between sustainability practices and tourist satisfaction, with tourists' familiarity with these practices also enhancing their satisfaction. Therefore, familiarity with a hotel's sustainable practices improves tourists' service evaluation and increases purchase intentions. Abdelkader (2022) examined the impact of sustainability practices on a hotel's competitive advantage, finding a moderate influence. The surprising results of a study from India by Verma and Chandra (2018) suggested that tourists prioritize sustainability practices, followed by price, location, value for money, brand awareness, and food and service quality, during the accommodation selection process.

Gerdt et al. (2019) examined customer reviews, finding that while sustainability management positively influences review ratings, its impact is limited. Similarly, Berezan et al. (2014) suggested that sustainable hotel practices attract primarily a niche group of customers, indicating that the relevance of sustainability for guest satisfaction may vary across segments. Other research shows a more nuanced picture. For instance, Alreahi et al. (2023) highlighted that green hotels tend to garner higher levels of customer loyalty and satisfaction, and this effect becomes stronger in higher-rated hotels and among chain-affiliated establishments. Qubbaj et al. (2023) further confirmed that eco-certifications significantly enhance customers' willingness to book eco-friendly hotels and even pay premium prices, which underlines the growing market value of sustainability.

Several studies have also investigated regional differences. Barakagira and Paapa (2023) in Uganda reported that green practices improved profitability, reduced material costs, and strengthened customer service, though the correlation with hotel performance was weak among luxury hotels. Salem et al. (2022) in Oman found that customers' positive perceptions of eco-hotels were primarily shaped by their environmental values, cognitive image, and low-carbon knowledge, suggesting that cultural and cognitive factors mediate the effect of sustainability on guest satisfaction. Likewise, Berezan et al. (2013) found that nationality plays a role: green practices were particularly influential for Mexican and American tourists, but less so for others.

The evidence also points to the fact that some sustainability practices influence customer ratings more directly than others. Abrudan et al. (2020) revealed that, from the sustainability dimension, only facilities for disabled guests and electric vehicle charging stations significantly improved customer ratings. Preziosi et al. (2022) emphasized that guests view environmentally friendly practices not only as an add-on but as a distinct dimension of service quality and an "excitement factor" that contributes to overall enjoyment. However, contrary evidence was provided by Aznar et al. (2016), who concluded that sustainability does not necessarily translate into financial performance improvements, raising questions about whether the business case for sustainability is always straightforward.

Among the online platforms where customer ratings play a crucial role, Booking.com stands out as a leading digital travel company connecting a wide range of properties, from large hotels to small lodging options, with global audiences. Available in 43 languages, it offers over 28 million listings (Booking.com, 2023). Since 2010, its extensive data has attracted many researchers, leading to increased utilisation of the platform (Mariani et al., 2020).

For all lodging facilities that use Booking.com, it is essential to constantly monitor and improve the customer ratings collected by the platform, because they directly affect the position of the hotel's listings in the search and increase the number of reservations (Vermeulen & Seegers, 2009), hotel room sales (Cezar & Ögüt, 2016) and occupancy rates (Viglia et al., 2016). The rising use of online review platforms has made hotel ratings a key factor shaping travellers' accommodation choices. At the same time, hotel managers rely on these ratings as crucial measures of market performance and competitiveness (Naumzik et al., 2022; Xia et al., 2020). An experimental study (Vermeulen & Seegers, 2008) of 168 participants demonstrates that online hotel reviews significantly influence consumer decision-making by increasing hotel consideration and awareness; both positive and negative reviews raise awareness, while positive reviews further enhance attitudes toward hotels, with these effects being particularly pronounced for lesser-known hotels, whereas reviewer expertise exerts only a minor positive influence.

In addition to online reviews, research (So et al., 2014) highlights the importance of customer engagement as a determinant of brand loyalty. While traditional loyalty drivers such as satisfaction and service quality remain relevant, customer engagement has emerged as a stronger predictor of long-term loyalty. Empirical findings based on hotel and airline customers demonstrate that engagement significantly enhances brand evaluation, trust, and loyalty. Importantly, the study shows that brand loyalty can be strengthened not only through direct service experiences but also through active customer involvement beyond the service encounter. This suggests that cultivating customer engagement strategies – such as interactive communication, brand communities, or personalised services – may further amplify the positive effects of online ratings and strengthen hotels' competitiveness in the digital marketplace.

Our study aims to examine how sustainability practices influence customer ratings, positing that this impact may be modest. There is a research gap regarding similar issues in the entire lodging facilities industry, including guesthouses. Are these establishments implementing sustainable practices, and how does their level of implementation compare to hotels? These are crucial questions for academic researchers to explore.

3. Materials and methods

Based on the current research gap identified by the literature review and data availability, the research questions were set as follows:

RQ A. Are there statistically significant differences in sustainability practice adoption according to the facility type?

RQ B. Do the sustainability practices adoption influence the customer rating, and if yes, to what extent?

In the context of these research questions, five hypotheses were formulated:

- H1: There are no significant differences in the overall sustainability level according to facility type.
- H2: There are no significant differences in the application of individual sustainability practices according to the facility type.
- H3: The customer rating is not influenced by the sustainability level.
- H4: Individual dimensions of sustainability practices do not influence customer ratings.
- H5: There are no significant differences in customer ratings according to the facility type.

For hypotheses H1, H2, and H3, differences were tested for statistical significance at a 0.05 level of significance, using appropriate tests according to the type of variable. For H3 and H4, the one-way relationship between the two variables (dependent variable customer rating and independent variable level of sustainability) was tested.

An analytical, descriptive, and deductive approach was employed to achieve the research objectives. Booking.com observed and published a list of 28 sustainable practices for each offer, which was categorized into five dimensions: waste, water, energy and greenhouse gases, destinations and communities, and nature. Table 1 summarizes a list of specific practices. Booking.com only indicated whether or not a facility applied a given practice. In the positive case, the practice was coded as 1, and if it was not applied, it was coded as 0. Overall sustainability was measured as the average number of sustainable practices implemented by facilities within their respective types. The customer rating value was taken directly from the Booking.com website for each of the selected facilities. No weights were assigned to the individual practices or dimensions, as doing so would have introduced subjectivity into the evaluation process. All practices and dimensions were therefore considered equally important in order to ensure methodological transparency and comparability. While the current dataset captures the presence or absence of practices, it does not provide information on customer perceptions or the intensity of sustainability communication.

Table 1: Sustainable practices defined by Booking.com

Waste	Single-use plastic miniature shampoo, conditioner, and body wash bottles not used Water cooler/dispenser Recycling bins are available to guests and waste is recycled Single-use plastic stirrers not used Single-use plastic straws are not used Single-use plastic water bottles not used Single-use plastic beverage bottles not used Single-use plastic cups not used Single-use plastic cutlery/plates not used
Water	Water-efficient toilets Water-efficient showers Option to opt out of daily room cleaning Option to reuse towels
Energy and greenhouse gases	Most lighting throughout the property uses energy-efficient LED bulbs All windows are double-glazed Most of the provided food at the property is locally sourced Electric car charging station Key card or motion-controlled electricity 100% renewable electricity is used throughout The property makes efforts to reduce its food wastage
Destination and community	Tours and activities organized by local guides and businesses offered Provides guests with information regarding local ecosystems, heritage, and culture, as well as visitor etiquette Invests a percentage of revenue back into community projects or sustainability projects Local artists are offered a platform to display their talents
Nature	Wild (non-domesticated) animals are not displayed/interacted with while captive on the property or harvested, consumed, or sold Green spaces such as gardens/rooftop gardens on the property Offsets a portion of their carbon footprint Most of the provided food is organic

Source: Booking.com, 2023

Data were collected from tourism destinations in the Czech Republic from August to September 2023. Following the Czech Statistical Office's methodology (ČSÚ, 2022), in line with Eurostat's 2014 guidelines, the study focused on three types of accommodation: hotels, apartments, and guesthouses. A hotel is a commercial establishment with at least ten rooms, offering accommodation and services to tourists. Hotels typically provide various room types with amenities and services like room service, housekeeping, restaurants, bars, and recreational options such as spas. Apartments are separate units typically featuring kitchens, bathrooms, and lounges, offering guests a more homely atmosphere than traditional hotels. A guesthouse is a small private accommodation where guests stay in private rooms. They often provide personal experiences, including homecooked meals and recommendations for local attractions (Ahr, 2022).

Stratified random sampling was chosen as the sampling method. The sample size was set at 10% of collective accommodation establishments located in the ten most visited areas (regional destinations certified by Czech Tourism as the national tourism organization) of the country. Owing to a change in the methodology for destination categorization during the data collection process, 12 regional destinations were finally included in the study to incorporate both previously and newly certified areas. The capital city of Prague was intentionally excluded to avoid biasing the results for the entire country, as it shows a diametrically different character of tourism, both in terms of demand (visitors) and supply (accommodation establishments). The data was collected randomly for selected areas only for establishments on Booking.com, which were marked as "travel sustainable property". Therefore, all absolute and relative frequencies presented refer only to establishments that apply sustainable practices.

Information was collected from 429 collective accommodation facilities in the Czech Republic. The guidelines for multiple regression require a minimum of 10 cases for each independent variable (5). The ratio of valid cases (429) to the number of independent variables (5) was 85.8, which was higher than the proposed minimum level (Milton, 1986).

The extracted data were statistically analyzed using IBM SPSS software. First, the dataset was analyzed using descriptive statistical methods, including frequency table construction, mean calculation, and standard deviation determination. The subsequent data analysis involved testing the hypotheses to better understand the relationships within the dataset. Linear regression was applied to examine the relationship between the overall sustainability level and customer ratings, as both variables are continuous and this method allows estimation of the strength and direction of the association. Multiple regression was used for the individual sustainability dimensions to identify which specific practices have a significant impact on customer ratings, while controlling for the influence of other dimensions simultaneously. Chi-square tests were chosen to assess relationships between categorical variables, and one-way ANOVA was applied to compare mean values of overall sustainability level across different types of accommodation. This rationale ensures that the selected statistical methods are appropriate for the nature of the data and the research questions, enhancing the robustness of the analyses. All tests were performed at a significance level of $p < 0.05$.

4. Results and discussion

The sample consisted of 429 collective accommodation establishments located in the most visited Czech region (see Table 2). Most of them were from the Giant Mountains (22.4%), followed by the Jizera Mountains (11%) and Karlovy Vary (10.7 %). In terms of the type of accommodation, all three types were represented by a relatively similar share (apartments, 32.2%; guesthouses 32.4%; and hotels, 35.4%).

Table 2: Sample characteristics

	Type			Total (N)	Total (%)
	Apartment	**Guesthouse**	**Hotel**		
Beskid Mountains	5	11	9	25	5.8
Brno and Environs	9	5	12	26	6.1
Central Moravia	8	5	9	22	5.1
Giant Mountains	24	43	29	96	22.4
Jeseníky Mountains – West	20	10	10	40	9.3
Jizera Mountains	9	18	20	47	11.0
Karlovy Vary Region	13	4	29	46	10.7
Lipno Region	18	2	2	22	5.1
Moravian Slovakia	4	10	11	25	5.8
Pálava and the Lednice-Valtice Complex	8	21	12	41	9.6
Třeboň Region	9	5	5	19	4.4
Zlín-Luhačovice Region	11	5	4	20	4.7
Total (N)	138	139	152	429	100.00
Total (%)	32.2	32.4	35.4	100.00	

Source: Authors' research

The sustainability level was measured by the facility's application of practices set by Booking.com, which was categorized into five dimensions: waste reduction (nine items), water saving (four items), energy and greenhouse gases (seven items), destination and community (four items), and nature (four items). On average, each facility implemented 16 out of 28 practices. The most frequently adopted practices (i.e., in more than 80% of facilities) were in the waste reduction dimension (four items), water saving dimension (two items), and energy and greenhouse gas dimensions (two items). The option to reuse towels was adopted by the highest share of facilities (94%). This practice was followed by not using plastic cutlery/plates (90%), not using plastic stirrers (88%), opting out of daily room cleaning (88%), and using energy-efficient LED bulbs (88%). On the contrary, the least number of facilities implemented these sustainability practices: electric car charging stations (11%), 100% renewable electricity used throughout (12%), offsets a portion of their carbon footprint (17%) (see Table 3).

Table 3: Adoption of individual sustainability practices

	N	%
Water [Option to reuse towels]	402	94
Waste [Single-use plastic cutlery/plates not used]	385	90
Waste [Single-use plastic stirrers not used]	378	88
Water [Option to opt-out of daily room cleaning]	378	88
Energy and greenhouse gases [Most lighting throughout the property uses energy-efficient LED bulbs]	378	88
Waste [Single-use plastic cups not used]	373	87
Energy and greenhouse gases [All windows are double-glazed]	373	87
Waste [Single-use plastic straws not used]	357	83
Waste [Recycling bins are available to guests and waste is recycled]	321	75
Water [Water-efficient toilets]	304	71
Nature [Green spaces such as gardens/rooftop gardens on the property]	302	70
Waste [Single-use plastic miniature shampoo, conditioner, and body wash bottles not used]	299	70
Waste [Single-use plastic beverage bottles not used]	292	68
Waste [Single-use plastic water bottles not used]	288	67
Water [Water-efficient showers]	254	59
Destination and community [Provides guests with information regarding local ecosystems, heritage, and culture, as well as visitor etiquette]	235	55
Nature [Wild (non-domesticated) animals are not displayed/interacted with while captive on the property or harvested, consumed, or sold]	231	54
Destination and community [Tours and activities organized by local guides and businesses offered]	208	48
Energy and greenhouse gases [The property makes efforts to reduce their food wastage]	199	46
Destination and community [Local artists are offered a platform to display their talents]	173	40
Energy and greenhouse gases [Most food provided at the property is locally sourced]	157	37
Energy and greenhouse gases [Key card or motion-controlled electricity]	138	32
Nature [Most food provided is organic]	123	29
Destination and community [Invests a percentage of revenue back into community projects or sustainability projects]	117	27
Waste [Water cooler/dispenser]	94	22
Nature [Offsets a portion of their carbon footprint]	74	17
Energy and greenhouse gases [100% renewable electricity used throughout]	51	12
Energy and greenhouse gases [Electric car charging station]	46	11

Source: Authors’ research

Tests of hypotheses

H1: There are no significant differences in the overall sustainability level by type of facility.

In Hypothesis H1, we focused on the sustainability level (measured by the average number of sustainable practices implemented by facilities) and whether there were statistically significant differences among apartments, guesthouses, and hotels.

Table 4: Descriptive statistics: Sustainability level by type of accommodation (H1)

	N	Mean	Std. Deviation
Apartment	138	16.101	4.438
Guesthouse	139	15.899	4.505
Hotel	152	16.434	4.514
Total	429	16.154	4.482

Source: Authors' research

Table 5: One-way ANOVA results: Sustainability level by type of accommodation (H1)

	Sum of Squares	df	Mean Square	F	Sig.	η^2
Between Groups	21.334	2	10.667	0.530	0.589	0.003
Within Groups	8576.512	426	20.133			
Total	8597.846	428				

Source: Authors' research

Since the significance level ($p = 0.589$) exceeded the threshold of 0.05, H1 was not supported. Moreover, the effect size was negligible ($\eta^2 = 0.003$, explaining approximately 0.25% of the variance). Thus, differences in the level of sustainability according to the type of accommodation were not statistically significant. Therefore, we explored the results in more detail and focused on individual sustainability practices to determine whether they were significant for the studied accommodation types. This was examined using the following hypotheses:

H2: There are no significant differences in the application of individual sustainability practices by type of facility.

We examined whether the applied sustainable practices varied across accommodation categories. Table 6 summarizes the results for all sustainable practices, providing data on the share of facilities within each category that apply sustainable practices, the value of the test criterion (Pearson Chi-Square), and the significance level. Statistically significant differences (at a significance level of 0.05) were found between apartments, guesthouses, and hotels for bold-marked practices.

Table 6: Distribution of sustainability practices across accommodation types (H2)

Sustainable practices	**Share of facilities that apply the sustainable practice (%)**			**Pearson Chi-Square**	**df**	**Significance level**
	Apartment	**Guesthouse**	**Hotel**			
Waste [Single-use plastic miniature shampoo, conditioner, and body wash bottles not used]	**80**	**66**	**63**	**11.422**	**2**	**0.003**
Waste [Water cooler/dispenser]	23	17	25	2.732	2	0.255
Waste [Recycling bins are available to guests and waste is recycled]	**88**	**86**	**53**	**61.622**	**2**	**< 0.001**
Waste [Single-use plastic stirrers not used]	91	86	87	1.998	2	0.368
Waste [Single-use plastic straws not used]	**92**	**78**	**80**	**11.654**	**2**	**0.003**
Waste [Single-use plastic water bottles not used]	**82**	**63**	**58**	**20.789**	**2**	**< 0.001**
Waste [Single-use plastic beverage bottles not used]	**81**	**65**	**59**	**17.072**	**2**	**< 0.001**
Waste [Single-use plastic cups not used]	89	83	88	2.271	2	0.321
Waste [Single-use plastic cutlery/plates not used]	93	87	89	2.466	2	0.291
Water [Water-efficient toilets]	75	67	70	2.423	2	0.298
Water [Water-efficient showers]	63	58	57	1.326	2	0.515

Water [Option to opt-out of daily room cleaning]	**78**	**89**	**96**	**22.094**	**2**	**< 0.001**
Water [Option to reuse towels]	93	94	95	0.494	2	0.781
Energy and greenhouse gases [Most lighting throughout the property uses energy-efficient LED bulbs]	88	91	86	1.835	2	0.400
Energy and greenhouse gases [All windows are double-glazed]	88	88	85	0.920	2	0.631
Energy and greenhouse gases [Most food provided at the property is locally sourced]	**28**	**38**	**43**	**8.074**	**2**	**0.018**
Energy and greenhouse gases [Electric car charging station]	**9**	**7**	**16**	**6.476**	**2**	**0.039**
Energy and greenhouse gases [Key card or motion-controlled electricity]	**21**	**27**	**47**	**25.925**	**2**	**< 0.001**
Energy and greenhouse gases [100% renewable electricity used throughout]	11	14	11	1.235	2	0.539
Energy and greenhouse gases [The property makes efforts to reduce their food wastage]	**36**	**42**	**60**	**18.545**	**2**	**< 0.001**
Destination and community [Tours and activities organized by local guides and businesses offered]	**36**	**41**	**66**	**31.042**	**2**	**< 0.001**
Destination and community [Provides guests with information regarding local ecosystems, heritage, and culture, as well as visitor etiquette]	**47**	**53**	**64**	**8.582**	**2**	**0.014**
Destination and community [Invests a percentage of revenue back into community projects or sustainability projects]	**35**	**25**	**22**	**6.074**	**2**	**0.048**
Destination and community [Local artists are offered a platform to display their talents]	**28**	**39**	**53**	**20.122**	**2**	**< 0.001**
Nature [Wild (non-domesticated) animals are not displayed/interacted with while captive on the property or harvested, consumed, or sold]	**46**	**53**	**62**	**7.107**	**2**	**0.029**
Nature [Green spaces such as gardens/rooftop gardens on the property]	69	78	65	5.738	2	0.057
Nature [Offsets a portion of their carbon footprint]	20	20	13	3.736	2	0.154
Nature [Most food provided is organic]	**20**	**35**	**30**	**7.872**	**2**	**0.020**

Notes: The bold style is for significant values (significance level less than 0.05).
Source: Authors' research

Statistically significant differences were found in several waste reduction practices, including the non-use of single-use plastic shampoo, conditioner, and body wash bottles, plastic straws, plastic water bottles, and other plastic beverage bottles, as well as the availability of recycling bins for guests. These practices are implemented more frequently in apartments, where over 80% report using them, compared to approximately 60% of hotels and guesthouses. The only exception is the availability of recycling bins, which is similarly high in both apartments (88%) and guesthouses (86%).

Referring to the water-saving practices, the differences in implementation of the "Option to opt-out of daily room cleaning" were verified as statistically significant. This option was offered to customers of almost all hotels (96%). To a lesser extent, this option is offered by guesthouses (89%) and apartments (78%).

Statistically significant differences were found in energy-saving and greenhouse gas reduction practices, such as offering mostly locally sourced food, providing electric car charging stations, using key card or motion-controlled electricity, and making efforts to reduce food waste. These measures are most commonly implemented by hotels and least frequently by apartments.

Statistically significant differences were observed across all items related to destination and community engagement, including offering tours and activities by local guides and businesses, providing guests with information about local ecosystems, heritage, and etiquette, investing part of revenue in community or sustainability projects, and supporting local artists. All practices – except for investment in community and sustainability projects – were more frequently implemented by hotels (at least 53%) than by apartments and guesthouses. The exception, investing in local projects, was more common in apartments, though still adopted by only 35% of them.

In the dimension of nature, two items were statistically significant. The first, “Wild animals are not displayed or interacted with while captive or sold”, is primarily followed by hotels (62%), guesthouses (53%), and apartments (46%). The second, “Most food provided is organic”, is mainly implemented by guesthouses (35%), hotels (30%), and apartments (20%).

H3: The customer rating is not positively influenced by the sustainability level.

Hypothesis H3 focuses on analyzing the relationship between customer ratings and the level of sustainability through linear regression. The results are summarized in Tables 7 - 9.

Table 7: Model summary: influence of sustainability level on customer rating (H3)

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.205[a]	0.042	0.040	0.626

a. Predictors: (Constant), Sustainability level
Source: Authors’ research

Table 8: One-way ANOVA results: Influence of sustainability level on customer rating (H3)

Model		**Sum of Squares**	**df**	**Mean Square**	**F-value**	**Significance**
1	Regression	7.375	1	7.375	18.821	0.000[b]
	Residual	167.321	427	0.392		
	Total	174.697	428			

a. Dependent variable: Customer rating
b. Predictors: (Constant), Sustainability level
Source: Authors’ research

Table 9: Coefficients[a] (H3)

Model	**Standardized Coefficients Beta**	**t-value**	**Significance**
(Constant)		73.607	0.000
Total score	0.205	4.338	0.000

a. Dependent variable: Customer rating
Source: Authors’ research

Linear regression proved that the level of sustainability influenced customer ratings (significance level: 0.000). The standardized beta coefficient was 0.205, indicating a positive correlation. The constant was 8.330. Therefore, in mathematical terms, we can write the equation as

Y (customer rating) = 8.330 + 0.205 (sustainability level).

This implies that if the facility adopts one more sustainability practice, the customer rating increases by 0.205. Nevertheless, the R-squared value of 0.042 indicates that only 4.2% of the variance in the dependent variable can be explained by the independent variables in the model. In other words, the sustainability level in the regression model did not explain much of the variability in customer ratings. This finding highlights the limited influence of sustainability practices on customer evaluations, suggesting that while sustainability efforts may contribute marginally to improved ratings, they are far from being a decisive factor in determining overall customer satisfaction or competitiveness. For hospitality establishments, this underscores the importance of not solely relying on sustainability initiatives but also prioritizing other aspects of the customer experience, such as service quality, price, and convenience, to enhance their competitive position.

H4: Individual dimensions of sustainability practices do not influence customer ratings.

We focused on the different dimensions of sustainability and whether and to what extent customer ratings depend on them. Multiple regression analysis was used as the method of choice. Tables 10–12 summarize the results.

Table 10: Model Summary: Influence of sustainability dimensions on customer ratings (H4)

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.275[a]	0.075	0.064	0.618

a. Predictors: (Constant), Waste score

Source: Authors' research

Table 11: One-way ANOVA results: Influence of sustainability dimensions on customer ratings (H4)

Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Significance**
1	Regression	13.175	5	2.635	6.900	<0.001[b]
	Residual	161.522	423	0.382		
	Total	174.697	428			

a. Dependent Variable: Customer Rating

b. Predictors: (constant) waste score, water score, energy score, destination and community score, nature score

Source: Authors' research

Table 12: Coefficients (H4)[a]

Model	**Standardized Coefficients Beta**	**t-value**	**Significance**
(Constant)		62.965	< 0.001
Waste score	0.240	5.001	< 0.001
Water score	0.058	1.153	0.250
Energy score	0.089	1.590	0.113
Destination and community score	-0.046	-0.804	0.422
Nature score	-0.018	-0.314	0.754

a. Dependent Variable: Customer Rating

Source: Authors' research

The results suggested that only the waste dimension had a significant correlation with customer ratings, with a significance value lower than 0.001 (lower than 0.05). The standardized beta coefficient was 0.240, indicating a positive correlation between waste reduction level and customer rating. However, the other dimensions (water, energy, destination and communication, and nature), that is, the number of sustainability practices adopted in these dimensions, did not show significance between the dependent variables. In mathematical terms, the equation can be written (where the constant is 8.144) as

Y (customer rating) = 8.144 + 0.240 × (waste reduction level).

H4 was partially supported, although not all dimensions were found to be related to customer ratings. Dimension "Waste reduction level" has a positive relationship (coefficient beta = 0.240) with the customer rating. In other words, the more sustainable the waste reduction practices of accommodation facilities, the better they are rated by customers.

Nevertheless, it must be noted that R square achieved a low value (7.5%), which means that customer ratings were influenced by other factors that were not included in our research.

H5: There are no significant differences in the customer rating by type of facility.

Although establishing an association between accommodation type and customer ratings is not the focus of this study, we present the results of the statistical test. These results complement the findings of the present study.

A one-way ANOVA (see Table 13 and Table 14) revealed statistically significant differences in customer ratings across accommodation types, $F(2, 426) = 34.12$, $p < 0.001$, with apartments receiving the highest scores (9.132), followed by guesthouses (8.735) and hotels (8.566). The effect size was large ($\eta^2 = 0.138$), indicating that accommodation type explains approximately 13.8% of the variance in customer ratings

Table 13: Descriptive Statistics: customer rating by type of facility (H5)

		N	**Mean**	**Std. Deviation**
Customer Rating	apartment	138	9.132	0.531
	guesthouse	139	8.735	0.593
	hotel	152	8.566	0.649
	Total	429	8.803	0.639

Source: Authors' research

Table 14: One-way ANOVA results: customer rating by type of facility (H5)

		Sum of Squares	**Df**	**Mean Square**	**F**	**Sig.**	**η^2**
Customer Rating	Between Groups	24.118	2	12.059	34.115	0.000	0.138
	Within Groups	150.579	426	0.353			
	Total	174.697	428				

Source: Authors' research

5. Discussion

No significant differences in overall sustainability were observed between facility types, which suggests that sustainability has become a common concern across the sector. This indicates that sustainability has become a priority across all accommodation types, likely driven by environmentally conscious customers. Facility-specific attributes, such as the absence of food services in apartments, can shape the adoption of certain practices, underlining the need for nuanced sustainability assessments. Underutilized practices such as EV charging or renewable electricity represent areas with potential competitive advantage if more visibly implemented.

The modest link between sustainability and customer ratings suggests that sustainability is not yet a decisive driver of customer satisfaction. These results align with the findings of studies such as Berezan et al. (2014), which suggest that sustainable hotel practices appeal primarily to a niche segment of customers, and Aznar et al. (2016), who found no clear relationship between sustainability and improved financial performance in the hospitality sector. Similarly, Barakagira and Paapa (2023) reported only a weak correlation between the adoption of green practices and the performance of five-star hotels, reinforcing the notion that sustainability practices may not always be a decisive factor in driving customer satisfaction or loyalty.

However, the results diverge from studies such as Verma and Chandra (2018) and Alreahi et al. (2023), which highlight a stronger connection between sustainability initiatives and customer preferences or loyalty. For example, Verma and Chandra (2018) emphasized that green practices are among the most critical attributes in customers' hotel selection decisions, while Alreahi et al. (2023) reported that green hotels tend to achieve higher levels of customer satisfaction and loyalty, particularly among higher-star-rated establishments.

The findings also partially contrast with Olya et al. (2021) and Salem et al. (2022), who demonstrated that specific dimensions of sustainability, particularly social and environmental aspects, significantly enhance guest satisfaction and loyalty. These studies suggest that the influence of sustainability on customer perceptions may be moderated by cultural, regional, or demographic factors, as well as by the way these practices are communicated to customers.

Interestingly, the minimal impact observed in this study aligns with Abrudan et al. (2020), who noted that only certain sustainability practices, such as electric vehicle charging stations, are significantly associated with improved customer ratings. This indicates that customers may prioritize practical and visible sustainability measures over less tangible initiatives.

Among all dimensions, waste management emerged as the most relevant, reinforcing prior evidence that tangible practices resonate more with guests, aligning with Verma and Chandra's (2018) findings.

6. Conclusion

From a practical perspective, this study has several implications. The main outcome of this study is that sustainability level does not have a significant influence on customer ratings (only 4.2%). Customers rate their overall experience of their stay and do not perceive the level of sustainability of the facility significantly. Therefore, if managers prioritize the improvement of customer ratings, improving sustainability should be a secondary strategy. From a single-dimension perspective, the only statistically significant driver for improving customer ratings was waste reduction. Waste reduction dimension practices influence the customer ratings by 7.5%. Therefore, if facilities want to improve their customer ratings through sustainable practices, they should first adopt the waste reduction dimension. However, from a societal and environmental point of view, improving the sustainability of lodging facilities is in the best interest of all stakeholders; therefore, it should be continuously improved independently of customer ratings.

In terms of facility type, the sustainability level did not seem to differ. From a managerial perspective, facility type is not an obstacle to achieving a better sustainability level.

However, there were differences in the adoption of individual sustainability practices. For instance, apartments adopt waste reduction practices more easily, such as not using single-use plastic miniature shampoos, conditioners, and body wash bottles; better availability of recycling bins; and not using plastic straws, single-use plastic water bottles, or other beverage bottles. Other differences are summarized in the section on these findings.

From a theoretical perspective, this study makes a significant contribution to sustainability and competitiveness knowledge in the hospitality industry. The data sources were unique and reliable. These findings have been discussed in previously published literature. In the Central European context, the sustainability level is not a significant driver of customer ratings and competitiveness. This study further confirms that the sustainability level is not influenced by the type of facility. Moreover, the study also confirmed that there are significant differences in customer ratings by facility type: apartments have the highest ratings, followed by guesthouses and hotels.

Importantly, sustainability can be conceptualized as a potential signal to customers, whose effectiveness may depend on its observability, credibility (e.g., certification), and alignment with customer values. The present study captures the presence or absence of specific sustainable practices, but not how customers perceive or respond to them. Future research could explore these aspects, including distinguishing operational (back-of-house) versus communicative (guest-facing) practices, the role of certification as a moderator, and the intensity of sustainability communication on booking pages. This perspective can provide guidance for targeted sustainability investments that are more likely to influence customer perceptions. In the future, it would be also interesting to conduct similar studies in other countries and compare the results in other cultural contexts.

CRediT author statement

Jitka Vávrová: Data collection, Methodology, Conceptualization, Writing, Editing. **Lenka Červová:** Data collection, Data analysis, Writing. **Blanka Brandová:** Literature review, Writing, Editing.

Declaration of generative AI in the writing process

During the preparation of this work, the authors used generative AI and AI-assisted technologies, specifically Grammarly and ChatGPT, to improve the clarity, style, and grammar of the text. The use of these tools was limited to language correction and enhancement; all ideas, analyses, and interpretations presented in the work are solely those of the authors.

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Conflict of interest

The authors declare no conflict of interest.

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Appendix

Literature review summarization

Authors and Year of Publication, Country	**Purpose**	**Summary Points**
Olya, H., Altinay, L., Farmaki, A., Kenebayeva, A., & Gursoy (2021), Kazakhstan	To examine the effects of hotel's sustainability practices in relation to employees, customers, and the hotel itself on guests' behaviors and attitudes	The social and environmental aspects contribute positively to guest satisfaction and loyalty, whereas the economic dimension and familiarity do not show a significant correlation with guest loyalty, even if they may enhance guest satisfaction.
Abdelkader (2022), Kuwait	To examine the influence of adopting sustainability strategies on the competitiveness of five-star hotels	The study reveals that luxury hotels in Kuwait are dedicated to incorporating sustainability practices. The regression model outcomes suggest that sustainability criteria wield a moderate level of influence in attaining a competitive edge, as perceived by both employees and customers.
Verma and Chandra (2018), India	To examine the contributions of sustainability in tourists' hotel selection decision	Customers perceive energy conservation, recycling, and green scaping as key sustainable practices of hotels. The study brings a clear idea that sustainability, especially green practices, is the top factor in hotel selection.
Gerdt et al. (2019), Germany	To examine the influence of sustainability orientation and specific sustainability measures on customer satisfaction in the hospitality industry	Although only a minority of examined online reviews contained sustainability aspects, a relationship between sustainability orientation and customer satisfaction that is moderated by star classification was identified.
Alreahi, M., Bujdosó, Z., Lakner, Pataki, Zhu, Dávid, and Kabil (2023), Hungary	To explore the relationship between eco-friendly practices in hotels, hotel image, customer satisfaction, and loyalty, considering the star rating system and whether hotels are part of a chain or independent	Green hotels tend to garner higher levels of customer loyalty and satisfaction, with these trends strengthening as the hotel's star rating rises.
Qubbaj, A. I., Peiró-Signes, A., & Najjar (2023), Saudi Arabia	To explore the influence of green certificates on customers' online booking decisions and purchase choices when it comes to eco-friendly hotels	This study shows that green certificates enhance online customers' purchasing decisions in the hotel industry due to growing environmental concerns. Positive attitudes toward green hotels lead to higher chances of repeat visits and willingness to pay premium prices. Eco-friendly practices boost customer appeal and provide a competitive edge for hotels.

Barakagira, A., & Paapa, C. (2023), Uganda	To investigate the advantages and effects gained by hotel management when implementing eco-friendly practices	Implementing green practices brought numerous advantages for hoteliers, such as heightened profits, reduced material costs, a competitive advantage, and enhanced customer service. A weak correlation was observed between the adoption of green practices and the performance of five-star hotels.
Preziosi, Acampora, Lucchetti, and Merli (2022), Italy	To determine if green practices are a distinct dimension of service quality and viewed as excitement factors by hotel customers	Research shows that guests recognize a hotel's environmentally friendly practices as a key aspect of service. When hotels integrate green initiatives into their sustainability strategy, it boosts guest satisfaction and contributes to their overall enjoyment.
Salem, I. E., Elbaz, A. M., Al-Alawi, A., Alkathiri, N. A., & Rashwan, K. A. (2022), Oman	To reveal the factors influencing customers' favorable perception of green hotels, which can subsequently impact their behavioral intentions	The positive perception of green hotels is influenced by two main factors – environmental values and cognitive image – along with the peripheral factor of low-carbon knowledge. These elements collectively foster a favorable view of eco-friendly hotels, potentially making positive emotional perceptions less essential. This process works indirectly, as environmental values and low-carbon knowledge shape customers' cognitive image, enhancing their overall perception of eco-hotels.
Abrudan, I. N., Pop, C. M., & Lazăr, P. S. (2020), Romania	To examine various levels of importance of different facilities over the hotel's ranking (score)	For better customer ratings, only facilities for disabled people and electric vehicle charging stations are relevant (from the sustainability category).
Berezan, O., Raab, Yoo, and Love (2013), Mexico	To examine how sustainable hotel practices affect the satisfaction and return intention of tourists from different nationalities	Green practices have a positive relationship with guests' satisfaction levels and return intentions for Mexicans, Americans, and others. The study revealed that the relative importance of green practices differs with the nationality of the tourist.
Berezan, O., Millar and Raab (2014), Mexico	To assess tourist satisfaction with sustainable hotel practices and their motivations for participating	The study reports only minimal differences between demographic groups. Sustainable hotel practices are attractive only for a niche segment of customers.
Aznar, J., Sayeras, J., Galiana, J., & Rocafort (2016), Barcelona	To examine if hotel sustainability has a positive impact on financial performance and can be considered a positive strategy in the hotel industry	There is no clear relationship between sustainability and better financial performance.

Source: Authors' research

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Risk and safety in tourism: How trust in information sources shapes travel risk tolerance across national contexts?

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Abstract

Purpose – This study investigates how perceived risk dimensions (physical, financial, psychological, social, and temporal) and trust in traditional media, social media, and official sources influence travel risk tolerance among domestic tourists in Serbia, Hungary, and Kazakhstan. It explores cross-national differences and the role of institutional and informational factors in tourist behavior under uncertainty. **Methodology** – A quantitative approach was applied with 1,332 respondents, using validated instruments and structural equation modeling (PLS-SEM). Exploratory and confirmatory factor analyses ensured construct validity, while multigroup analysis (MGA) assessed structural differences across countries. **Findings** – General risk tolerance and trust in social media are key predictors in Serbia and Kazakhstan, whereas trust in traditional media and government sources dominates in Hungary. Psychological and physical risks notably affect tourists in Hungary and Kazakhstan, but less so in Serbia, reflecting cultural and institutional variations in risk management. **Implications** – The study extends tourism risk perception models by integrating trust dimensions and highlights the need for culturally tailored crisis communication. It offers practical guidance for destination managers and policymakers to design effective, source-specific communication strategies that align with national patterns of trust and resilience.

Keywords: risk tolerance, risk perception, tourist safety, media trust, tourist behavior
JEL classification: Z32, D81

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Rizik i bezbednost u turizmu: Kako poverenje u izvore informacija oblikuje toleranciju na rizik u putovanjima kroz različite nacionalne kontekste?

Sažetak

Svrha – Ova studija ispituje kako dimenzije percipiranog rizika (fizički, finansijski, psihološki, socijalni i vremenski) i poverenje u tradicionalne medije, društvene mreže i zvanične izvore utiču na toleranciju rizika pri putovanju među domaćim turistima u Srbiji, Mađarskoj i Kazahstanu. Analiziraju se međudržavne razlike i uloga institucionalnih i informacionih faktora u ponašanju turista u uslovima neizvesnosti. **Metodologija –** Primenjen je kvantitativni pristup na uzorku od 1.332 ispitanika, korišćenjem validiranih instrumenata i modelovanja strukturnih jednačina (PLS-SEM). Validnost konstrukata potvrđena je eksploratornim i konfirmatornim faktorskim analizama, a multigrupna analiza (MGA) korišćena je za ispitivanje razlika između zemalja. **Rezultati –** Opšta tolerancija rizika i poverenje u društvene mreže ključni su prediktori u Srbiji i Kazahstanu, dok u Mađarskoj dominira poverenje u tradicionalne medije i državne izvore. Psihološki i fizički rizici značajno utiču na ponašanje turista u Mađarskoj i Kazahstanu, ali manje u Srbiji, što odražava kulturološke i institucionalne razlike. **Implikacije –** Studija unapređuje modele percepcije rizika u turizmu integracijom dimenzija poverenja u izvore informacija i ukazuje na potrebu za kulturno prilagođenom kriznom komunikacijom. Nalazi nude praktične smernice za menadžere destinacija i kreatore politika u oblikovanju efikasnih strategija komunikacije.

Ključne reči: tolerancija na rizik, percepcija rizika, bezbednost turista, poverenje u medije, turističko ponašanje
JEL klasifikacija: Z32, D81

1. Introduction

Contemporary tourist behavior is increasingly shaped by global uncertainty, with risk perception emerging as a key factor influencing travel decisions (Matiza & Kruger, 2021; Vasilić & Savić, 2025). Although risk affects all stages of travel planning (Pinto et al., 2025), its perception remains subjective, varying across cultural, institutional, and informational contexts (Hsiao et al., 2025). Existing studies often remain limited to national contexts or isolated aspects of risk, without systematically comparing how different types of perceived risk and trust in information sources jointly influence travel behavior across diverse settings. For instance, in Serbia, dominant concerns involve health-related risks and distrust in institutions (Perić et al., 2021), in Hungary the focus lies on tourism protocols and communication systems (Tokodi, 2022), while Kazakhstan faces challenges related to geo-ecological stability and destination safety (Chlachula et al., 2021). Additionally, the role of general risk orientation in shaping specific travel decisions remains insufficiently explored (Li et al., 2024; Rajnović et al., 2025). The aim of this study is to develop and empirically test an integrated model that explains how various dimensions of perceived risk (physical, financial, psychological, social, and temporal) and trust in different information sources (government, traditional media, social media) influence travel risk tolerance. By applying a comparative analysis across Serbia, Hungary, and Kazakhstan, the study addresses key theoretical gaps and offers new insights into culturally embedded patterns of risk perception and decision-making under uncertainty. This research advances existing knowledge by systematically incorporating information trust and risk orientation into a unified framework, contributing to both theory and practical understanding of tourist behavior in crisis contexts.

2. Background and related work

In the contemporary context of frequent crises and global uncertainty, safety and risk have become dominant forces shaping tourist behavior (Zou & Meng, 2020). While it is well established that perceived risk and individual tolerance influence travel decisions (Li et al., 2024), recent studies emphasize the predominance of emotional and social responses over purely rational assessments (Kim et al., 2021). Rahmafitria et al. (2021) and Stevanović and Gajić (2024) argue that pandemic-related experiences have significantly altered long-term travel patterns, increasing the salience of personal risk tolerance, now more deeply rooted in values and past exposures (Chernyshev et al., 2023; Ting et al., 2020). Among risk categories, physical risk is consistently cited as a deterrent to travel (Godovykh et al., 2021), though its actual effect is mediated by habituation, cultural norms, and local infrastructure (Yang & Wibowo, 2025). Financial risk, encompassing fears of unexpected costs and poor returns, has a negative impact on travel intentions (Khasawneh & Alfandi, 2019), but its intensity varies depending on tourists' income profiles. Psychological risk, marked by anxiety in unfamiliar contexts, may inhibit or, paradoxically, trigger information-seeking behaviors (Oshriyeh et al., 2022), yet its long-term behavioral impact remains inconclusive. Social risk appears more relevant in collectivist cultures where family and peer approval strongly shape intentions (Seočanac & Veljović, 2025; Tiwari & Omar, 2023), though empirical support across demographics is still limited. Lastly, temporal risk, though often neglected, can significantly reduce the perceived value of travel, particularly in cases of delays or poor infrastructure (Tanina et al., 2022), but its direct influence on risk tolerance is understudied. Based on these theoretical insights and identified empirical gaps, the following hypotheses are proposed:

H_1: Higher perception of physical risk negatively affects travel risk tolerance.

H_2: Higher perception of financial risk reduces travel risk tolerance.

H_3: Psychological risk has a negative impact on travel risk tolerance.

H_4: Higher perception of social risk reduces travel risk tolerance.

H_5: Temporal risk negatively affects travel risk tolerance.

Some studies have highlighted the importance of traditional media in strengthening the institutional image of destinations (De La Hoz-Correa & Muñoz-Leiva, 2019), but more recent studies highlight a decline in trust due to inaccuracies and the politicization of content (Cheng et al., 2025). This raises the question of how much tourists today actually rely on television, newspapers, and radio when making decisions in crisis situations. Social media platforms have become the dominant source of information despite fluctuating levels of trust, with digital literacy, age, and cultural background significantly shaping perceptions of credibility (Martínez et al., 2020). Authenticity of brands on social networks, as shown by Zhang et al. (2022), can enhance user trust, suggesting that the impact of social media on risk tolerance depends largely on personal attitudes toward the reliability of information. Trust in government sources, while important for supporting tourism (Asaduzzaman et al., 2025; Nunkoo & Gursoy, 2019;), has been shown in more recent studies (Silva Dos Santos et al., 2025) to depend on integration with local and digital communication channels, rather than on institutional authority alone. Based on these insights, the following hypotheses are proposed:

H_6: Trust in traditional media positively affects travel risk tolerance.

H_7: Trust in social media positively affects travel risk tolerance.

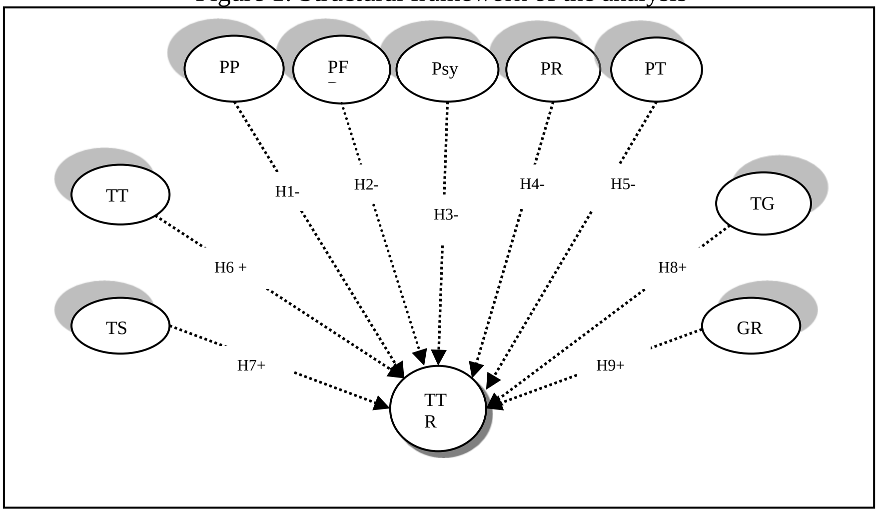
H_8: Trust in government sources increases travel risk tolerance.

Particular attention was given to the dimension of general risk orientation, which reflects an individual's willingness to accept uncertainty and potential negative outcomes across different areas of life. Meertens and Lion (2008) developed a reliable instrument for measuring this trait and demonstrated its stable association with behavior, including travel decision-making. However, findings indicate that a high level of general risk tolerance does not necessarily translate into a willingness to travel to all types of uncertain environments, especially when additional social or health-related risks are present. Based on these insights, the following hypothesis is proposed:

H_9: Higher general risk tolerance positively influences travel risk tolerance.

This study applies a comparative approach to examine differences among Serbia, Hungary, and Kazakhstan in tourism development, institutional stability, and trust in information sources. In Serbia, distrust in official channels and reliance on social media prevail (Fuchs, 2024; Vukolić et al., 2022), while Hungary shows stronger trust in traditional media (Kupi & Bakó, 2024). In Kazakhstan, weak institutional credibility is offset by greater dependence on informal sources (Tleuberdinova et al., 2025). Structural model illustrating the direct effects of perceived risk dimensions (PPR, PFR, PsyR, PSR, PTR), trust in information sources (TTM, TSM, TGS), and general risk tolerance (GRT) on travel risk tolerance (TRT). This model is designed to assess the relative impact of these variables across the three countries (Serbia, Hungary, and Kazakhstan), highlighting cross-cultural differences in how individuals respond to travel-related risk information (Figure 1).

Figure 1: Structural framework of the analysis



*Note: PPR – Perceived physical risk; PFR – Perceived financial risk; PsyR – Perceived psychological risk; PSR – Perceived social risk; PTR – Perceived time risk; TTM – Trust in traditional media; TSM – Trust in social media; TGS – Trust in governmental sources; GRT – General risk tolerance; TRT – Travel risk tolerance

Source: Authors' research

3. Methodology

3.1. Sample description and research design

This study compares domestic tourists in Serbia, Hungary, and Kazakhstan to explore differences in travel risk tolerance across diverse institutional settings. Serbia is characterized by widespread distrust in official institutions (Vučetić & Vukojević, 2025), Hungary by relatively higher institutional trust as an EU member (Kaposi & Gonda, 2025), and Kazakhstan by reliance on informal sources due to limited information freedom (Gulnur & Kamshat, 2025). Data were collected between July 2024 and December 2025, focusing exclusively on domestic tourism to capture culturally embedded perceptions of travel risk. Respondents were asked about their willingness to travel to destinations within their own country that may be perceived as risky due to health, safety, infrastructure, or social issues. However, areas under active conflict or war zones were excluded. Destinations were selected to reflect realistic insecurity scenarios (e.g., rural instability, infrastructure gaps, or socio-political tensions), which is particularly relevant in the post-pandemic context, where domestic tourism plays a key strategic role (Song et al., 2025). Tablet-Assisted Personal Interviewing (TAPI) was used to conduct face-to-face surveys, improving data quality by minimizing manual errors and enabling real-time validation (Song et al., 2025). Interviews were conducted by trained final-year tourism and social sciences students in public spaces. Informed consent was obtained, participation was anonymous, and ethical standards were strictly followed to ensure data integrity and minimize interviewer bias. A total of 1,332 valid responses were collected: 452 from Serbia (Belgrade, Novi Sad, Niš), 434 from Hungary (Budapest, Debrecen, Szeged), and 446 from Kazakhstan (Almaty, Astana, Shymkent). G*Power analysis ($f^2 = 0.15$, $\alpha = 0.05$, $1 - \beta = 0.95$, predictors = 9) estimated a required sample of 166 per country (Kang, 2021), confirming that the collected sample exceeds the threshold for statistical validity.

3.2. Instruments

The questionnaire was based on validated and theoretically grounded scales, measuring ten latent constructs: five dimensions of perceived risk, three dimensions of trust in information sources, and two dimensions of risk tolerance (general risk orientation and travel risk tolerance as the outcome variable). Responses were recorded on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). Perceived risk was assessed using the Perceived Risk Scale in Tourism (Reisinger & Mavondo, 2005), covering physical, financial, psychological, social, and temporal risks, each operationalized through three items. Trust in information sources was measured by adapting the Media Trust and Risk Perception Scale (Siegrist et al., 2005), distinguishing trust in traditional media, social media, and government sources. General risk tolerance (GRT) was measured with the Risk Propensity Scale (Meertens & Lion, 2008), while travel risk tolerance (TRT) was assessed through the Travel Fear & Safety Attitudes Scale (Zheng et al., 2021). Detailed descriptions of all items are provided in Table 1.

Table 1: Combined scale of risk perception, trust in information sources, and risk tolerance

Factor	Items
Perceived physical risk (PPR)	I believe that traveling to this destination could be physically dangerous.
	There is a high likelihood that I could get injured at this destination.
	I am concerned about the health conditions at this destination.
Perceived financial risk (PFR)	I worry that I could lose money if I travel to this destination.
	Unexpected expenses could arise during the trip.
	Traveling to this destination is not a good financial decision.
Perceived psychological risk (PsyR)	I would feel uncomfortable if I traveled to this destination.
	I am afraid of the unfamiliar culture or language.
	Just thinking about this trip makes me feel anxious.
Perceived social risk (PSR)	People I care about would not approve of my trip.
	My family members would worry about me traveling to this place.
	My friends might think I am being irresponsible if I go there.
Perceived time risk (PTR)	Traveling to this destination might be a waste of time.
	I could use that time for a more valuable experience.
	Delays and cancellations could ruin the entire experience.
Trust in traditional media (TTM)	I trust the information I get from TV and newspapers.
	Newspapers provide reliable travel safety information.
	TV news is a trustworthy source for travel warnings.
Trust in social media (TSM)	Information on social media about travel safety is reliable.
	Posts on social media influence my travel decisions.
	Blogs offer useful safety advice for travelers.
Trust in governmental sources (TGS)	I trust the travel advice issued by government institutions.
	Official government websites provide credible safety information.
	I follow official warnings about travel destinations.
General risk tolerance (GRT)	I enjoy taking risks in general.
	I often seek out new and risky experiences.
	I like trying things even if they involve risk.
Travel risk tolerance (TRT)	I am willing to travel even when there are potential safety risks.
	Travel warnings do not stop me from traveling.
	I frequently travel to places that others consider risky.

Source: Authors' research

A pilot study (n = 30 per country) was conducted in Serbia, Hungary, and Kazakhstan to assess linguistic clarity, time efficiency, and cultural relevance. Minor adjustments were made based on participant feedback, particularly for items on abstract risk dimensions. The instrument was then reviewed by three experts in safety, tourism, and consumer psychology, who confirmed its theoretical adequacy. Following their input, slight refinements were introduced to the introduction and terminology. The final version was validated through EFA and CFA, meeting all reliability and validity criteria, confirming its cross-cultural applicability.

3.3. Overview of analytical methods

Data analysis was conducted using IBM SPSS v26.0, AMOS v26.0, and SmartPLS 4, following a sequential approach. Descriptive statistics confirmed acceptable deviation from normality (skewness: − 0.812 to 0.636; kurtosis: − 1.278 to 0.991), with slight deviations detected by Shapiro – Wilk and Kolmogorov–Smirnov tests ($p < 0.05$). Given the large sample size, robust methods were applied as recommended by Kyriazos (2018). To ensure methodological rigor, both CFA (AMOS) and PLS-SEM (SmartPLS) were used. CFA validated the measurement model through model fit indices, while PLS-SEM enabled structural path estimation under partial non-normality, allowing for multiple predictors (Hair et al., 2020). This dual approach supports both construct validity and predictive robustness. Cross-country comparisons were made using independent samples t-tests on composite indices. Each national sample was tested separately for normality (Shapiro–Wilk, K-S tests) and variance homogeneity (Levene's test), with assumptions met ($p > 0.05$). Cohen's d ranged from 0.45 to 0.92, indicating moderate-to-large contextual differences in risk perception (Cohen, 1988). PLS-SEM confirmed reliability and validity: CR ranged from 0.818 to 0.910, AVE from 0.518 to 0.720, with all outer loadings > 0.708 and VIF < 3.3. Discriminant validity was supported via Fornell–Larcker and HTMT (< 0.85). Structural models explained substantial variance in travel risk tolerance ($R^2\_RS = 0.594$; $R^2\_HU = 0.531$; $R^2\_KZ = 0.608$), with $Q^2 > 0.28$ for all models, confirming predictive relevance. The strongest effects (f^2 up to 0.214) were linked to general risk tolerance (GRT) and trust in social media (TSM), especially in Serbia and Kazakhstan (Hair et al., 2020). Model fit and construct reliability followed psychometric standards: KMO > 0.80, CFI and TLI > 0.90, RMSEA < 0.06, and SRMR < 0.08 (Kyriazos, 2018). Effect sizes and predictive relevance were interpreted using Cohen's and Hair et al.'s guidelines, confirming small-to-moderate but meaningful structural impacts. To validate cross-national comparisons, the MICOM procedure (Measurement Invariance of Composite Models) was conducted in SmartPLS 4, following the three-step approach by Henseler et al. (2016). Configural invariance was confirmed through identical model structure and indicator alignment across Serbia, Hungary, and Kazakhstan. Compositional invariance, tested via permutation (5,000 resamples), showed non-significant differences between original and permuted correlations ($p > 0.05$), confirming equivalence. In the third step, partial invariance was achieved, with equality of means and variances established for 8 out of 9 constructs. As full compositional invariance was satisfied, cross-country comparisons and MGA were deemed methodologically sound (Hair et al., 2020).

4. Results

The socio-demographic profiles of respondents from Serbia, Hungary, and Kazakhstan indicate several relevant differences. Gender distribution is relatively balanced, with the highest share of male respondents in Kazakhstan (47.1%) and the lowest in Serbia (44.7%). Kazakhstan has the most respondents aged 18–30 (38.6%), while Hungary leads in the 31–45 age group (41.7%). Serbia shows the most even age spread. Higher education is most common in Serbia (64.8%) and Hungary (65.4%), whereas Kazakhstan has the highest share with only secondary education (31.8%). Serbia reports the most employed respondents (66.6%), while Kazakhstan has the most students (21.5%). Unemployment rates are similar across countries. Income levels differ significantly: low-income respondents (<500 €) are most frequent in Kazakhstan (43.9%), while Hungary has the most high-income respondents (>1000 €) at 41.0%. Travel frequency is highest in Hungary (33.2% travel more than twice a year), whereas in Serbia and Hungary most respondents travel 1–2 times annually (48.9% and 49.3%, respectively), slightly more than in Kazakhstan (45.7%) (Table 2).

Table 2: Overview of respondents' socio-demographic attributes

Characteristic	Category	Serbia (n = 452)	Hungary (n = 434)	Kazakhstan (n = 446)
Gender	Male	202 (44.7%)	198 (45.6%)	210 (47.1%)
	Female	250 (55.3%)	236 (54.4%)	236 (52.9%)
Age	18–30 years	162 (35.8%)	145 (33.4%)	172 (38.6%)
	31–45 years	178 (39.4%)	181 (41.7%)	168 (37.7%)
	46+ years	112 (24.8%)	108 (24.9%)	106 (23.7%)
Education	Secondary	128 (28.3%)	116 (26.7%)	142 (31.8%)
	Higher	293 (64.8%)	284 (65.4%)	272 (61.0%)
	Postgraduate	31 (6.9%)	34 (7.9%)	32 (7.2%)
Employment	Employed	301 (66.6%)	282 (65.0%)	274 (61.4%)
	Unemployed	68 (15.0%)	64 (14.8%)	76 (17.0%)
	Student	83 (18.4%)	88 (20.3%)	96 (21.5%)
Income	<500 €	102 (22.6%)	74 (17.1%)	196 (43.9%)
	500–1000 €	246 (54.4%)	182 (41.9%)	162 (36.3%)
	>1000 €	104 (23.0%)	178 (41.0%)	88 (19.7%)
Travel frequency	Less than once per year	97 (21.5%)	76 (17.5%)	142 (31.8%)
	1–2 times per year	221 (48.9%)	214 (49.3%)	204 (45.7%)
	More than 2 times per year	134 (29.6%)	144 (33.2%)	100 (22.5%)

Source: Authors' research

4.1. Descriptive overview of survey items

Perceptions of risk dimensions differ notably across Serbia, Hungary, and Kazakhstan. Physical risk is most pronounced in Hungary and Kazakhstan, with Kazakhstani respondents especially concerned about health safety, while Serbian participants express comparatively lower concern. Financial risk is strongest in Kazakhstan, reflecting economic instability, while Serbians link it to broader macroeconomic issues; Hungarians perceive it as moderate but relevant. Psychological risk peaks in Hungary, where emotional discomfort is most apparent, followed by Kazakhstan; Serbian respondents report moderate levels, possibly due to greater familiarity with risky environments. Social risk is highest in Kazakhstan, likely due to collectivist cultural norms, while Serbian and Hungarian tourists show less sensitivity to social judgment. Temporal risk is most salient in Hungary (due to scheduling disruptions) and Kazakhstan (linked to delays), while Serbian respondents report lower concern, possibly due to lower expectations regarding infrastructure. Trust in information sources also varies. Hungarians express highest trust in traditional media and governmental sources, aligning with stronger institutions. Serbians and Kazakhstani respondents show less trust in these sources but rely more on social media, especially in Kazakhstan. General risk tolerance (GRT) is highest in Kazakhstan, reflecting adaptation to daily uncertainty, followed by Hungary and Serbia. Travel risk tolerance (TRT) is greatest among Hungarian tourists, moderate in Serbia, and more variable in Kazakhstan depending on the risk type. These differences highlight how cultural, informational, and institutional contexts shape tourists' perceptions and behaviors under risk (Table 3).

Table 3: Summary statistics for individual measurement items

Item	m_RS	sd_RS	λ_RS	m_HU	sd_HU	λ_HU	m_KZ	sd_KZ	λ_KZ
PPR1	4.258	1.549	0.784	5.069	1.313	0.623	2.701	0.721	0.891
PPR2	2.746	0.919	0.565	2.678	1.655	0.711	4.067	1.260	0.592
PPR3	3.235	0.706	0.729	3.232	1.234	0.881	5.138	1.792	0.865
PFR1	3.472	1.597	0.635	4.455	1.592	0.889	3.834	0.823	0.573
PFR2	3.759	1.478	0.773	2.895	0.794	0.809	4.494	1.214	0.603
PFR3	4.682	0.985	0.881	4.460	1.285	0.730	3.473	0.857	0.852
PsyR1	3.580	1.441	0.573	2.762	1.221	0.731	4.228	0.834	0.834
PsyR2	3.949	1.552	0.715	5.482	0.995	0.584	3.285	1.815	0.719
PsyR3	4.044	1.570	0.832	5.541	1.734	0.881	3.321	1.443	0.621
PRS1	3.371	1.257	0.813	4.163	0.724	0.876	5.460	1.025	0.783
PRS2	3.699	1.344	0.802	2.866	1.018	0.868	3.107	1.648	0.771
PRS3	4.037	1.124	0.869	2.902	0.958	0.858	4.390	1.541	0.864
PTR1	3.007	1.610	0.581	4.880	1.307	0.660	3.345	1.183	0.882
PTR2	3.826	1.106	0.885	3.902	1.381	0.772	2.851	0.995	0.658
PTR3	4.623	1.689	0.728	3.221	1.440	0.867	5.317	1.240	0.657
TTM1	4.136	1.521	0.807	3.317	0.765	0.881	4.824	1.546	0.568
TTM2	3.453	1.120	0.867	4.176	1.797	0.726	2.792	0.872	0.859
TTM3	2.978	0.822	0.745	5.257	0.719	0.866	3.275	1.530	0.739
TSM1	3.215	1.782	0.634	4.186	0.736	0.847	3.161	1.419	0.867
TSM2	4.089	1.320	0.788	2.972	1.300	0.630	5.408	1.087	0.793
TSM3	3.545	1.011	0.869	2.660	1.819	0.727	4.913	1.263	0.870
TGS1	2.899	1.460	0.695	4.865	0.754	0.665	3.048	1.162	0.663
TGS2	3.685	0.726	0.578	3.846	1.085	0.790	4.709	1.486	0.825
TGS3	4.212	0.810	0.857	2.831	1.492	0.733	5.360	1.496	0.611
GRT1	3.127	1.178	0.641	3.230	1.226	0.776	4.447	1.157	0.780
GRT2	4.587	1.522	0.721	3.011	0.894	0.844	2.643	1.544	0.662
GRT3	3.294	1.679	0.678	4.496	1.778	0.862	3.840	0.947	0.714
TRT1	2.832	1.635	0.591	3.653	1.553	0.709	4.520	0.871	0.880
TRT2	4.485	1.204	0.887	3.119	1.424	0.841	3.308	1.208	0.603
TRT3	3.376	0.933	0.753	5.470	1.162	0.773	2.719	1.662	0.675

Note: * m – arithmetic mean, sd – standard deviation, α – Cronbach alpha, λ – factor loading

Source: Authors' research

A split-sample approach was used to validate the factor structure: 60% of each national sample was analyzed via CFA and 40% via EFA (Serbia: n = 271/181; Hungary: n = 260/174; Kazakhstan: n = 267/179). The high KMO value (0.927) and significant Bartlett's test (χ^2 = 8563.772; df = 378; $p < 0.001$) confirmed sampling adequacy (Kyriazos, 2018). The CFA supported a nine-factor model with 30 items, showing good fit across all countries (SRMR = 0.046; RMSEA = 0.042; CFI = 0.965; TLI = 0.951; GFI = 0.940; χ^2/df = 2.182). All constructs demonstrated strong reliability (α and CR > 0.75), convergent validity (AVE > 0.50), and discriminant validity (Fornell–Larcker). Factor loadings were stable, with explained variance per factor between 45% and 62%, and cumulative variance over 90%. TRT exhibited robust psychometric properties, particularly in Kazakhstan and Hungary. Perceived risk dimensions were more pronounced in these two countries, while Serbia showed a more balanced profile. Trust in social media (TSM) proved especially reliable, and GRT and TRT consistently emerged as strong predictors of travel behavior under risk (Table 4).

Table 4: Measurement model evaluation: EFA and CFA

Factor	Country	m	sd	α	E	%V	C%	CR	AVE
PPR	**RS**	3.223	0.905	0.812	3.546	61.70	61.70	0.868	0.518
	HU	4.554	1.560	0.893	3.402	54.30	54.30	0.870	0.565
	KZ	4.511	0.830	0.741	3.519	56.10	56.10	0.776	0.719
PFR	**RS**	3.282	1.120	0.855	3.112	59.60	65.96	0.837	0.650
	HU	4.430	0.819	0.879	3.225	54.00	58.97	0.795	0.612
	KZ	3.884	1.218	0.734	3.366	55.50	60.98	0.899	0.511
PsyR	**RS**	3.139	1.239	0.799	3.091	58.80	70.22	0.842	0.557
	HU	4.070	1.369	0.872	2.893	53.90	63.64	0.893	0.546
	KZ	4.293	0.869	0.766	3.008	54.10	65.86	0.774	0.531
PRS	**RS**	4.570	1.472	0.782	2.678	56.00	74.48	0.839	0.714
	HU	3.815	0.775	0.888	2.778	52.90	68.31	0.784	0.516
	KZ	4.058	0.903	0.744	2.790	53.00	70.74	0.843	0.656
PTR	**RS**	4.724	0.899	0.785	2.523	55.40	78.74	0.827	0.572
	HU	3.137	0.705	0.857	2.306	52.20	72.98	0.859	0.601
	KZ	4.314	0.807	0.780	2.285	50.60	75.62	0.830	0.561
TTM	**RS**	4.436	0.939	0.890	2.268	53.40	83.00	0.831	0.628
	HU	3.867	1.330	0.837	2.186	50.90	77.65	0.823	0.532
	KZ	4.525	0.875	0.857	2.169	49.10	80.50	0.765	0.541
TSM	**RS**	4.697	1.004	0.736	1.788	52.70	87.26	0.851	0.613
	HU	4.888	1.272	0.886	1.894	49.40	82.32	0.768	0.595
	KZ	4.652	0.968	0.853	1.738	48.30	85.38	0.802	0.590
TGS	**RS**	4.100	1.345	0.864	1.565	50.30	91.52	0.818	0.553
	HU	3.995	1.367	0.878	1.611	48.10	86.99	0.761	0.539
	KZ	4.399	1.195	0.749	1.514	47.60	90.26	0.891	0.521
GRT	**RS**	3.955	1.492	0.845	1.272	48.00	95.78	0.775	0.580
	HU	4.615	1.663	0.741	1.284	46.60	91.66	0.852	0.604
	KZ	3.558	1.376	0.872	1.271	46.30	94.14	0.825	0.664
TRT	**RS**	3.863	0.807	0.877	1.093	45.80	98.20	0.803	0.616
	HU	4.589	0.913	0.853	1.170	45.20	96.00	0.823	0.638
	KZ	3.644	1.421	0.882	1.139	45.10	99.02	0.799	0.584

Note: * m – arithmetic mean, sd – standard deviation, α – cronbach alpha, CR – composite reliability, AVE – average variance extracted

Source: Authors' research

The independent t-test results reveal significant differences in perceived risk and risk tolerance across the three countries. Serbian respondents generally report lower perceived risks and lower travel risk tolerance compared to Hungarians, who consistently demonstrate higher tolerance and trust. Kazakhstani participants display a mixed profile, with higher general risk tolerance but variable responses across specific risk dimensions. These findings reflect how institutional trust, cultural context, and personal attitudes shape travel-related risk perceptions and behaviors in distinct national settings (Table 5).

Table 5: Independent samples T-test results

Construct	Comparison	Mean Diff (m_1-m_2)	t-value	df	p-value	Sig.
PPR	**Serbia vs Hungary**	-0.84	-5.862	884	0.000	***
	Serbia vs Kazakhstan	-0.79	-5.647	896	0.000	***
	Hungary vs Kazakhstan	0.05	0.762	878	0.447	n.s.
PsyR	**Serbia vs Hungary**	-0.71	-4.215	880	0.000	***
	Serbia vs Kazakhstan	-0.89	-5.086	870	0.000	***
	Hungary vs Kazakhstan	0.18	2.019	890	0.044	*
TRT	**Serbia vs Hungary**	-0.59	-4.899	881	0.000	***
	Serbia vs Kazakhstan	0.15	2.145	886	0.033	*
	Hungary vs Kazakhstan	0.74	6.101	879	0.000	***
GRT	**Serbia vs Hungary**	-0.58	-4.498	882	0.000	***
	Serbia vs Kazakhstan	0.33	2.982	887	0.003	**
	Hungary vs Kazakhstan	0.91	6.835	883	0.000	***

Note: * $p < 0.05$,** $p < 0.01$, *** $p < 0.001$, n.s. = not significant

Source: Authors' research

The correlation matrix shows interconnections between risk dimensions, with contextual differences. In Kazakhstan, physical and financial risks are strongly linked ($r = 0.877$), reflecting generalized insecurity. Hungary shows weaker associations ($r = 0.601$), while Serbia lies in between ($r = 0.836$). Physical and psychological risks are closely connected in Serbia ($r = 0.911$) and Hungary ($r = 0.844$), but less so in Kazakhstan ($r = 0.662$), possibly due to adaptation to uncertainty. Financial and psychological risks show moderate correlations in all three countries, suggesting that economic concerns often trigger emotional responses (Table 6).

Table 6: Correlation Matrix (lower triangle)

Construct 1	Construct 2	Serbia	Hungary	Kazakhstan
PFR	**PPR**	0.836	0.601	0.877
PsyR	**PPR**	0.911	0.844	0.662
PsyR	**PFR**	0.692	0.744	0.669

Source: Authors' research

4.2. Structural equation modeling: SEM and MGA

Table 7 reveals notable cross-country differences in the factors shaping travel risk tolerance. In Serbia, travel decisions are primarily influenced by tangible risks—physical ($\beta = 0.405$), financial ($\beta = 0.241$), and temporal ($\beta = 0.179$), as well as strong individual risk orientation ($\beta = 0.365$) and trust in social media ($\beta = 0.323$). This indicates a predominantly pragmatic approach, where tourists weigh cost, timing, and safety more than emotional or institutional concerns. Hungarian tourists, in contrast, show a more balanced evaluation. Alongside physical and financial risks, psychological discomfort ($\beta = 0.277$) plays a significant role, suggesting heightened emotional awareness. Institutional trust is also more influential, trust in traditional media ($\beta = 0.288$) and government sources ($\beta = 0.310$) both significantly contribute to shaping travel confidence, reflecting a relatively stable information environment. In Kazakhstan, the strongest predictor is physical risk ($\beta = 0.479$), followed by social pressures ($\beta = 0.241$), trust in social media ($\beta = 0.345$), and personal risk orientation ($\beta = 0.414$). This suggests that decisions are driven by a combination of external insecurity and internal adaptability, while institutional sources remain largely irrelevant. The model underscores that while risk tolerance is a shared construct, its drivers are contextually embedded in each country's cultural, informational, and socio-political environment.

Table 7: Structural model estimates and multigroup comparison by country

Path	β	t	p	Conclusion
Serbia				
PPR → TRT	0.405	2.103	0.036	significant – physical risks are decisive for domestic tourists accustomed to uncertainty
PFR → TRT	0.241	3.558	0.000	significant – financial considerations clearly affect travel decisions
PsyR → TRT	0.215	1.457	0.146	not significant – personal discomfort does not outweigh rational factors
PRS → TRT	0.296	1.609	0.108	not significant – social judgment is not perceived as relevant when travel is normalized.
PTR → TRT	0.179	2.557	0.011	significant – time organization matters, especially for working individuals and families
TTM → TRT	0.150	1.700	0.090	not significant – traditional media are not perceived as highly objective
TSM → TRT	0.323	3.633	0.000	significant – social media shape attitudes, especially among youth
TGS → TRT	0.071	1.100	0.272	not significant – trust in government sources is limited
GRT → TRT	0.365	3.314	0.001	significant – individual risk orientation strongly impacts travel risk tolerance
Hungary				
PPR → TRT	0.322	2.420	0.016	significant – physical safety is seriously considered
PFR → TRT	0.190	2.789	0.006	significant – cost concerns are present
PsyR → TRT	0.277	2.249	0.025	significant – psychological safety influences decisions, especially among families
PRS → TRT	0.081	1.234	0.218	not significant – social disapproval is negligible
PTR → TRT	0.109	1.398	0.163	not significant – travel logistics are usually planned efficiently
TTM → TRT	0.288	3.030	0.003	significant – traditional media remain highly respected
TSM → TRT	0.197	2.107	0.035	significant – younger travelers rely on social media for travel decisions
TGS → TRT	0.310	3.354	0.001	significant – trust in government sources is high (aligned with EU standards)
GRT → TRT	0.112	1.765	0.078	not significant – general risk orientation may not directly translate to travel-related behavior
Kazakhstan				
PPR → TRT	0.479	3.751	0.000	significant – physical risks are crucial due to broader insecurity
PFR → TRT	0.082	1.172	0.242	not significant – economic instability de-emphasizes financial planning in tourism
PsyR → TRT	0.056	0.930	0.353	not significant – psychological barriers are overshadowed by tangible issues
PRS → TRT	0.241	2.185	0.029	significant – social norms and family influence travel acceptability
PTR → TRT	0.074	1.021	0.308	not significant – timing is secondary to security concerns
TTM → TRT	0.022	0.714	0.476	not significant – low trust in traditional media such as TV and newspapers
TSM → TRT	0.345	3.931	0.000	significant – social media are the primary information source
TGS → TRT	0.031	0.870	0.385	not significant – government institutions lack perceived credibility
GRT → TRT	0.414	3.492	0.001	significant – individual risk orientation outweighs institutional influence

Source: Authors' research

The MGA analysis confirms clear cross-country differences in what drives travel risk tolerance. Physical risk has a stronger impact in Kazakhstan than in Serbia ($\Delta\beta$ = – 0.074; p = 0.039), reflecting real security concerns. Hungarian tourists rely more on traditional media ($\Delta\beta$ = – 0.138; p = 0.016) and government sources ($\Delta\beta$ = – 0.239; p = 0.011), while Serbian travelers are more influenced by social media (Δβ = 0.126; p = 0.038) and personal risk orientation (Δβ = 0.253; p = 0.007). In Serbia and Kazakhstan, individual and digital factors dominate, while institutional trust plays a larger role in Hungary (Table 8).

Table 8: MGA-Based comparison of structural paths

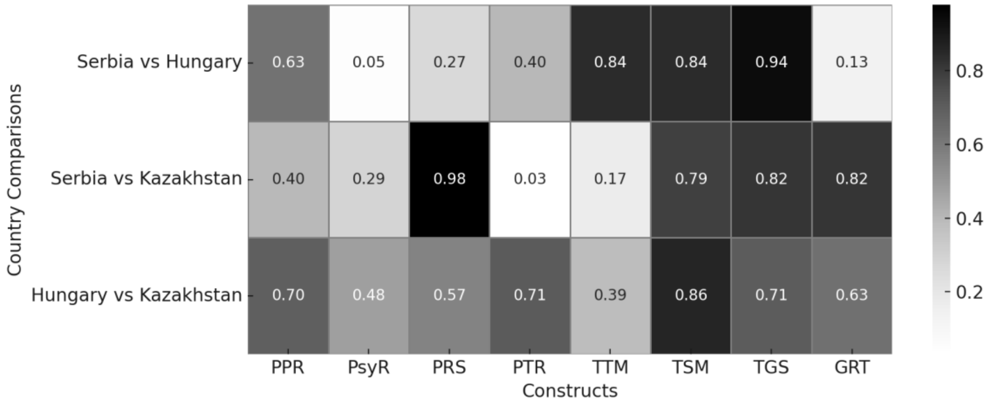
Construct	β_RS	β_HU	Δβ_RS-HU	Δt_RS-HU	Δp_RS-HU	β_KZ	Δβ_RS-KZ	Δt_RS-KZ	Δp_RS-KZ	Q²_RS	f²_RS	Q²_KZ	f²_KZ
PPR	0.405	0.322	0.083	1.534	0.129	0.479	-0.074	2.834	0.039 **	0.088	0.071	0.140	0.014
PFR	0.241	0.190	0.051	2.058	0.020 **	0.082	0.159	4.136	0.112	0.118	0.053	0.018	0.033
PsyR	0.215	0.277	-0.062	1.217	0.017 **	0.056	0.159	3.695	0.111	0.075	0.206	0.130	0.176
PRS	0.296	0.081	0.215	2.610	0.118	0.241	0.055	1.430	0.095	0.064	0.064	0.277	0.211
PTR	0.179	0.109	0.070	3.923	0.069	0.074	0.105	2.036	0.159	0.123	0.134	0.036	0.112
TTM	0.150	0.288	-0.138	2.734	0.016 **	0.022	0.128	3.910	0.049 **	0.046	0.091	0.097	0.025
TSM	0.323	0.197	0.126	2.872	0.038 **	0.345	-0.022	1.286	0.085	0.132	0.158	0.145	0.042
TGS	0.071	0.310	-0.239	4.043	0.011 **	0.031	0.040	0.991	0.173	0.102	0.030	0.026	0.031
GRT	0.365	0.112	0.253	4.298	0.007 **	0.414	-0.049	1.348	0.088	0.091	0.048	0.192	0.059

Source: Authors' research

5. Discussion

The findings confirm the multidimensional nature of travel risk tolerance and highlight significant cross-country differences among domestic tourists in Serbia, Hungary, and Kazakhstan, reinforcing prior claims about the contextual nature of tourist behavior under uncertainty (Li et al., 2024). In Serbia, despite strong correlations, physical risk was not a significant predictor, indicating adaptive resilience to institutional and infrastructural instability (Stevanović & Gajić, 2024). Conversely, in Hungary and Kazakhstan, physical risk significantly shaped decisions, reflecting their distinct security and infrastructure contexts (Tokodi, 2022). Financial risk was relevant in Serbia and Hungary but not in Kazakhstan, suggesting that rational cost considerations dominate in more stable environments, while emotional security takes precedence in less stable ones (Aliyeva et al., 2019). Psychological risk influenced only Hungarian tourists, potentially due to greater media exposure (Zhu & Deng, 2020), whereas its role was marginal in Serbia and Kazakhstan, where uncertainty appears normalized (Matiza & Kruger, 2021). Social risk was significant only in Kazakhstan, aligning with collectivist cultural norms (Najar & Rather, 2023). Temporal risk mattered in Serbia, likely due to infrastructural delays (Tanina et al., 2022). Trust in traditional media and government was more relevant in Hungary (Cheng et al., 2025), while social media influenced risk tolerance more in Serbia and Kazakhstan, consistent with lower institutional confidence (Martínez et al., 2020). General risk tolerance (GRT) was a consistent predictor across all countries, strongest in Kazakhstan, emphasizing personal disposition as a key factor in high-uncertainty settings. A grayscale heatmap (Figure 2) visualizes these differences, particularly in psychological risk and social media trust between Hungary and Kazakhstan, and physical risk between Serbia and Hungary.

Figure 2: Cross-national differences based on MGA p-values



Source: Authors' research

The t-test results reveal significant cross-country differences in risk tolerance. Hungarian tourists exhibit the highest levels of both general and travel-related risk tolerance, likely driven by strong infrastructure, institutional trust, and travel familiarity. In contrast, Serbian tourists display moderate tolerance shaped by pragmatic decision-making, while Kazakhstani respondents show lower tolerance due to pronounced safety and health concerns. These patterns suggest that risk perceptions and information trust vary contextually, reflecting deeper cultural, institutional, and infrastructural factors. General risk orientation emerged as the most consistent predictor, underscoring its central role in shaping travel behavior across diverse national settings.

6. Concluding remarks

This study advances the understanding of travel risk tolerance by examining how perceived risks, information trust, and individual risk orientation interact across Serbia, Hungary, and Kazakhstan. The findings confirm that travel-related risk tolerance is not universal but context-dependent, shaped by cultural norms, institutional trust, and information channels. The integrated model, merging risk dimensions and trust in information, proved valid in predicting travel decisions under uncertainty. By offering a cross-country perspective, this research extends prior single-country studies and reinforces that general risk orientation and trust in digital sources exert differentiated effects (Godovykh et al., 2021; Warner-Søderholm et al., 2018). Theoretically, it affirms the value of combining psychological and informational factors to explain complex tourist behavior (Cheng et al., 2025; Yang & Wibowo, 2025).

Managerially, the results suggest that Serbia should address financial and time-related uncertainties through transparent digital tools, Hungary should strengthen institutional communication and emotional reassurance, and Kazakhstan must prioritize infrastructure and credible media. Across all contexts, individual risk orientation remains a consistent predictor (Blešić et al., 2024), highlighting the need for adaptable strategies based on diverse risk profiles.

Limitations include the timing of data collection (July–December 2024), which may reflect temporary post-crisis attitudes, and reliance on self-reported measures, which could introduce social desirability bias. The geographic scope also limits generalizability beyond Central and Eastern Europe. Future research should broaden the geographic sample and explore moderators such as digital literacy, political stability, and international relations. Mixed methods and longitudinal designs are encouraged to better capture emotional and cultural shifts in tourist risk perception.

CRediT author statement

Boriša Lečić: Writing – review & editing, Supervision. **Yerlan Issakov**: Software, Methodology, Formal analysis, Conceptualization. **Lóránt Dénes Dávid:** Writing – original draft, Visualization, Formal analysis, Conceptualization. **Tamara Gajić:** Writing – original draft, Validation, Investigation.

Declaration of generative AI in the writing process

During the preparation of this work the authors did not use generative AI and AI-assisted technologies in the writing process.

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Conflict of interest

The authors declare no conflict of interest.

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eWOM as a key factor in consumer intent to visit a destination: The moderating role of trust

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Abstract

Purpose – Considering the intangible nature of tourism services prior to consumption, effective communication and experience exchange with other users are of critical importance. The rise in digital media usage, with the credibility of WOM communication, has led to the increasing role and significance of e-WOM in tourism. The purpose of the paper is to uncover the broader impact of e-WOM on tourists' decision-making by exploring its effects on destination image and tourists' attitudes. This study aims to examine how e-WOM, through destination image and attitude, influences the intent to visit a destination. The study also explores the moderating role of trust. **Methodology** – The methodology involves conducting reliability analysis, correlation analysis, and both simple and moderation regression analyses. **Findings** – The findings show that e-WOM positively influences tourists' trust and attitudes, and that both trust and attitudes positively affect their intention to visit a destination. **Implications** – The implications of this research highlight the importance of effectively managing e-WOM, encouraging positive reviews, and addressing negative feedback in order to shape tourists' attitudes. It highlights the importance of maintaining a strong destination image through targeted promotions and emotional connections. Trust-building through transparency and authentic communication is crucial for attracting visitors.

Keywords: eWOM, trust, destination image
JEL classification: M31, Z30

eWOM kao ključni faktor potrošačke namere za posetom destinaciji: Moderatorska uloga poverenja

Sažetak

Svrha – S obzirom na nematerijalnu prirodu turističkih usluga, efikasna komunikacija i razmena iskustava sa drugim korisnicima je od ključne važnosti. Porast upotrebe digitalnih medija, zajedno sa kredibilitetom WOM komunikacije, doveo je do povećanja uloge i značaja e-WOM-a u turizmu. Svrha rada je ispitati širi obuhvat uticaja e-WOM komunikacije na odluke turista, istražujući njegove efekte na imidž destinacije i stavove turista. Cilj rada je ispitati na koji način e-WOM, preko imidža destinacije i stava o destinaciji, utiče na nameru za posetu destinacije. Pored toga, u radu je ispitivana moderatorska uloga poverenja.

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Metodologija – Metodologija obuhvata analizu pouzdanosti, korelacionu analizu, prostu i moderacijsku regresionu analizu. **Rezultati** – Dobijeni rezultati pokazuju da eWOM pozitivno utiče na poverenje i stavove turista. Poverenje i stavovi turista pozitivno utiču na njihovu nameru za posetu destinacije. **Implikacije** – Implikacije istraživanja naglašavaju potrebu za efikasnim upravljanjem e-WOM-om, podsticanjem pozitivnih recenzija i rešavanjem negativnih povratnih informacija kako bi se oblikovali stavovi turista. Ističe se važnost održavanja imidža destinacije kroz ciljane promocije i emocionalnu povezanost, kao i građenja poverenja kroz transparentnost i autentičnu komunikaciju.

Ključne reči: eWOM, poverenje, imidž destinacije
JEL klasifikacija: M31, Z30

1. Introduction

Travel has now become an integral part of people's lives. As living standards rise, individuals increasingly seek leisure activities and sources of enjoyment, as tourism (Deb et al., 2024). Prior to embarking on trips, individuals commonly seek supplementary information (Yan et al., 2018). Additionally, the tourism sector is distinguished by the exchange of travel experiences across both offline and online channels (Litvin et al., 2008). The importance of interpersonal communication is emphasized, given the intangible nature of tourism and the inability to experience or evaluate services prior to purchase (Grubor et al., 2019; Philips et al., 2013;). Therefore, interpersonal communication (word-of-mouth - WOM) is often highlighted as the most significant source of information when it comes to making travel decisions among users (Litvin et al., 2008; Marić et al., 2024). It is emphasized that in today's era, the word "friend" is most often associated with Facebook, "community" with networks, and the term "word of mouth" was traditionally linked to personal interpersonal communication outside social media. Nowadays, according to a report by Nielsen (2023), 92% of consumers in America trust recommendations from family and friends more than paid advertisements. Meanwhile, 84% of consumers trust online reviews and comments as much as they trust recommendations from members of their reference groups.

With the onset of internet usage for commercial purposes, the volume and speed of communication among people have increased significantly (Marić et al., 2017). Social networks enable fast, clear, and efficient information transfer to recipients, resulting in more intense communication, which in turn leads to increased trust and loyalty.

The percentage of social media users in Serbia has been above 90% for years. The highest annual growth was recorded in the age group between 55 and 64 years. Most users have accounts on Facebook (89%) and Instagram (75%), while TikTok saw the highest annual growth in 2022, with a quarter of Serbia's population now having an account on the platform. Research conducted by Social Serbia (2024) shows that 51% of social media users in Serbia use it for information, 39% for searching companies and brands, and about 27% use it for online shopping. With nearly 90% of the population accessing social media via mobile phones, it's notable that close to 7 billion people now own smartphones. Compared to the world population of 8 billion, about 80% of people have a smartphone, with Serbia being above the global average in terms of mobile device ownership. Mobile device penetration in the Republic of Serbia is 123.9%, indicating an average of 123 mobile devices for every 100 residents (Statistical Office of the Republic of Serbia, 2023).

Given the importance of electronic interpersonal communication in the modern environment, this study aims to examine how e-WOM, through destination image and attitude, influences the intent to visit a destination. Additionally, it examines how trust, a crucial factor in electronic communication, plays a role in the relationship between e-WOM and the intent to visit a tourist destination. Conducted in Central Serbia from June to August 2024, the research applies various scientific methods, including reliability analysis, correlation analysis, simple regression analysis, and moderation regression analysis, to derive its findings.

2. Background

2.1. From personal to electronic WOM

Interpersonal, oral, or WOM (word of mouth) communication is cited as a powerful marketing tool. According to Senić and Senić (2008) "the process of word-of-mouth communication involves verbal communication between the sender and the receiver, related to a product, brand, or service" (p. 121). After a period of inactivity, the topic of WOM resurfaced at the end of the 20th century as technology enabled consumers to share content online. By posting comments, ratings, and reviews about companies and their products, consumers created "electronic word of mouth" (Mitić, 2020).

Positive word of mouth is one of the most effective ways for companies to sell products and services. From the consumer's perspective, it facilitates decision-making in choosing a particular brand (Marinković et al., 2012). Given the number of paid advertisements consumers are exposed to daily, it is not surprising that positive WOM has a much stronger influence on their opinion of products and services (Abubakar & Ilkan, 2016; Sweeney et al., 2008). More importantly, a person spreading positive word of mouth has no financial interest, which gives this form of communication a high level of credibility and makes it more accepted by consumers (Marinković et al., 2012).

Today, as internet usage increases, the way people read, write, gather information, and share experiences is evolving (Kocić & Radaković, 2019). The emergence and expansion of the internet have led to the development of a new paradigm of interpersonal communication – electronic WOM (Aprilia & Kusmuawati, 2021). The concept of electronic interpersonal communication (e-WOM) emerged in the mid-1990s, coinciding with the Internet's transformation of how users engage with products and services (Chu et al., 2019). Unlike traditional offline interpersonal communication, which involves direct verbal exchanges between individuals in physical contact, electronic (online) interpersonal communication is the transmission of opinions, statements, and attitudes through electronically recorded words. The main advantage of electronically recorded words over verbal communication lies in the ability to spread the word from one location, for example, from home, without making an additional effort or using other resources. Electronically recorded words are more formal and are usually considered more sincere because they are unchangeable (Marić et al., 2017). On the other hand, user opinions can be risky because the company cannot control them. However, in today's cyber environment, users increasingly trust other users' comments precisely because they are not affiliated with or paid by the company (Martini, 2022).

Electronic interpersonal communication can be defined as "any positive or negative statement made by potential, current, or former customers about a product or company, which is available to a large number of people and institutions via the Internet" (Hennig-Thurau et al., 2004, p. 39), including social networks and mobile communications (Chu et al., 2019). This form of communication occurs entirely in a digital space, including social networks, content-sharing sites, microblogs, forums, and other platforms that facilitate the sharing of opinions, experiences, and attitudes among various products and service users (Kocić & Radaković, 2019).

Although marketers and tourism managers strive to develop and present a favorable image of a destination, other factors also influence tourists' decision-making. Tourists communicate with each other, and the information from others significantly shapes the decision-making process in this industry. For this reason, eWOM has long been acknowledged as a powerful influence in tourism (Grubor et al., 2019). In the virtual environment, tourists exchange knowledge and information about destinations and overall experiences. All information about services, destinations, institutions, and products is defined as eWOM in tourism and is important to the public as it represents a written form of user experiences (Ran et al., 2021) without commercial interest (Ye et al., 2011). It is particularly effective in searching for information, evaluating, and making subsequent consumer decisions.

Since travel-related products are considered high-engagement and high-risk services for consumers (Mirić & Marinković, 2023), the inability to experience them before purchase makes decision-making challenging. Research indicates that over 74% of travelers rely on online reviews and comments from other travelers when planning a trip (Yoo & Gretzel, 2011) highlighting the growing importance of online reviews as a key information source in tourism (Teng et al., 2014).

2.2. Hypotheses and research model

2.2.1. Attitude toward destination

Attitudes can be defined as relatively permanent and stable favorable or unfavorable evaluations of an object (Fishbein & Ajzen, 1975) and, as such, represent an important psychological construct, as they influence and predict many behaviors (Jalilvand & Samiei, 2012). According to Ajzen (2001), "the more favorable the attitude toward a given behavior, the stronger the intention to perform that behavior" (p. 28). In the context of this study, attitudes toward a tourist destination refer to "psychological tendencies expressed through the positive or negative evaluation of tourists when engaged in specific behaviors (e.g., visiting the destination)" (Jalilvand & Samiei, 2012, p. 136). Studies have shown that online interpersonal communication has a crucial impact on shaping consumer attitudes and behaviors (Zarrad & Debabi, 2015). Numerous studies confirm the positive impact of both positive (Choirisa et al., 2021; Harahap & Dwita, 2020; Miao, 2015) and negative e-WOM communication on tourists' attitudes (Lee & Cranage, 2014). Several studies have shown that attitudes are predictors of destination intention. Furthermore, marketing literature (Lee & Cranage, 2014; Miao, 2015; Sparks & Browning, 2011) has shown that attitude has a strong positive effect on the intention to revisit the destination. Accordingly, the following hypothesis can be formulated:

H_1: E-WOM positively influences tourists' attitudes toward a tourist destination.

H_2: Attitudes toward a tourist destination positively influence the intention to visit the destination.

2.2.2. Destination image

Chi et al. (2008) state that "destination image is an individual's perception of a place used as a destination" (p. 626). Destination image encompasses various characteristics and information about the climate, infrastructure, population, culture, as well as assessments of attractiveness, safety, and more (Goyal & Taneja, 2023). In today's business environment, maintaining a positive image is crucial for success (Filipović et al. 2023). Destination image directly influences how tourists perceive the quality of the tourism product, affecting their evaluation of the experience. The way tourists assess their experience will impact their likelihood of returning and their propensity to recommend the destination to others (Marković et al. 2024), so it can be said that it is an important determinant of tourist intenton to revisit the destination (Alsheikh et al., 2021; Paisri et al., 2022; Seow et al., 2024; Sharipudin et al., 2023).

Today, the commercial sources of information are overlooked in the context of developing awareness of a particular tourist destination, with eWOM standing out as the primary communication source that contributes most to forming destination image awareness (Doosti et al., 2016). Destination image is shaped by various factors, including the safety, culture, and natural environment of the place. Hamouda and Yacoub (2018) propose that the emotional dimension of a destination's image is crucial for motivating tourist visits, with e-WOM significantly shaping that emotional connection.

Numerous studies have shown that destination image is one of the primary predictors of a tourist destination's popularity (Chu et al., 2022), attitudes (Jalilvand & Heidari, 2017), and tourist satisfaction (Chi & Qu, 2008; Girish et al., 2017). Although eWOM is highlighted as a significant driver of a positive destination image, research conducted by Jalilvand and Heidari (2017) shows a stronger impact of WOM on the destination image compared to eWOM. In the research carried out by Jalilvand et al. (2012), positive electronic interpersonal communication is emphasized, because positive experiences with a destination is a significant factor that influences the destination image positively. Tourists' intentions can be partially predicted based on the destination image, thus influencing the process of selecting a particular destination (Doosti et al., 2016). The effect of a city's overall destination image on the intention to visit has been studied by numerous researchers (Kim & Lee, 2015; Park & Nunkoo, 2013). Yang et al. (2024) found that eWOM significantly enhances destination image - likely because tourists often turn to the internet as their first resource for researching and selecting a travel destination. Based on the aforementioned, the following hypotheses can be defined:

H_3: e-WOM positively influences the destination image.

H_4: Destination image positively influences the intention to visit the destination.

2.2.3. The moderating effect of trust

"From a general point of view, trust refers to a willingness to rely on an exchange partner" (Ladhari & Michaud, 2015, p. 38). When consumers trust a company and the product/service it provides, there is a higher likelihood that their expectations will be met (Mahmoud et al., 2018). In other words, trust refers to the "willingness to rely on a partner in exchange (i.e., a reliable person who keeps promises)" (Ladhari & Michaud, 2015, p. 38). e-WOM, facilitated by consumer reviews and online communities, offers customers indirect insight into previous service experiences, helping them form beliefs or trust that the company will deliver high-quality service. (Sparks & Browning, 2011). According to Abubakar et al. (2017), tourists now favor other travelers' opinions over traditional ads, which is why eWOM strongly shapes how they value a destination (Nofal et al., 2022; Roy et al., 2021).

Marić et al. (2017) emphasize that when it comes to eWOM, trust plays an important role and influences decisions, as the formal nature of written electronic words is generally perceived as more truthful, thereby affecting decision-making. It is important to note that potential consumers use online reviews from other users, which provide a wide range of information, as a strategy to minimize risk and uncertainty when making purchases (Chen, 2008; Ran et al., 2021).

In specific forms of tourism, such as medical tourism, there is a higher level of uncertainty and risk, so to gain a greater degree of trust, information is more frequently sought from previous users or experienced individuals (Ladhari & Michaud, 2015). Some research findings show the positive impact of e-WOM on trust (Abubakar & Ilkan, 2016). The study conducted by Ladhari and Michaud (2015) shows that positive feedback enhances the level of trust tourists have in a specific destination. They note that tourists are often inclined to trust comments and information left by other travelers on trusted websites on the Internet. Research conducted by Sofronijević and Kocić (2022) shows that online consumer reviews positively influence the purchase of tourist products. It is also important to mention that trust is a dimension that is not simple to analyze from the aspect of electronic interpersonal communication (Lončarić et al., 2016; Qiu et al., 2012), considering that not all websites offer information about the source, which prevents the assessment of its expertise (Lopez & Sicilia, 2014). According to a study by Jalilvand et al. (2012), trust plays a mediating role in the relationship between e-WOM and the intention to visit a destination. A study conducted by Qiu et al. (2022) confirmed that destination trust partially mediates the relationship between online review valence and travel intention. Consumer involvement level serves as a moderator (Park et al., 2007). Lujun et al. (2021) found that trust does not moderate the relationship between the frequency of online reviews and the intention to visit a specific destination. Based on the aforementioned, the following hypothesis can be defined:

H_5: Trust has a moderating effect on the relationship between e-WOM and the intention to visit a destination.

3. Research methodology and sample structure

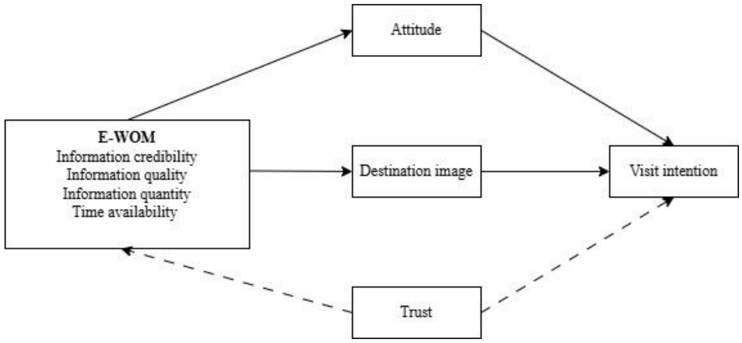
The research aims to explore how electronic interpersonal communication influences consumers' intention to visit a destination and whether trust moderates this relationship.

The research was conducted in the Republic of Serbia between June and August 2024, with a sample of 128 respondents segmented by gender, age, education level, employment status, and income level. Data were collected through an online survey in which respondents rated their agreement with statements on a five-point Likert scale. The questionnaire included 29 statements, organized into five factors. The basis for selecting statements related to E-WOM comes from the research conducted by Lin et al., (2013). The statements related to the intention to visit a destination were taken from the study conducted by Mohamed et al. (2015). For the selection of statements related to the destination image, the study conducted by Harahap and Dwita (2012) was used. The statements concerning the variable attitude toward the destination were drawn from the study by Hsu et al. (2009), while the statements related to the variable of trust were adapted based on the research conducted by Zainal et al. (2017). The statements from relevant studies were adapted to create the survey questionnaire.

In the sample of 128 respondents, female respondents dominate (60.94%), while 51 respondents are male (39.48%). The largest number of respondents are between 25 and 40 years old (41.0%) and live in urban areas (65.62%). In terms of educational background, most respondents have a higher education degree (53.13%).

Data processing was conducted using the statistical software SPSS v20. A research model is presented in Figure 1.

Figure 1: Research model



Source: Authors' research

4. Results and discussion

Once the statements were grouped, a reliability analysis was carried out (Table 1). The Cronbach's alpha values indicate that all factors demonstrate internal consistency, with each factor's coefficient exceeding the 0.7 threshold. The "e-WOM" factor exhibits the highest internal consistency, with a Cronbach's alpha of 0.954, while the "Destination Image" factor shows the lowest internal consistency, with a Cronbach's alpha of 0.715.

Table 1: Results of the factor analysis

Factors	**Mean**	**St. dev.**	**Cronbach' alpha**
E-WOM	3.8432	0.8803	0.954
Destination image	4.1074	0.6928	0.715
Attitude towards destination	4.1172	0.7417	0.772
Trust	4.1484	0.8489	0.863
Visit intention	4.1133	0.7035	0.792

Source: Authors' research

After the regression analysis, a correlation analysis was applied (Table 2). The values of Pearson's correlation coefficient indicate a strong linear relationship between all pairs of variables. The results reveal that the most significant correlation is between the factors "Attitude toward the destination" and "e-WOM", due to the highest Pearson correlation coefficient value of 0.877. The lowest Pearson coefficient value of 0.658 appears in the relationship between the factors "Destination Image" and "Trust", indicating the lowest degree of correlation.

Table 2: Correlation matrix

Var.	**E-WOM**	**D. image**	**Attitude**	**Trust**	**V. intention**
E-WOM	1	0.799**	0.877**	0.658**	0.793
D. image	0.779*	1	0.704**	0.649**	0.761**
Attitude	0.877**	0.704**	1	0.908**	0.762**
Trust	0.857**	0.701**	0.908**	1	0.840**
V. intention	0.793**	0.761**	0.762**	0.840**	1

** The correlation coefficient is significant at the 0.01 level
Source: Authors' research

Results shown in Table 3, suggest that 77% of positive word-of-mouth is explained by the attitude towards the destination ($R^2 = 0.770$). This indicates that the regression model is suitable for analysis ($R^2 > 0.5$). The value of the β coefficient is 0.877 and is statistically significant (sig = 0.00 < 0.05).

Table 3: Simple regression analysis (dependent variable – Attitude towards destination)

Variable	**R^2**	**β**	**T**
E-WOM	0.770	0.877	20.514

** The correlation coefficient is significant at the 0.00 level
Source: Authors' research

According to the findings presented in Table 4, 60.7% of positive word-of-mouth is explained by the destination image ($R^2 = 0.607$), which suggests that the regression model is suitable for analysis ($R^2 > 0.5$). The value of the β coefficient is 0.779 and is statistically significant (sig = 0.00 < 0.05).

Table 4: Simple regression analysis (dependent variable – Destination image)

Variable	**R^2**	**β**	**T**
E-WOM	0.607	0.779	13.964

** The correlation coefficient is significant at the 0.00 level
Source: Authors' research

The data provided in Table 5, shows that 58% of the intention to visit the destination is explained by the attitude toward the destination ($R^2 = 0.580$), indicating that the regression model is suitable for analysis ($R^2 > 0.5$). The value of the β coefficient is 0.779 and is statistically significant at the sig = 0.00 level.

Table 5: Simple regression analysis (dependent variable – Visit intention)

Variable	**R^2**	**β**	**T**
Attitude towards destination	0.580	0.884	17.671

** The correlation coefficient is significant at a 0.00 significance level
Source: Authors' research

As evidenced by the data in Table 6, it can be concluded that 54% of the intention to visit the destination is explained by the attitude toward the destination ($R^2 = 0.540$), indicating that the regression model is suitable for analysis ($R^2 > 0.5$). The value of the β coefficient is 0.735 and is statistically significant at the sig = 0.00 level.

Table 6: Simple regression analysis (dependent variable – Visit intention)

Variable	**R^2**	**β**	**t**
Destination image	0.540	0.735	12.172

** The correlation coefficient is significant at a 0.00 significance level.
Source: Authors' research

After examining the main effects of the determinants, interaction effects were also determined. For this purpose, a moderation regression analysis, shown in Table 7, was conducted. The variable trust was used as the moderator. "A moderator can generally be defined as a quantitative or qualitative variable that influences the direction and/or strength of the relationship between the independent and dependent variable" (Baron & Kenny, 1986, p. 1174).

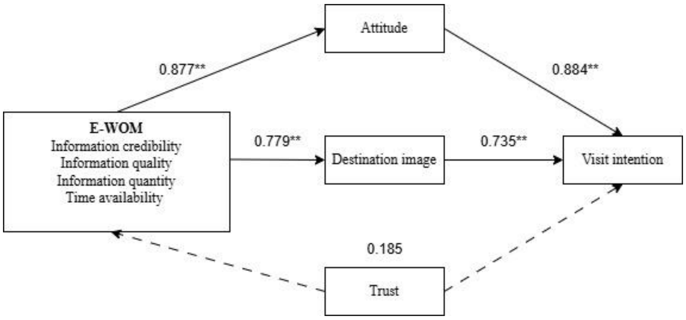
Table 7: Moderation regression analysis

Variables	R^2	β	T	Sig.
E-WOM	0,731	0,856	18,586	0,00
E-WOM*trust	0,753	0,185	3,515	0,01

Dependent variable: Visit intention
Source: Authors' research

Given the coefficient of determination ($R^2 = 0.753$), we conclude that the model explains 75.3% of the variability in the intention to visit a destination, which is statistically significant at the 0.01 level.

Figure 2: Research results



Source: Authors' research

The moderation regression analysis shows a statistically significant moderation effect. Specifically, trust positively moderates the relationship between e-WOM and the intention to visit a destination, with a statistically significant effect ($p = 0.01 < 0.05$), as demonstrated by the positive β coefficient value (β = 0.785). This means that as trust increases, the relationship between e-WOM communication and the intention to visit a destination strengthens. Simple regression analysis results and iteration effects are presented in Figure 2.

5. Discussion

The results of a simple regression analysis show that e-WOM positively influences tourists' attitudes toward a destination, thereby confirming the first hypothesis. In other words, positive recommendations, reviews, comments, and ratings shared online contribute to the formation of positive attitudes toward a particular destination. The results correspond with other studies that have demonstrated the impact of e-WOM communication on tourists' attitudes (Chu et al., 2022; Jalilvand & Samiei, 2012; Lee & Cranage, 2012; Miao, 2015).

The analysis also found that attitudes toward a destination serve as an indicator of the intention to visit, which confirms the second hypothesis. This finding aligns with the research by Choirisa et al., 2021, Lee and Cranage (2014), Miao (2015) and Sparks and Browning (2011). These findings highlight the significance of fostering and sustaining positive attitudes toward a destination as a crucial factor in attracting visitors. In essence, the more favorable tourists' attitudes are toward a destination, the greater the likelihood of their intention to visit.

According to the results of the regression analysis, electronic interpersonal communication is also linked to the image of the destination and influences it positively, thereby confirming the third hypothesis. The results indicate that communication through electronic channels such as social media, forums, blogs, and reviews can significantly shape the perception and image of a particular destination. When visitors share positive experiences and recommendations about a destination, it contributes to building a positive image of it in the minds of other potential visitors. These findings are consistent with the results of a study conducted by Hamouda and Yacoub (2018). On the other hand, Jalilvand and Heidary (2017) note that although e-WOM influences the image of a destination, non-electronic WOM communication has a stronger impact.

Furthermore, a simple regression analysis confirmed that the image of a destination positively influences the intention to visit a particular destination, confirming the fourth hypothesis. It can be said that consumers' perception of a destination's image, shaped through electronic communication channels, strengthens their intention to visit. Doosti et al. (2016) also emphasize that destination image significantly predicts consumer intention and can influence destination choice. In addition, Park and Nunkoo (2013) highlight that various dimensions of the image impact consumers' intention to visit a particular tourist destination, aligning with the research results obtained.

A moderation regression analysis revealed that trust has a significant moderating effect, strengthening the relationship between electronic interpersonal communication and the intention to visit a destination, thus confirming the final, fifth hypothesis. In other words, when individuals have more trust in the sources of information received through electronic communication channels, this relationship becomes stronger. This supports the hypothesis that trust plays a key role in translating digital communication into decision-making, such as the decision to visit a destination. The results do not align with those obtained in the study conducted by Lujun et al. (2021). Studies by Andriani et al. (2019), Jamaludin et al. (2012) and Qiu et al. (2022) indicate that trust is a moderator in this relationship.

6. Conclusion

Word-of-mouth communication has always been a powerful marketing tool due to its influence on the perception of products and services. Today, technological advancements have transformed WOM into eWOM, enabling a broader and faster exchange of information via the Internet. eWOM offers numerous advantages, such as greater visibility and formality, but it also carries certain risks due to a lack of content control. In the tourism sector, eWOM has proven crucial in shaping tourist decisions, quickly becoming an indispensable source of information in modern tourism. This move from traditional to digital communication underscores the need to adapt strategies to meet modern consumer expectations.

The research presents several theoretical and practical implications. Firstly, it expands existing knowledge on interpersonal communication, both electronic and non-electronic, with an emphasis on the determinants through which it indirectly influences the intention to visit a tourist destination. The primary aim of the research is to determine the main effects and the moderating effect of trust in the relationship between electronic interpersonal communication and the intention to visit a tourist destination. The novelty of the paper lies in its focus on the increasingly significant concept of eWOM, which is far more modern in the tourism sector compared to traditional WOM, mainly due to modern communication and information methods, as well as its broad reach, visual element, and increased visibility. The primary contribution of the study is testing the moderating role of trust, given that, to the authors' knowledge, few studies examine the moderating effect in similar models.

Regarding practical implications, the research showed that eWOM is a significant driver of tourists' attitudes toward specific destinations. The findings highlight the importance of managing eWOM communication in strategies to promote a given destination. Positive reviews and recommendations through various online channels should be encouraged, while negative ones should be monitored and addressed to minimize their adverse effects on potential tourists' attitudes. Consumers should be reminded to leave comments and reviews through notification systems via email or phone numbers, and incentives can be provided to encourage them to do so. It is also important to show concern for negative reviews, learn more about the causes of negative experiences, and encourage problem-solving.

The research shows that established attitudes influence the intention to visit a particular destination. Therefore, it is crucial to create and maintain positive attitudes toward the destination as a key factor in attracting visitors. Marketing and promotional activities should focus on creating positive associations and experiences related to the destination, as this can directly impact potential tourists' decision to visit. Strategies such as showcasing positive stories, experiences of other tourists, and creating an emotional connection with the destination can contribute to forming favorable attitudes that encourage the intention to visit.

The research shows that a destination's image has a strong positive impact on the intention to visit. Maintaining a good image can involve various strategies, including promotion through positive media campaigns, reviews, photos, firsthand stories, and experiences of previous visitors. Additionally, focusing on specific aspects of the image most attractive to the target group can be key to increasing interest and the intention to visit the destination. The results indicate that marketing strategies and promotional campaigns for tourist destinations should focus on building and strengthening trust among potential tourists. This can be accomplished through transparency, reliable sources of information, and authentic communication with potential tourists. Despite its contributions, this study has certain limitations. The primary limitation concerns the sample size and composition, given that the study was confined to Central Serbia and includes a relatively small respondent pool, limiting its representativeness. Secondly, the analysis included only electronic interpersonal communication, with both positive and negative communication considered together. The effects of the variables were assessed using a single dependent variable – the intention to visit the destination. Therefore, future research could expand the sample to include respondents from neighboring countries, enabling a comparative analysis with this study. Additionally, future research directions could involve comparative analysis of the effects of positive and negative eWOM or electronic and non-electronic word-of-mouth communication. It would also be possible to examine the impact of these determinants on tourist satisfaction and loyalty, with these factors serving as the dependent variable in the model. Furthermore, segmentation of respondents by educational or age structure could be performed to identify differences in satisfaction among users across various groups.

CRediT author statement

Julija Vidosavljević: Writing – original draft, Writing – review & editing, Resources, Supervision. **Nađa Đurić:** Software, Methodology, Formal analysis, Conceptualization, Validation, Investigation.

Declaration of generative AI in the writing process

During the preparation of this work the authors did not use generative AI and AI-assisted technologies in the writing process.

Conflict of interest

The authors declare no conflict of interest.

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Key attributes of tourism sector entrepreneurs in Southeast Europe

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Abstract

Purpose – This study examines attributes of tourism sector entrepreneurs, identifying characteristics of individuals belonging to this entrepreneurial group in Southeast Europe. **Methodology** – The research is based on the GEM database from 2020, which includes Croatia, Greece and Slovenia. Binary logistic regression was performed using the SPSS software package. **Findings** – The findings reveal that younger individuals and those with higher incomes are more likely to engage in entrepreneurial activity within the tourism sector. Opportunity perception and entrepreneurial proactivity have the same effect, whereas necessity-driven motives are negatively related to entrepreneurial activity in the tourism sector. Entrepreneurs with lower growth expectations or those oriented toward internationalization, particularly those with higher export income, are more likely to be involved in tourism. Conversely, the use of new technologies and innovative procedures is negatively associated with entrepreneurial activity in this sector. **Implications** – These findings have important implications for the creation of policies that can encourage the development of tourism as a strategic sector, including targeted training of entrepreneurs and support programs that would encourage investment and innovation in tourism.

Keywords: entrepreneurs, tourism, attributes, Southeast Europe
JEL classification: L26

Ključni atributi preduzetnika u sektoru turizma u Jugoistočnoj Evropi

Sažetak

Svrha – Ova studija ispituje atribute preduzetnika u sektoru turizma, identifikujući karakteristike pojedinaca koji pripadaju ovoj preduzetničkoj grupi u Jugoistočnoj Evropi. **Metodologija** – Istraživanje se zasniva na GEM bazi podataka iz 2020. godine, koja obuhvata Hrvatsku, Grčku i Sloveniju. Primenjena je binarna logistička regresija korišćenjem softverskog paketa SPSS. **Rezultati** – Nalazi pokazuju da su mlađi pojedinci i oni sa višim prihodima skloniji uključivanju u preduzetničke aktivnosti u sektoru turizma. Percepcija prilika i preduzetnička proaktivnost imaju isti efekat, dok su motivi zasnovani na nuždi negativno povezani sa preduzetničkom aktivnošću u sektoru turizma. Preduzetnici sa nižim očekivanjima rasta ili oni orijentisani ka internacionalizaciji, posebno sa višim

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prihodima od izvoza, verovatnije će biti uključeni u turizam. Nasuprot tome, korišćenje novih tehnologija i inovativnih procedura negativno je povezano sa preduzetničkom aktivnošću u ovom sektoru. **Implikacije** – Ovi nalazi imaju važne implikacije za kreiranje politika koje mogu podstaći razvoj turizma kao strateškog sektora, uključujući ciljane obuke preduzetnika i programe podrške koji bi podstakli ulaganja i inovacije u turizmu.

Ključne reči: preduzetnici, turizam, atributi, Jugoistočna Evropa
JEL klasifikacija: L26

1. Introduction

Entrepreneurship is a key driver of economic growth and development, as it contributes to the creation of new jobs, innovations and improving competitiveness on the global market (Acs et al., 2008). In the last decades, entrepreneurship has been increasingly seen as one of the basic factors for stimulating economic dynamism, especially in transition and developing countries (Zarkua et al., 2025). Encouraging entrepreneurial activities has a strong impact on various sectors, and one of the most important among them is tourism (Heidari et al., 2014). Tourism has the potential to generate large economic benefits, not only through direct revenues, but also through wider effects on infrastructure, local communities and cultural heritage protection (Banerjee et al., 2017; Silva et al., 2022). Southeastern European countries, such as Slovenia, Croatia and Greece, provide excellent examples of how entrepreneurship can be key to tourism development (Gregoric et al., 2016; OECD, 2025). These countries have developed into popular tourist destinations, not only a result of their natural and cultural resources, but also due to the ability of entrepreneurs to recognize opportunities and create competitive products and services. In 2023, tourism accounted for a significant portion of gross domestic product (GDP) in these countries. For example, in Slovenia, tourism accounted for 9.8% of GDP, while in Croatia that percentage was even 25.8%, and in Greece 19.2% (Statista, 2023). These data clearly indicate the importance of tourism for the economy of Southeast European countries and show how important it is to analyze entrepreneurs in this sector. Understanding their determinants enables the identification of key factors that drive entrepreneurial activities in tourism, which opens space for their encouragement and support. By identifying and analyzing entrepreneurs in tourism, as well as the factors that influence their success, it is possible to develop strategies that will contribute to the sustainable growth of this sector.

Tourism constitutes a significant part of the global economy and plays an important role in the development of local economies, especially through small and medium-sized enterprises that encourage regional development and the preservation of cultural values. Its role is particularly pronounced in developing countries and in rural areas where other industries are poorly developed. In addition, tourism contributes to the preservation of natural resources and cultural heritage through various forms of entrepreneurial initiatives (Andereck & Nyaupane, 2010). The study of entrepreneurship in tourism has gradually developed over the past few decades. The first papers on this topic were published in the 1970s in the field of business economics, but the real development begins later when studies in the field of entrepreneurship expand (Carmichael & Morrison, 2011). Ateljevic and Li (2009) pointed out that in the period from 1986 to 2006, only 2% of articles in leading tourism journals were devoted to entrepreneurship. Entrepreneurship in tourism was primarily viewed as a lifestyle sector, i.e. a sector that enables entrepreneurs to balance business activities and quality of life (Ratten, 2020). In the last two decades, interest in entrepreneurship in tourism has been growing. Recent works in this area deal with the role of entrepreneurs in tourism, growth and development strategies of existing companies and the importance of entrepreneurship at the regional level. Researchers mainly focus on small family businesses (Hallak et al., 2014), as well as the importance of education and training of tourism entrepreneurs to maintain a competitive position (Wang et al., 2019). To further develop the theory of entrepreneurship and tourism, deeper research and systematic linking of results are needed.

The structure of the paper is as follows. The theoretical framework is based on a review of relevant literature in the field. It begins with an analysis of how demographic factors affect tourism entrepreneurship. This is followed by an examination of motivational factors (focusing on two distinct groups of motives), perceptual variables, growth aspirations, internationalization and usage of new technology. Additionally, the methodology and findings of the statistical analysis, conducted using binary logistic regression, are presented. The paper concludes with a discussion of the results, final remarks outlining the study's contributions and limitations, and suggestions for future research.

2. Literature review

Demographic factors such as age and incomes are key to understanding entrepreneurial decisions (Barrera-Verdugo et al., 2023). Entrepreneurship in tourism is specific due to its strong focus on regional development and the preservation of local cultural values, which distinguishes it from other sectors (Dias & Silva, 2021). Research shows that demographic factors in tourism influence not only the decision to start a business, but also the way entrepreneurs manage their business (Matić et al., 2023; Murniati et al., 2021). For example, older entrepreneurs in rural areas often start businesses out of a personal passion for the nature and community, while younger entrepreneurs invest in digital strategies such as online marketing and digital transformation (Schweinsberg et al., 2020). The older population also uses the capital acquired in previous careers to invest in tourism ventures, especially in the areas of accommodation and services (Montañés-Del-Río & Medina-Garrido, 2020). The financial situation also plays a key role in tourism. Research by Montañés-Del-Río and Medina-Garrido (2020) shows that entrepreneurs with higher incomes are more likely to invest in highly competitive segments of tourism, such as luxury accommodation and specialized tourism activities, while those with lower incomes tend to start businesses in the sector of affordable services, which reduces initial costs. Based on the observed factors, the following hypothesis was put forward:

H_1: There is a statistically significant relationship between demographic factors such as age and incomes and involvement in entrepreneurial activities in the tourism sector in Southeast Europe.

$H_{1.1}$. Individuals in older age groups are more likely to be involved in entrepreneurial ventures in the tourism sector in Southeast Europe.

$H_{1.2.}$ Individuals from households with higher incomes are more likely to be involved in entrepreneurial activities in the tourism sector in Southeast Europe.

Perceptual variables can be very significant in shaping entrepreneurial behavior as they include attitudes and beliefs that influence decision-making. Entrepreneurs exhibit heightened "opportunity sensitivity" (Kirzner, 1979), which enables them to spot opportunities that others miss. Proactivity in exploiting opportunities is directly related to higher entrepreneurial outcomes (Casson & Giusta, 2007; Ognjenović, 2024). Failure to act on recognized opportunities negatively affects success in entrepreneurship, confirming that proactivity is key to achieving results. This is particularly important in industries with high levels of risk and uncertainty, where opportunity perception and social support are key drivers of entrepreneurial activity (Farson & Keyes, 2006; Koellinger, 2008). In the tourism sector, market specificities, such as seasonal fluctuations and dynamic changes in tourist preferences, make opportunity perception and proactive action key to success. Based on the analysis of relevant factors, the following hypothesis is put forward:

$H_{2:}$ Entrepreneurs who perceive more entrepreneurial opportunities and demonstrate higher proactiveness in capitalizing on them are more likely to engage in the tourism sector in Southeast Europe.

Motivation can play an important role in shaping entrepreneurs' decisions to enter certain sectors (Milutinović et al., 2023). Entrepreneurs' motives of directly influence the type of businesses they start, their business strategies, and the long-term sustainability of their ventures (Wang et al., 2019). According to the Global Entrepreneurship Monitor (n.d.), entrepreneurs can be motivated by various factors, which can best be categorized into two groups: opportunity motives and necessity motives. Necessity motives are predominantly associated with entrepreneurs who engage in entrepreneurship due to a lack of other employment opportunities. These entrepreneurs start businesses to make a living and usually focus on the survival of their ventures. In this context, the specific characteristics of the tourism sector may play an important role in attracting precisely these entrepreneurial profiles. The tourism sector is characterized by a high degree of flexibility, seasonality, and openness to various forms of informal work (Power et al., 2017). This informal and flexible nature of the sector enables quick adaptation to local needs and conditions, which often suits entrepreneurs who are limited in resources and are looking for accessible and relatively easy entry points into the labour market. Therefore, tourism emerges as an attractive option for those who enter entrepreneurship out of necessity. Several studies support the link between necessity-driven motivation and sectoral choice. For instance, Williams and Williams (2014) highlight that necessity-driven entrepreneurs often seek sectors with low entry barriers, minimal startup capital, and high labor demand – characteristics that closely match the tourism industry. Furthermore, research by Nikolaev et al. (2018) suggests that informal and flexible sectors are particularly attractive to necessity-driven individuals. Considering these findings and the specific attributes of the tourism sector, it can be assumed that necessity-driven entrepreneurs will more often recognize tourism as a favorable environment for starting a business.

$H_{3:}$ Entrepreneurs with necessity motives are more likely to engage in the tourism sector in Southeast Europe.

Entrepreneurs are market actors who should ensure continuous economic growth, economic strengthening and social well-being (Aparicio et al., 2016). Therefore, there is a great interest of economic policy makers to encourage entrepreneurial activity (Oyelola et al., 2013). To realize the full potential, it is necessary for entrepreneurs to strive for the growth of their business ventures. The decision to do so plays an important role in explaining the growth of the firm (Manolova et al., 2012). The growth expectations of an entrepreneurial venture are not only a reflection of their ambition but are an important indicator of the ability to adapt to market conditions and expand business opportunities. In the tourism sector, where opportunities are mostly short-term and seasonal, entrepreneurs with clear growth expectations cannot take full advantage of global trends (Beier & Wagner, 2017). These circumstances can deter entrepreneurs who strive for greater profitability and long-term stability. Some studies indicate that entrepreneurs in the tourism sector often operate in fragmented, small-scale businesses with relatively modest growth expectations (Badulescu et al., 2024). Similarly, research on rural tourism shows that growth expectations among these entrepreneurs are generally lower, with business activities focusing on sustainable, lifestyle-oriented development rather than rapid expansion (Cunha et al., 2020). These findings suggest that entrepreneurs with strong growth ambitions are more likely to choose other sectors with greater scalability potential, avoiding the tourism sector. The following hypothesis results from the previous analysis:

$H_{4:}$ Entrepreneurs with higher growth expectations are less likely to engage in the tourism sector in Southeast Europe.

Business internationalization plays an important role in entrepreneurial dynamics, enabling firms to access wider markets, diversify sources of income and increase competitiveness (Cavusgil et al., 2014). In the tourism sector, internationalization has specific characteristics because tourism functions as a form of "invisible export", where foreign visitors bring income that boosts the local economy and contributes to the country's economic growth (Brau et al., 2012). Entrepreneurs in tourism have a unique opportunity to increase the competitiveness of their business ventures through interaction with international markets, taking advantage of global trends and foreign investments (World Bank, 2024). Experience in international affairs and a high share of export income can contribute to a greater inclination of entrepreneurs towards the tourism sector, as they enable the use of existing networks and resources to attract foreign visitors (Neupane et al., 2025). At the same time, tourism requires entrepreneurs to understand the local market and cultural specificities (Lazović et al., 2024), which enables additional valorization of local resources through international consumption. These characteristics make tourism attractive for entrepreneurs who seek to expand their business through internationalization strategies, using tourism as a platform to connect local and global markets. Based on the analysis of previous research and the specifics of the tourism sector, hypothesis H5 was put forward.

$H_{5:}$ Entrepreneurs with stronger aspirations toward internationalization are more likely to engage in in the tourism sector in Southeast Europe.

Technological innovation is a key driver of entrepreneurial activity in various sectors, enabling more efficient processes, adapting to market demands and creating a competitive advantage (Schumpeter, 1934). However, in the tourism sector, specific market characteristics, such as high reliance on human resources, experience-oriented services and seasonal variations, often limit the application of technological innovations compared to other industries (Hjalager, 2010). Although technology can improve user experience and optimize operational processes (Milovanovic et al., 2022; Vuković et al., 2024), tourism entrepreneurs often focus on local specificities and cultural authenticity, which can reduce the need to implement advanced technological solutions (Buhalis & Law, 2008). This dynamic points to a complex relationship between innovation and entrepreneurship in tourism, where adaptation to local needs and traditional practices may have greater value than a high degree of technological sophistication. Considering the results of previous studies, hypothesis H6 was defined.

$H_{6:}$ Entrepreneurs who adopt new technologies are less likely to engage in the tourism sector in Southeast Europe.

3. Methodology

The aim of this research is to identify significant factors that influence the probability of involvement in early-stage entrepreneurial ventures in the tourism sector, identifying the key characteristics of individuals and businesses that belong to this specific entrepreneurial group in Southeast Europe. Data from the Global Entrepreneurship Monitor (GEM) database for the year 2020 were used for the analysis. The survey included the responses of entrepreneurs from Croatia, Slovenia and Greece, a total of 6,000 respondents, of whom 111 are in the tourism sector. The data were analyzed using the SPSS 18 software package. Binary logistic regression was used to identify factors that influence the probability of involvement in early-stage entrepreneurial ventures in the tourism sector, and to identify the key characteristics of individuals belonging to this specific entrepreneurial group. The results of the analysis provide a deeper understanding of the factors that encourage or limit entrepreneurial activity in tourism in the region of Southeast Europe. The dependent variable in the research is a binary categorical variable that was recoded to distinguish entrepreneurs from the tourism sector from those from other sectors (TEA: Industry ISIC version 4, 1-digit code). Respondents who are in the early stages of their entrepreneurial activity (Total Early-stage Entrepreneurial Activity – TEA) are included. The development of the research model is based on previous studies (Figure 1). Each of the variables in the model was selected based on relevant papers that used them in their analyses. Demographic factors include age and household incomes, whose importance in deciding about an entrepreneurial venture was confirmed in the research of Dias and Silva (2021). Perceptual variables, such as the perception of opportunities and the recognition of profitable opportunities, proved to be significant in the work of Casson and Giusta (2007), who analyzed the impact of these factors on entrepreneurial activity. The motivation of entrepreneurs as a determining factor was investigated by Ahmad et al. (2014), who recognized various motives, including the desire for change, preservation of family tradition and entrepreneurship out of necessity. Growth expectations as part of the model rely on the research of Beier and Wagner (2017), who analyzed the perception of future business success among entrepreneurs. The international orientation of entrepreneurs was considered based on the work of Brau et al. (2012), which showed the importance of income from abroad in assessing the internationalization of business. Technological innovation as an indicator of the development of entrepreneurial ventures in tourism is based on the work of Buhalis and Law (2008), who investigated the role of new technologies in the tourism sector.

Figure 1: Research model

Source: Authors' research

Table 1: Description of variables and their categories

Variable	**Category/Code**													
C: Age Range	1	18-24	2	25-34	3	35-44	4	45-54	5	55-64				
GEM Household incomes	1	Lowest 33% tile	2	Middle 33% tile	3	Upper 33% tile								
Qi2: Perception of business opportunities	1	Strongly disagree	2	Somewhat disagree	3	Neither agree nor disagree	4	Somewhat agree	5	Strongly agree				
Qi12: Reaction to profitable opportunities	1	Strongly disagree	2	Somewhat disagree	3	Neither agree nor disagree	4	Somewhat agree	5	Strongly agree				
Motive: Earn a living due to job scarcity	1	Strongly disagree	2	Somewhat disagree	3	Neither agree nor disagree	4	Somewhat agree	5	Strongly agree				
Growth expectations	1	Strongly disagree	2	Somewhat disagree	3	Neither agree nor disagree	4	Somewhat agree	5	Strongly agree				
TEA: Export intensity relative to turnover	1	Export over 90%	2	Export 76-90%	3	Export 51-75%	4	Export 26-50%	5	Export 11-25%	6	Export 1-10%	7	No export
TEA: Use of new technologies	1	No, not new technologies	2	New to the area	3	New to the country	4	New to the world						

Source: Authors' research

4. Results and discussion

Conducted Omnibus Tests of Model Coefficients, based on the results (chi-square=108,794; df=48; Sig=0,000) shows that the variables entered the model significantly improved its ability to predict the dependent variable. According to the Hosmer-Lemesh test, the chi-square is 7.570 with a significance of 0.477, which means that the model fits the data well, as there is no statistically significant difference between the model estimate and the actual values. The results of the analysis show that the model explains 53.2% of the variance of the dependent variable (Nagelkerke $R^2 = 0.532$). The results of the binary logistic regression are presented in Table 2, where, for the sake of clarity, only the statistically significant results are highlighted and displayed.

Table 2. Result of Binary Logistic Regression

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1a	C. Would you be willing to indicate the range that best describes your age? (if exact age not provided)			7.349	4	0.019			
	C. Would you be willing to indicate the range that best describes your age? (if exact age not provided)(2)	-1.455	0.719	4.092	1	0.043	0.234	0.057	0.956
	GEMHHINC. GEM incomes recoded into thirds			4.38	2	0.012			
	GEMHHINC. GEM incomes recoded into thirds(2)	1.287	0.624	4.258	1	0.039	3.621	1.067	12.29
	Qi2. In the next six months, there will be good opportunities for starting a business in the area where you live.			11.41	4	0.022			
	Qi2. In the next six months, there will be good opportunities for starting a business in the area where you live.(1)	2.003	0.791	6.411	1	0.011	7.408	1.572	34.904
	Qi12. Even when you spot a profitable opportunity, you rarely act on it.			11.346	4	0.023			
	Qi12. Even when you spot a profitable opportunity, you rarely act on it.(2)	-1.891	0.859	4.839	1	0.028	0.151	0.028	0.814
	Qi12. Even when you spot a profitable opportunity, you rarely act on it.(3)	-2.734	0.875	9.759	1	0.002	0.065	0.012	0.361
	Qi12. Even when you spot a profitable opportunity, you rarely act on it.(4)	-1.348	0.679	3.948	1	0.047	0.26	0.069	0.982
	Early-stage entrepreneur motive: To earn a living because jobs are scarce			11.832	4	0.019			
	Early-stage entrepreneur motive: To earn a living because jobs are scarce(1)	-2.95	1.226	5.794	1	0.016	0.052	0.005	0.578
	Early-stage entrepreneur motive: To earn a living because jobs are scarce(3)	-2.889	1.001	8.327	1	0.004	0.056	0.008	0.396
	Early-stage entrepreneur: expectations for business growth much lower, somewhat lower, about the same as a year ago, somewhat higher or much higher?			18.16	4	0.001			
	Early-stage entrepreneur: expectations for business growth much lower, somewhat lower, about the same as a year ago, somewhat higher or much higher?(2)	-2.523	1.077	5.488	1	0.019	0.08	0.01	0.662
	TEA: export intensity relative to turnover			7.051	6	0.026			
	TEA: export intensity relative to turnover(1)	4	1.921	4.337	1	0.037	54.572	1.265	2353.601
	TEA: Are any of the			7.623	3	0.045			

	technologies or procedures used for your products or services new to people in the area where you live, or new to people in your country, or new to the world?								
	TEA: Are any of the technologies or procedures used for your products or services new to people in the area where you live, or new to people in your country, or new to the world?(2)	-2.44	1.116	4.786	1	0.029	0.087	0.01	0.776
	Constant	-0.3	2.011	0.022	1	0.881	0.741		

Variable(s) entered on step 1: C. Would you be willing to indicate the range that best describes your age? (if exact age not provided), GEMHHINC. GEM incomes recoded into thirds, Qi2. In the next six months, there will be good opportunities for starting a business in the area where you live., Qi12. Even when you spot a profitable opportunity, you rarely act on it., Early-stage entrepreneur motive: To earn a living because jobs are scarce, Early-stage entrepreneur: expectations for business growth much lower, somewhat lower, about the same as a year ago, somewhat higher or much higher?, TEA: export intensity relative to turnover, TEA: Are any of the technologies or procedures used for your products or services new to people in the area where you live, or new to people in your country, or new to the world?.

Source: Authors' research

The significance and impact of all independent variables were analyzed. Below is an overview of the variables that are statistically significant for the model. These determinants are characteristic of entrepreneurs operating in the tourism sector. Age and the factor reporting the respondent's incomes level (gemhhinc), which in GEM denotes incomes recoded into thirds, are statistically significant demographic factors. The analysis shows that age has a significant influence on the likelihood of engaging in entrepreneurial activity within the tourism sector (p=0.019). However, the results do not support the hypothesis that older people are more likely to engage in tourism entrepreneurship in Southeast Europe (H1.1), as the 35-44 age group is 23.4% less likely to start an entrepreneurial venture in tourism compared to the 18-24 age group, controlling for other factors. This finding suggests that younger entrepreneurs, not older ones, are more likely to use digital strategies, while older entrepreneurs tend to invest in traditional tourism services using previously acquired capital (Montañés-Del-Río & Medina-Garrido, 2020; Schweinsberg et al., 2020). Therefore, H1.1 is rejected. On the other hand, household incomes has a significant effect on the likelihood of engaging in entrepreneurial activity within the tourism sector (p = 0.012), confirming H1.2. Individuals in the highest income category are 3.621 times more likely to start a tourism-related business compared to those in the lowest income category. These results suggest that hypothesis H1 is partially supported.

The results indicate a statistically significant relationship between expectations of business opportunities (Qi2) and the likelihood of engaging in entrepreneurial activity within the tourism sector (p = 0.022). Specifically, respondents who expect entrepreneurial opportunities to a greater extent than the reference category, which has the lowest level of expectation, have 7.408 times greater likelihood of engaging in entrepreneurial activity within the tourism sector (p=0.011). The results also indicate a statistically significant relationship between the perception of recognizing profitable opportunities and the likelihood of engaging in the tourism sector (p = 0.023). Specifically, respondents who disagreed more strongly with the statement Qi12: "Even when I recognize a profitable opportunity, I rarely act on it" that is, those who are more proactive in acting upon recognized opportunities are more likely to be engaged in entrepreneurial activity within the tourism sector. Respondents who were neutral toward this statement showed a 0.151 times lower likelihood of engaging in tourism-related entrepreneurship compared to the reference category (p = 0.028), while those who somewhat agreed had a 0.065 times lower likelihood (p = 0.002). Respondents who fully agree with the statement Qi12 have 0.26 times lower likelihood of choosing the tourism sector compared to the reference category (p=0.047). These results confirm the importance of proactivity and early opportunity assessment, as business opportunities are often time-limited (Casson & Giusta, 2007; Kirzner, 1979). This finding confirms that the perception of entrepreneurs increase motivation and legitimize entrepreneurship as a career option (Liñán et al., 2011). These results fully support hypothesis H2.

The results indicate a statistically significant association between necessity-driven motivation and the likelihood of engaging in entrepreneurial activity within the tourism sector (p=0.019). Entrepreneurs who reported a neutral attitude toward the statement that they started a business because jobs are scarce are 0.056 times are less likely to be engaged in entrepreneurial activity within the tourism sector (p=0.004) compared to those who strongly disagreed with the statement. This finding suggests that even individuals who are not clearly necessity-driven tend to avoid the tourism sector, potentially due to the specific challenges and uncertainties of the industry, such as seasonality and the need for specialized skills (Williams & Shaw, 2011). A similar trend is observed among entrepreneurs who strongly agree that they are motivated by a lack of available jobs. They are 0.052 times less likely to be engaged in entrepreneurial activity within the tourism sector (p=0.016), which is also statistically significant. This result supports the notion that even necessity-driven entrepreneurs do not view tourism as an accessible option, likely due to its capital requirements, seasonal fluctuations, or limited off-season demand. Based on these results, hypothesis H3 is rejected.

The results show a statistically significant and negative relationship between business growth expectations and the likelihood of engaging in entrepreneurial activity within the tourism sector (p=0.001). Entrepreneurs with moderate growth expectations are 0.662 times less likely to be engaged in entrepreneurial activity within the tourism sector (p=0.019) compared to the reference category. This finding indicates that entrepreneurs with moderate growth expectations prefer sectors with more stable prospects, as tourism carries higher risks, such as seasonal fluctuations (Beier & Wagner, 2017). Entrepreneurs with high growth expectations tend to choose other sectors. These results are consistent with previous research, which shows that entrepreneurs with higher growth expectations prefer sectors with lower risk, whereas tourism, due to its seasonal nature, may be less attractive (Aparicio et al., 2016; Oyelola et al., 2013). Based on the obtained results, hypothesis H4 is fully confirmed.

The results indicate a statistically significant correlation between entrepreneurs' internationalization and their likelihood of engaging in activities within the tourism sector (p = 0.016), suggesting that export orientation may influence sectoral specialization decisions. Notably, entrepreneurs with an export share of 76% to 90% are 54.572 times more likely to engage in activity of tourism sector compared to the reference category (entrepreneurs with over 90% export share, p=0.037). These findings can be explained by the fact that tourism functions as a form of "invisible export", where revenues are generated through foreign tourists' spending. Tourism generates income from abroad, even though the goods or services are not physically exported from the country. In this case, services such as accommodation, hospitality, and transportation are consumed domestically, but paid for in foreign currency – which qualifies them as exports of services. The literature also highlights that internationalization in tourism involves integrating local resources with global demand (Brau et al., 2012; Cavusgil et al., 2014). Entrepreneurs with a high but not dominant export share find it easier to diversify into tourism, while firms with the highest export share remain focused on traditional sectors. The results fully confirm hypothesis H5.

The results show a statistically significant correlation between the use of new technologies or procedures and the likelihood of engaging in entrepreneurial activity within the tourism sector ($p=0.045$). Entrepreneurs whose products or services are new to the people in their country are 0.087 times less likely to be engaged in entrepreneurial activity within the tourism sector ($p=0.029$) compared to the reference category (locally innovative technologies). This finding suggests that a high level of technological innovation, unlike in other industries, is not a key factor in tourism. As noted by Hjalager (2010) and Buhalis & Law (2008), tourism primarily relies on human resources, authenticity, and adaptation to local needs, while technology plays a supportive role. Entrepreneurs in this sector often focus on preserving traditions and attracting tourists through unique experiences rather than technological sophistication. These results support hypothesis H6.

5. Conclusion

This study provides valuable insights into the attributes of entrepreneurs in the tourism sector in Southeast Europe. Results from demographic variables shows that younger entrepreneurs with a higher incomes are more inclined to start a business in tourism step by step. These results indicate that tourism holds much attractiveness for individuals with adequate resource capacity and who perceive its capability for personal and economic development. Indeed, proactiveness and the perception of entrepreneurial opportunities were found to be significant factors influencing the likelihood of engaging in entrepreneurial activity within the tourism sector. The analysis showed that necessity motives do not have a significant influence on the likelihood of engaging in entrepreneurial activity within the tourism sector. Moreover, such motives do not appear to be a defining characteristic of entrepreneurs operating in this field, suggesting that tourism-related ventures are driven less by a lack of employment alternatives and more by other motivational or strategic factors. Moreover, entrepreneurs with lower growth expectations are less likely to engage in entrepreneurial activity within the tourism sector, which may be attributed to the high level of risk and seasonal volatility characteristic of this industry. In terms of internationalization, results indicate that entrepreneurs having an export income share between 76-90% are significantly more into tourism, thereby confirming the tourism characteristic of functioning as "invisible export". At the same time, it seems that lower technologically innovative entrepreneurs have entered tourism more frequently because the tourism sector tends to be held up by tradition and authenticity, rather than their technological sophistication.

Practical findings from this research would result in policies that support entrepreneurship in tourism, particularly educational and mentoring programs to encourage younger generations. Training that promote proactivity and recognising opportunities will facilitate entering the tourism sector. Furthermore, policymakers would subsidize and provide more favorable loans to lower income individuals choosing to start tourism businesses. Programs on internationalization and connectivity to global markets and partnerships with global agencies could leverage the competitiveness of the sector.

The research has some limitations. First, GEM provides insight into general trends but is limited in depth to the different sub-sectors of tourism. The second limitation is that only three countries from Southeast Europe (Croatia, Slovenia and Greece) were included in this research, which may narrow down the generalization of results towards to the wider region. On the other hand, the countries chosen for the study are the most prominent representatives of the Southeast Europe region in the field of tourism. Third, socio-cultural factors peculiar to individual countries are not analyzed in detail as to how they affect the accuracy of the conclusions. For future research, a longitudinal approach is recommended to develop a time series that captures trends and dynamics over an extended period. In contrast to the present study, which relied on data from a single year, such an approach would improve the robustness of findings and provide a more nuanced understanding of entrepreneurship in the tourism industry. Moreover, in-depth studies could be conducted in specific subsectors such as ecotourism, rural tourism and luxury tourism to gain more finely grained insights into entrepreneurial strategies and opportunities.

CRediT author statement

Bojan Leković: Writing – review & editing, Validation, Supervision, Methodology, Investigation, Formal analysis, Conceptualization. **Milenko Matić:** Writing – original draft, Visualization, Software, Methodology, Formal analysis, Conceptualization. **Sunčica Milutinović:** Formal analysis, Data curation, Investigation.

Declaration of generative AI in the writing process

During the preparation of the paper the authors did not use generative AI and AI-assisted technologies in the writing process.

Conflict of interest

The authors declare no conflict of interest.

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Feast for the eyes: How demographics and psychographics shape Food Porn appeal in culinary tourism

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Abstract

Purpose – This study aims to understand how culinary tourism in Assam is contributing to boost its tourist influx following Covid-19. **Methodology** – The study here is descriptive in its approach and utilises both primary and secondary sources of data. The research adopts an empirical approach, surveying 398 tourists visiting the state using a structured questionnaire. **Findings** – Mean score analysis shows that these tourists do not initially consider food as a primary factor of when choosing a travel destination. A regression model was developed to assess the impact of psychographic variables on consumer responses to food imagery. Beliefs showed the highest impact, meaning that tourists who actively explore local food during travel are particularly responsive to the state's food-related experiences. The role of demographics is also evident as the influence caused by food imagery varies significantly gender, age group, income, and education. **Implications** – The study highlights how tourists' values and experiences regarding local food and community help creating an inclination towards experiencing the local culture, which can lead to a heightened – influence of Food Porn and increased tourist influx.

Keywords: Food Porn, psychographic, demographic, gastronomic, tourism
JEL classification: L83, L66

Gozba za oči: Kako demografija i psihografija oblikuju *Food Porn* privlačnost u kulinarskom turizmu

Sažetak

Svrha – Cilj studije je da razume kako kulinarski turizam u Asamu pomaže u povećanju priliva turista nakon pandemije Covid-19. **Metodologija** – Studija primenjuje deskriptivnu analizu koristeći kako primarne, tako i sekundarne izvore podataka. Istraživanje usvaja empirijski pristup, tako što je putem strukturiranog upitnika anketirano 398 turista koji

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posećuju državu. **Rezultati** – Analiza srednjih vrednosti pokazuje da ovi turisti inicijalno ne uključuju hranu kao primarni faktor kada biraju turističku destinaciju. Regresioni model je razvijen kako bi se utvrdio uticaj psihografskih varijabli na reakcije potrošača na prikaze hrane. Uticaj verovanja je identifikovan kao najjači, što ukazuje da turisti koji aktivno istražuju lokalnu hranu tokom putovanja posebno dobro reaguju na gastronomska iskustva koja država nudi. Uloga demografije je takođe vidljiva, pošto se uticaj vizuelnih prikaza hrane značajno razlikuje kada su u pitanju pol, starosne grupe, prihodi i obrazovanje. **Implikacije** – Studija ističe kako vrednosti i iskustva turista u vezi sa lokalnom hranom i zajednicom pomažu u stvaranju sklonosti ka doživljavanju lokalne kulture, što može dovesti do pojačanog uticaja '*Food Porn*' fenomena i povećanog priliva turista.

Ključne reči: *Food Porn*, psihografski, demografski, gastronomija, turizam
JEL klasifikacija: L83, L66

1. Introduction

In 2023, the tourism sector contributed US$ 9.9 trillion to global GDP and is expected to reach US$ 11.1 trillion in 2024 (Statista Research Department, 2024). Several new avenues of tourism have been introduced so that it can cater to the interests of different people. For instance, the scope of sustainable tourism has significantly increased with growing concerns among the tourists about the impact on the environment (Garg & Pandey, 2021). This has boosted rural tourism and entrepreneurship opportunities as tourists tend to prefer more sustainable options for their experiences, leading to the development of local communities (Utami et al., 2023). Additionally, the demand for wellness tourism has also increased since tourists prefer to work on their healthy well-being while enjoying their vacation (Ali et al., 2021; Lewis et al., 2021; Lim et al., 2016). These are some of the areas in the tourism sector that have gained interest across the globe.

This study, aims to examine the role of Food imagery in positioning a destination in the minds of tourists. The term Food Porn is widely used in this era of the internet and social media (Mejova et al., 2021). The ability to portray the culinary experiences in a visually appealing manner can lead to generating interest among others to undergo similar experiences (Seal et al., 2022). There are several instances where the culinary experiences at a destination attract tourists. However, the specific personal characteristics, such as demographic or psychographic components, that motivate such behaviour have not been thoroughly explored in the literature, particularly in emerging gastronomic destinations.

Research context: The case of Assam

The present study focuses on Assam, which is a state in the Northeastern region of India. The choice of Assam as the research site is strategic due to a number of strong reasons. Firstly, Assam is an undiscovered gastronomic tourism destination. Compared to other well-known food tourism destinations like Kerala or Goa in India, Assamese cuisine and its food culture are relatively unknown as a tourism marketing destination, which makes it a perfect study area for examining how food imagery can impact destination positioning during its infancy

Second, Assam has its own emerging culinary resources that are both inherently photogenic and culturally diverse, yet these are underutilized in the efforts of promoting the tourism industry. The state is home to a great variety of tribal communities with their own culinary traditions. For example, naphaam, a traditional fermented bamboo shoot product of the Bodo community, is typical of authentic gastronomic products in the state. Naphaam is prepared using a traditional fermentation process with fresh bamboo shoots during the rainy season.

Methodologically, Assam offers an optimal research context for examining food imagery's impact without interference from over-marketing. Tourists currently visit Assam predominantly for natural attractions, wildlife sanctuaries, and religious sites – not for culinary experiences. This enables isolation and quantification of food imagery's role in generating novel destination motivations, distinct from reinforcing pre-existing gastronomic reputations.

Finally, studying Assam contributes to the geographical diversity of food tourism research, which has been predominantly focused on Western contexts or established Asian culinary destinations. The following research questions have been generated based on the current literature and will be addressed in the study:

RQ1: How do different age groups perceive and respond to food imagery in the context of gastronomic tourism?
RQ2: What is the impact of gender on the influence of Food Porn on travel decisions?
RQ3: How does income level affect the likelihood of being influenced by Food Porn when choosing a gastronomic tourism destination?
RQ4: How do tourists' lifestyle and interests (psychographic characteristics) shape their perception and influence of Food Porn?

2. Theoretical background

Gastronomic tourism, also popularly known as food tourism, has been successful in creating a niche for itself (Pavlidis & Markantonatou, 2020). This form of tourism focuses on providing the tourists with an exploration of a destination's food culture as a central component of the travel experience. Within gastronomic tourism, tourists' primary enjoyment derives from memorable culinary experiences – tasting local delicacies and participating in traditional food preparation methods (Dixit & Prayag, 2022; Nistor & Dezsi, 2022). Researchers have focused on understanding tourism and food related to different items including, luxury experiences with wine or basic street food items that create a nostalgic feeling (Das et al., 2024a; Das et al., 2024b; Gunasekar et al., 2022). They try to experience the process that goes behind the preparation of such food and learn more about their culture and tradition. For tourists, gastronomic experiences extend beyond consumption to facilitate deeper engagement with the cultural and traditional practices of host communities (Millán et al., 2021).

As the number of tourists interested in gastronomic experiences has increased, food has in fact become a primary way of promoting a destination. The tourists who lay an eye on trying the culinary experiences of a destination can be readily influenced by using the concept of "Food Porn" (Yıldırım & Öztaş, 2024). This particular aspect refers to the process of enticing tourists to take a gastronomic experience of a destination in their next visit by providing visually appealing presentation of food (Goktepe et al., 2022). This method of attracting tourists has substantially gained recognition due to social media platforms and the internet (Gursoy & Kaurav, 2022). With marketing strategies using food porn being provisioned by the providers, the interest and attention towards this form of tourism have significantly increased.

The existing literature has emphasized the impact of the demographic background of tourists, including their age, gender, income, and education level, on their attitudes and behaviour (Kwon & Ahn, 2021).

Gender has also been discovered to affect the food-related traveling behavior (Moon, 2021). Research points at women as being more predisposed to food tourism compared to men.

Females tend to be more interested in food tourism experiences that are associated with a sense of culture and belonging to communities, whereas men might be more interested in the sensual and explorative nature of food tourism (Sanchez-Cañizares & Castillo-Canalejo, 2015).

H_{01}: Younger tourists (ages 18-35) are more likely to be influenced by Food Porn when choosing a gastronomic tourism destination compared to older tourists (ages 36 and above).

H_{02}: Female tourists are more likely to be influenced by Food Porn in their travel decisions compared to male tourists.

H_{03}: Food Porn has an adjustment effect on tourists who possess greater income levels compared to their counterparts who possess less depository incomes.

The second dimension that this study tries to assess is psychographics. These are largely values, attitudes, interests and lifestyles of tourists. Scholars have documented the substantial impact of food imagery on both the tourism industry and tourists' culinary travel decisions. (Chieh-Wen et al., 2008; Iversen et al., 2016). Psychographic segmentation provides insight into the psychological characteristics influencing tourists' experience preferences. Authenticity-seeking and culturally immersive tourists demonstrate greater receptivity to local cuisine and food-related activities at specific destinations (Buhalis & Foerste, 2015; Cohen et al., 2014).

Core values and beliefs exert substantial influence on tourist behavior and destination experiences. Tourists espousing sustainability and ethical consumption values demonstrate preference for organic and locally sourced cuisine, thereby aligning gastronomic choices with environmental and social convictions (Chang et al., 2020; Sultan et al., 2020). Furthermore, tourist interests and lifestyle orientations constitute critical determinants of food tourism engagement (Iversen et al., 2016). Certain tourists seek premium culinary experiences, associating gourmet cuisine with luxury offerings frequently represented through aspirational food imagery (Bharwani & Mathews, 2021).

H_{04}: Food Porn is more likely to influence tourists interested in culinary experiences and adventuros diets to select a gastronomic tourism destination than those who show less interest in culinary experiences.

The sight of food can elicit a powerful emotional reaction, compelling food tourists to pursue a particular food experience on their journey (Walsh & Baker, 2020). It is able to influence the perceptions of visitors to a destination and their future travel choices. The food pictures that tourists see on the platforms such as Instagram and Facebook have become a growing influence (Cavazza et al., 2020). Through these channels, users are able to share their food experience, which exudes a desire and curiosity to tourists before they visit the destination. The influence of food porn is particularly strong among younger tourists who are constantly active on social media (Abril et al., 2022).

The concept of food porn is highly utilised today and it would be interesting to learn about their impact on a travel destination, particularly in emerging gastronomic markets where the phenomenon remains under-researched.

3. Research methodology

3.1. Research design

This study employs a research framework suitable for quantitative investigation. The study is descriptive in its approach and utilises both primary and secondary sources of data for estimating the results. The secondary sources include authentic data from journals, books, reports and online evidence to build the theoretical foundation and contextualize the findings.

3.2. Population and sampling

The population of the study includes tourists who have visited the state of Assam in Northeast India. Both national and international tourists are considered to capture a diverse range of perspectives and experiences. According to the Department of Tourism, Government of Assam, in 2023-24, Assam received a total of 70.41 lakh domestic tourists and 26,129 international tourists, representing a growing tourism market with significant potential for gastronomic positioning.

Respondent selection utilized a non-probabilistic method. Specifically, purposive sampling was applied to recruit only those tourists who had visited Assam and sampled local culinary offerings.

Following the minimum sample size requirement provided by Krejcie and Morgan (1970), with the population of the study being more than one lakh and considered infinite, a minimum sample size of 384 is considered optimal. Hence, a total of 398 tourists were successfully surveyed for the purpose of the study, exceeding the minimum requirement to ensure statistical robustness.

3.3. Data collection instrument

The data collection among the selected respondents was conducted using a structured questionnaire. The survey instrument development followed a rigorous multi-stage process:

Stage 1 – Literature Review and Item Generation: Initial items were generated based on extensive review of existing literature on food tourism, consumer behavior, psychographic segmentation, and food porn phenomenon. Key constructs were identified from seminal works in gastronomic tourism and adapted to the specific context of Assam.

Stage 2 – Content Validation: The preliminary questionnaire was subjected to content validation by a panel of five academicians specializing in tourism management and consumer behavior, and three industry experts working in destination marketing and hospitality management in Northeast India. Their feedback led to refinement of question wording, elimination of redundant items, and addition of context-specific elements related to Assamese cuisine.

Stage 3 – Pilot Testing: A pilot study was conducted with 30 tourists (not included in the final sample) to test the clarity, comprehension, and time required to complete the questionnaire. Based on pilot feedback, minor adjustments were made to ensure respondent-friendliness.

Stage 4 – Reliability Testing: The final instrument demonstrated strong internal consistency with Cronbach's alpha values exceeding 0.70 for all multi-item scales, confirming the reliability of the measurement instrument.

The questionnaire consisted of three main sections:

1. **Demographic Information:** Collected using nominal and ordinal scales, including age, gender, income level, and educational qualification.
2. **Psychographic Characteristics:** Measured using 5-point Likert-type scales (1 = Strongly Disagree to 5 = Strongly Agree), covering four dimensions: individual values, beliefs, interests, and lifestyles related to food and travel.
3. **Food Porn Influence:** Assessed through 10 items on 5-point Likert scales measuring the extent to which visual food representations influence travel decisions, destination perception, and gastronomic experiences.

3.4. Data collection procedure

Data collection was conducted over a three-month period from October 2024 to December 2024, coinciding with the peak tourist season in Assam. The survey was administered at multiple tourist touchpoints to ensure diverse representation including Kaziranga National Park, Kamakhya Temple, Majuli Island, airports and railway stations, as well as cultural festivals and food events.

The purpose of the study was explained, verbal consent was obtained, and respondents were given the option to complete the questionnaire either on paper or digitally via tablet. The average completion time was approximately 12-15 minutes. Of the 450 tourists approached, 398 provided complete and usable responses, yielding a response rate of 88.4%.

3.5. Variables framework

Table 1: Factors overview

Dependent Variables	Moderators (Demographic)	Independent Variables (Psychographic)
Influence of Food Porn on travel decisions	• Age • Gender • Income Level • Education	• Individual values • Beliefs • Interests • Lifestyles

Source: Authors' research

3.6. Data analysis techniques

Using a range of different statistical tools, the hypotheses were tested in the study to derive answers to the research questions:

1. **Descriptive Statistics:** Mean, median, and standard deviation for demographic and psychographic variables
2. **Principal Component Analysis (PCA):** To validate the factor structure of psychographic measures
3. **Independent Samples t-test:** To compare influence of food porn across gender
4. **One-Way ANOVA:** To examine differences across age groups, income levels, and education categories
5. **Multiple Linear Regression:** To assess the impact of psychographic variables on food porn influence
6. **Post-hoc Tests:** Tukey's HSD for pairwise comparisons following significant ANOVA results

All statistical analyses were conducted using JAMOVI statistical software with a significance level set at α = 0.05.

3.7. Ethical considerations

The study adhered to ethical research principles. Participation was voluntary, anonymity was ensured, and respondents were informed that they could withdraw at any time without consequence. No personally identifiable information was collected, and data was stored securely for analysis purposes only. The detailed analysis is provided in the next section.

4. Data analysis

4.1. Demographic overview

The demographic composition of the sample shows diversity across all measured variables. In terms of age distribution, the majority (29.9%) belong to the age group of 26 to 35 years, indicating a strong presence of young professionals and early-career individuals. This is followed by 20.1% in the 18 to 25 years category, representing the youth and student traveler segment. There are 19.6% each in the 36 to 45 and 46 to 55 age groups, showing balanced representation of middle-aged travelers. Finally, 10.8% are 56 years and above, representing senior tourists.

The gender distribution is almost equivalent, with 50.5% male tourists and 49.5% female tourists, ensuring that the findings are not skewed by gender imbalance and allowing for meaningful gender-based comparisons. Educational qualifications show that the majority of tourists are highly educated. Master's degree holders constitute 30.4% of the total sample, followed by 29.6% bachelor's degree holders, and 20.1% with some college education. There are 10.1% who have completed high school or equivalent qualifications, and 9.8% holding doctoral degrees. This high educational attainment suggests that the sample comprises individuals with significant exposure to diverse cultural experiences and information literacy.

In terms of income distribution, 39.7% of respondents reported annual incomes between 10,00,001 and 15,00,000 INR, representing the upper-middle income bracket. This is followed by 20.6% with income of 5,00,001 - 10,00,000 INR. Annual income below 2,00,000 INR is only present in 10.1 percent.

4.2. Psychographic factor extraction

Following the demographic profile, this section examines the psychographic dimensions underlying food imagery perceptions. Principal component analysis (PCA) with varimax rotation was employed to verify the factor structure of 10 items measuring four psychographic constructs related to food imagery. Factor loadings exceeding 0.4 were considered acceptable, consistent with the threshold recommended by Hair et al. (2006).

The PCA revealed four factors with eigenvalues exceeding 1, collectively accounting for significant variance in the psychographic measures. The first factor, beliefs, comprises two items measuring tourists' perceptions of food's role in travel and their willingness to try unfamiliar cuisines. The third factor comprises two items for interests, reflecting tourists' curiosity and enthusiasm for culinary discovery during travel. The fourth factor includes two items for lifestyle, measuring how food experiences integrate into tourists' broader lifestyle choices and travel preferences.

All factor loadings demonstrate values exceeding 0.4, confirming that they will be retained for the formation of the factors in subsequent stages. The Bartlett's test of sphericity yields a p-value of less than 0.05, indicating that the correlation matrix is significantly different from an identity matrix and suitable for factor analysis. The overall Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy stands at 0.818, well above the acceptable threshold of 0.60. These two conditions align with the criteria stated by Hair et al. (2006) and are considered acceptable, validating the appropriateness of PCA for this dataset.

Table 2: Descriptives

	N	**Mean**	**Median**	**SD**	**Minimum**	**Maximum**
Values & Experiences	398	3.47	3.40	0.668	2.40	4.80
Beliefs	398	3.41	3.50	0.765	2.00	4.50
Interests	398	3.41	3.50	0.660	2.00	4.00
Lifestyle	398	3.36	3.50	0.775	2.50	5.00

Source: Authors' research

The mean scores across psychographic variables revealed that experiential values achieved the highest rating (M = 3.47), suggesting tourists place considerable importance on the experiential aspects of destinations. This suggests that tourists visiting Assam appreciate and value experiential aspects of food tourism, even if food is not their primary travel motivator initially. It is followed by beliefs and interests, both at the same level with a score of 3.41, indicating moderate agreement about the exploratory and experiential dimensions of food during travel. The lowest agreement concerns the role of food in their lifestyle choices such as selecting a tourism destination (mean = 3.36), confirming that for the current sample, food is not yet positioned as a primary lifestyle-driven decision criterion for choosing Assam as a destination.

4.3. Influence of food porn

A total of 10 items on Likert scale are used to investigate the impact of local cuisine in shaping tourists' perception about the region as a tourist destination. The mean scores are relatively high, with the highest score of 3.61. This shows that the tourists highly agree that the quality of cuisine affects their interests in experiencing the local food culture. With a score of 3.60, the extent of impact of food porn on the overall experience of travelling and trying new dishes in the culture is quite high.

4.4. Relationship analysis

In order to understand the factors that can influence the levels of food porn impact on tourists, a multiple linear regression model is constructed. The impact of the four psychographic variables extracted using PCA is examined in relation to the influence levels experienced by tourists.

Table 3: Model fit measures

				Overall Model Test			
Model	**R**	**R^2**	**Adjusted R^2**	**F**	**df1**	**df2**	**p**
1	0.999	0.997	0.997	35504	4	393	< .001

Source: Authors' research

Table 4: Model coefficients – Influence of Food Porn

Predictor	Estimate	SE	t	P
Intercept	0.2792	0.01238	22.55	< .001
Values & Experiences	0.1260	0.00577	21.83	< .001
Beliefs	0.5409	0.00888	60.88	< .001
Interests	0.0954	0.01000	9.54	< .001
Lifestyle	0.3582	0.00565	63.39	< .001

Source: Authors' research

The regression model generates highly significant results. The model fit is excellent, with an adjusted R^2 of 0.997, indicating that 99.7% of the variance in food porn influence is explained by the four psychographic factors.

Among the four variables, **Beliefs** exerts the highest impact ($\beta = 0.5409$), suggesting that tourists' fundamental convictions about food as a vehicle for cultural exploration and their openness to culinary adventure are the strongest predictors of food porn influence. This aligns with experiential learning theory, which suggests that beliefs shape how individuals process and respond to sensory stimuli.

Lifestyle ranks second in impact ($\beta = 0.3582$), indicating that tourists whose broader lifestyle choices integrate food consciousness and experiential consumption are substantially more responsive to food porn marketing. This finding supports the lifestyle segmentation literature that emphasizes congruence between consumption patterns and identity.

Values & Experiences demonstrates moderate but significant impact ($\beta = 0.1260$), suggesting that tourists who value authentic cultural immersion and meaningful destination experiences are influenced by food porn, albeit to a lesser extent than beliefs and lifestyle factors.

Interests shows the smallest, though still significant, impact ($\beta = 0.0954$), indicating that while curiosity about food matters, it is less predictive of food porn influence compared to deeper psychological factors such as beliefs and lifestyle orientation.

4.5. Demographic differences in food porn influence

To identify the impact of demographic variables on food porn influence, mean score analyses using independent samples t-tests and one-way ANOVA are conducted.

Table 5: Independent samples t-test – Gender

		Statistic	df	p
Influence of Food Porn	Student's t	-8.18	396	< .001

Source: Authors' research

The independent t-test conducted for gender shows a p-value below 0.05, indicating that the influence of food porn on travel decisions varies significantly based on the gender of the tourist. The negative t-value suggests that female tourists experience higher levels of influence from food porn compared to male tourists, consistent with previous literature highlighting women's greater engagement with culinary tourism and visual food content on social media.

Table 6: One Way ANOVA – Influence of Food Porn

	χ^2	df	p
Age Group	151	4	< .001
Income Level	72.9	4	< .001
Education	219	4	< .001

Source: Authors' research

The ANOVA results demonstrate that all three demographic variables with multiple categories show statistically significant differences in mean scores of food porn influence. Age group, income level, and education all produce p-values less than 0.001, confirming that these demographic characteristics substantially moderate the relationship between food porn exposure and destination influence. To understand the specific nature of these differences, post-hoc pairwise comparisons using Tukey's HSD test were conducted.

Age Group Comparisons: Post-hoc pairwise comparisons reveals that tourists in the age groups of 18 to 25 and 26 to 35 years show significantly different mean scores compared to every other age group. A clear divide emerges between those below and above 35 years of age. Younger tourists (18-35 years) demonstrate significantly higher influence from food porn, supporting the hypothesis that digital natives who are active on social media platforms are more susceptible to visual food marketing. Older tourists (36+ years) show lower food porn influence, suggesting their travel decisions are based more on traditional information sources and established destination reputations.

Income Level Comparisons: The results indicate that tourists with annual income less than 2 lakh INR show significantly different mean scores compared to all other income categories. Interestingly, this lowest income group demonstrates lower food porn influence, possibly because their travel decisions are more constrained by budget considerations and practical factors rather than aspirational experiential marketing. Middle- to high-income tourists show greater responsiveness to food porn, likely because they have the discretionary income to act on the desires generated by visually appealing culinary content.

Education Level Comparisons: The pairwise analysis reveals that no two categories of educational attainment share statistically similar mean scores; all comparisons show significant differences. This suggests a gradient effect where higher education levels are associated with different patterns of food porn influence, possibly reflecting varying degrees of cultural capital, information processing sophistication, and experiential consumption orientation.

The pairwise comparisons collectively demonstrate that demographics play a critical moderating role in how food porn influences travel decisions.

5. Discussion

The investigation reveals several important insights about the relationship between psychographic characteristics, demographics, and food porn influence in the context of Assam's tourism sector. The findings contribute to both theoretical understanding and practical applications of culinary tourism marketing in emerging destinations.

5.1. Initial positioning and perceptual shift

A key finding is that tourists' initial psychographic characteristics associated with food as a central travel decision factor are moderate rather than high. Analysis of mean scores reveals that food does not constitute a primary factor in these tourists' initial destination selection.

This finding diverges from studies conducted in established food tourism destinations like Thailand or Italy (Pavlidis & Markantonatou, 2020), where food is already a primary motivator. In emerging gastronomic destinations like Assam, the challenge is not merely to enhance existing food tourism but to fundamentally shift destination perception. The high post-exposure influence scores (mean = 3.60-3.61) demonstrate that once tourists experience Assamese cuisine directly, their appreciation increases substantially, suggesting that the visual-experiential gap can be bridged through strategic food porn marketing that creates accurate anticipations.

5.2. Psychographic drivers: Theoretical implications

The regression model produces exceptionally high explanatory power ($R^2 = 0.997$), which is remarkable in tourism research where psychological constructs typically explain 40-60% of behavioral variance. This suggests that psychographic factors are not merely contributory but foundational to understanding food porn's influence mechanisms.

The predominance of **Beliefs** as the strongest predictor ($\beta = 0.5409$) extends the Theory of Planned Behavior (Ajzen, 1991) into the food tourism context. Tourists who hold exploratory beliefs about food – viewing it as a gateway to cultural understanding rather than mere sustenance – are most receptive to food porn's influence. This finding aligns with Güler et al. (2024) who demonstrated that consumer emotional responses to food content vary based on underlying belief systems. However, our study advances this understanding by quantifying the relative importance of beliefs compared to other psychographic factors in an emerging destination context.

The significant impact of **Lifestyle** ($\beta = 0.3582$) corroborates findings by Moreo et al. (2022) regarding food enthusiast typologies. Tourists who integrate food consciousness into their broader lifestyle identity demonstrate heightened responsiveness to culinary marketing. This validates lifestyle segmentation theory (Iversen et al., 2016), which posits that consumption choices align with self-concept and identity construction.

Interestingly, **Interests** showed the smallest effect ($\beta = 0.0954$), contrasting with some Western studies where culinary interest is a primary driver. This contextual difference may reflect the nascent stage of food tourism awareness in Assam. While interest is relevant, deeper psychological factors like beliefs and lifestyle orientation exert greater influence, suggesting that surface-level curiosity alone is insufficient – tourists need to perceive food as meaningful and identity-relevant to be substantially influenced by food porn.

5.3. Demographic moderators: Convergence and divergence with literature

The demographic findings largely converge with existing literature while revealing some context-specific nuances. The significant gender difference, with females showing higher food porn influence, confirms previous research by Moon (2021) and Sanchez-Cañizares and Castillo-Canalejo (2015).

The age divide at 35 years supports generational differences in media consumption and travel decision-making processes. Younger tourists (18-35 years), often categorized as millennials and Gen Z, are digital natives for whom Instagram and other visual platforms are primary information sources. Their significantly higher susceptibility to food porn aligns with Abril et al. (2022), who documented the interplay of social media motives and food sharing behaviors. Conversely, older tourists rely more on traditional reputation markers and word-of-mouth, making them less responsive to visual food marketing. This finding is consistent with previous age-related consumer behavior studies but extends it specifically to emerging food tourism destinations.

The income-based differences present an interesting pattern. While Kwon and Ahn (2021) found linear relationships between income and green consumption, our study reveals a threshold effect: tourists earning below 2 lakh INR annually respond significantly differently from all higher income brackets. This indicates that aspirational values in food imagery require sufficient discretionary income to manifest as actual behavioral influence. Wealthy tourists are able to engage in experiential consumption induced by food porn because they can afford to do so due to their economic means, but poorer tourists cannot because the information is attractive but inactive, resulting in an unmet gap between desire and action.

The education gradient effect, wherein substantial differences were evident across all educational levels, contrasts with studies reporting plateau effects at higher education levels. This general change indicates that educational levels moderate advanced cultural consumption behavior and food literacy so that tourists are more apt at deciphering the cultural messages embedded within food porn narratives of local food such as fermented bamboo shoots or local preparations.

5.4. Theoretical contribution

This study makes several theoretical contributions to the food tourism and destination marketing literature.

First, it advances understanding of food porn as a marketing tool by demonstrating its differential effectiveness based on psychographic-demographic interactions. While previous studies have examined food porn's general appeal (Mejova et al., 2021; Seal et al., 2022), this research reveals that its influence is not universal but highly contingent on audience characteristics. This contributes to segmentation theory by identifying specific tourist profiles most receptive to visual culinary marketing.

Second, the study extends the application of psychographic segmentation to emerging gastronomic destinations. Most psychographic tourism research focuses on established destinations where food is already positioned prominently (Iversen et al., 2016). Our findings demonstrate that psychographic factors matter even more in emerging contexts because they determine tourists' openness to perceptual repositioning – from viewing a destination primarily for nature/culture to appreciating its gastronomic dimensions.

Third, the exceptionally high explanatory power of the psychographic model ($R^2 = 0.997$) suggests that food porn operates through deeply psychological mechanisms rather than superficial aesthetic appeal. This finding challenges purely sensory-based explanations of food marketing effectiveness and supports more comprehensive models that incorporate values, beliefs, and identity-relevant factors.

Fourth, the study contributes to place branding theory by demonstrating how authentic cultural food products like naphaam can serve as identity markers that differentiate emerging destinations in competitive tourism markets. The visual appeal of traditional fermentation processes and indigenous preparations offers positioning opportunities that transcend generic food tourism tropes.

5.5. Practical implications and strategic recommendations

Based on the findings, several strategic implications emerge for tourism stakeholders in Assam and similar emerging gastronomic destinations.

5.5.1. Psychographic segmentation in marketing strategy

Tourism boards should develop differentiated marketing campaigns targeting the four psychographic segments identified. **Belief-driven explorers** can create content emphasizing food as cultural bridge, highlighting the stories behind traditional preparations like naphaam's community significance, the agricultural practices of bamboo cultivation, and the intergenerational transmission of fermentation knowledge. **Lifestyle-conscious experientialists** can position Assamese cuisine within broader lifestyle narratives of authenticity-seeking, sustainable tourism, and cultural immersion. Develop curated culinary trails that integrate food with wellness, nature, and cultural heritage experiences. **Value-oriented tourists can e**mphasize the ethical and sustainable dimensions of local food systems, community-based food tourism enterprises, and the preservation of culinary biodiversity through traditional practices. **Interest-based curious tourists** may provide entry-level culinary experiences that convert curiosity into deeper engagement, such as cooking demonstrations, food markets, and interactive preparation sessions.

5.5.2. Demographic-tailored content strategy

Given the significant demographic variations, multi-platform marketing should be deployed. **For younger tourists (18-35)**: Invest heavily in Instagram, TikTok, and YouTube content featuring visually stunning, shareable food porn. Engage food influencers that have a chance to develop authentic stories about Assamese food. **For female tourists**, produce material focused on the cultural associations, other community participation and narrative of food experiences. **For higher-income segments**, create high-end food customs like chef-led tours, masterclasses with our very own cooks, and luxurious versions of the typical foods that would warrant greater prices and still fit the authenticity standard.

5.5.3. Infrastructure development for food tourism

To capitalize on food porn's potential influence, Assam must develop supporting infrastructure. **Culinary trails and food districts** to designate particular zones of capitalizing on the concentrated authentic food experience so that tourists have easy access to it and hence expectations raised because of the food porn marketing are easy to meet. **Food festivals and events** for frequent gastronomic festivals where different tribal cuisines, traditional styles of preparation and modern interpretation can be presented. Food porn dissemination is generated through these events and content generation moments.

5.5.4. Quality assurance and authenticity management

A critical challenge with food porn marketing is managing the expectation-reality gap. Assam must ensure: Visual authenticity, Quality certification and Story verification.

5.5.5. Community empowerment and benefit distribution

Food tourism development should prioritize local communities like **Revenue sharing models** to make sure that communities such as the Bodo, whose food cultures (naphaam, traditional preparations) are being sold, are getting their fair share of the economic advantage. **Capacity building** to Train, equip, and encourage the involvement of local food business application to the tourism value chain without compromising culture.

5.5.6. Digital ecosystem development

Create a comprehensive digital presence using **social media strategy** to maintain active presence across platforms with consistent, culturally-authentic food content. Engage with user-generated content by reposting tourist experiences. Create **virtual experiences** that provide virtual cooking lessons, e-commerce in real products and live streaming of cooking activities to tourists who cannot visit the destination as a way of maintaining their interest and create a sense of expectation to visit the destination in the future.

5.6. Social Implications

Beyond economic benefits, strategic food porn marketing can generate positive social outcomes:

Cultural preservation: Food tourism helps younger generations learn and maintain culinary traditions that would otherwise be wiped out by modernization by creating economic value for the traditional food practices.

Cultural identity and pride: Tourism can promote the recognition of Assamese cuisine internationally, which in turn will help local people, especially marginalized tribal groups whose input to the cuisine diversity is not always appreciated.

Inter-cultural dialogue: Food porn marketing through food tourism provides channels of quality cultural exchange between tourists and host communities, fostering respect and understanding.

Women's empowerment: As the food preparation is basically a female sector in many Assamese societies, the food tourism offers the women a source of income and an acknowledgment of their cultural expertise and talents.

Environmental sustainability: Traditional food practices often employ sustainable, locally-sourced ingredients. Marketing these aspects can promote environmental awareness and support local, organic agricultural systems.

5.7 Limitations and future research directions

While this study provides valuable insights, several limitations suggest directions for future research:

Temporal considerations: This cross-sectional study captures tourists at a single point in their journey. Longitudinal research tracking tourists from pre-trip food porn exposure through post-trip sharing behavior would reveal the complete influence cycle and identify how food porn influence evolves across different stages of the travel decision-making process.

Sample composition: Although the sample of 398 tourists provides adequate statistical power, it was collected during peak tourist season (October-December 2024) and may not capture off-season travelers who might have different motivational profiles. Future research should examine seasonal variations in tourist psychographics and food porn responsiveness.

Geographic limitations: The study focuses exclusively on Assam, and while this provides depth, it limits generalizability. The findings may be specific to Northeast Indian contexts or emerging destinations more broadly, requiring validation in other geographic and cultural settings before claiming universal applicability.

Self-reported measures: The study relies on self-reported influence and psychographic characteristics, which may be subject to social desirability bias or limited self-awareness. Behavioral measures such as actual booking patterns, time spent viewing food content, or physiological responses to food imagery would complement self-report data.

6. Conclusion

This study set out to investigate how demographics and psychographics shape the influence of food porn on culinary tourism, using Assam as a case study of an emerging gastronomic destination. The findings reveal that food porn's effectiveness is not universal but highly contingent on tourist characteristics, with psychographic factors explaining an exceptional 99.7% of variance in influence levels.

Beliefs emerged as the most powerful predictor, followed by lifestyle, values and experiences, and interests. These psychological factors interact with demographic characteristics – particularly age, gender, income, and education – to create distinct tourist segments with varying receptivity to visual culinary marketing. Younger, female, higher-income, and more educated tourists demonstrate significantly greater susceptibility to food porn influence.

6.1. Addressing the research gaps

This research directly addresses several critical gaps identified in the literature review. While previous studies have examined food porn as a general phenomenon (Mejova et al., 2021; Seal et al., 2022) and explored demographic influences on food tourism broadly (Kwon & Ahn, 2021; Moon, 2021), this study is among the first to systematically integrate both demographic and psychographic factors in a comprehensive model of food porn influence specifically in an emerging destination context.

The research questions posed at the outset have been conclusively answered:

RQ1 (Age group differences): The findings confirm a significant generational divide at age 35, with younger tourists (18-35 years) showing substantially higher food porn influence than older cohorts. This extends previous age-related consumer behavior research by quantifying the specific threshold at which digital nativity and social media engagement translate into food marketing susceptibility.

RQ2 (Gender impact): Female tourists demonstrated significantly higher food porn influence, confirming and contextualizing previous findings by Sanchez-Cañizares and Castillo-Canalejo (2015) in the specific domain of visual food marketing. This gender difference reflects broader patterns of aesthetic engagement and cultural connection-seeking in tourism consumption.

RQ3 (Income effects): The threshold effect was found where tourists with earnings less than 2 lakh INR per year react differently from those with the higher earnings. This refines later linear income-consumption models by showing how the inspirational nature of food porn necessitates the ability to spend discretionally so as to convert aspiration influence to real behavioral impact.

RQ4 (Psychographic shaping): The fact that the psychographic variables explain such a vast amount of food porn effectiveness ($R^2 = 0.997$) proves that the psychological peculiarities are not just supplementary determinants of food porn effectiveness but its core determinants. The psychographic dimensions exerting the most significant influence – beliefs about food as cultural exploration, lifestyle integration, value alignment, and curiosity – provide clear guidance for developing targeted marketing strategies.

6.2. Bridging theory and practice

The study contributes theoretically by extending psychographic segmentation to emerging food tourism contexts and demonstrating that food porn operates through deep psychological mechanisms rather than mere aesthetic appeal. Practically, it provides a roadmap for tourism stakeholders to leverage food porn strategically through targeted marketing, infrastructure development, and community empowerment while managing authenticity and expectations. Comparing our findings with the theoretical framework established in Section 2, we see strong validation for the role of psychographic segmentation as proposed by Iversen et al. (2016) and Chieh-Wen et al. (2008), but with important extensions. While these earlier studies identified psychographic factors as relevant to tourism behavior, our research quantifies their overwhelming importance in food porn contexts, suggesting that visual food marketing activates deeper identity and belief systems than previously recognized.

Similarly, our demographic findings largely align with existing literature (Kwon & Ahn, 2021; Moon, 2021) regarding age and gender effects, but reveal new insights about income thresholds and continuous education gradients that previous studies treating these as linear variables may have missed. This suggests that emerging destinations face different audience dynamics than established food tourism locations where income and education effects may be more straightforward.

6.3. Implications for Assam and beyond

For Assam specifically, the findings suggest significant untapped potential to reposition the destination through its unique culinary assets – from traditional fermented products like naphaam to diverse tribal cuisines and tea culture. While food is not currently a primary motivator for visiting Assam, the high post-experience influence (mean scores of 3.60-3.61) indicates that strategic food porn marketing could fundamentally shift destination perception and create new tourism value.

The manufacturing process and cultural significance of products like naphaam – involving traditional fermentation of bamboo shoots with distinctive sour flavors integral to Bodo cuisine – offer precisely the type of authentic, visually interesting, and culturally meaningful content that can differentiate Assam in competitive tourism markets. The challenge lies not in the quality of culinary offerings but in their visibility and positioning in potential tourists' decision-making processes.

More broadly, the findings have implications for emerging gastronomic destinations worldwide that possess rich culinary heritage but lack established food tourism reputations. The psychographic-demographic framework developed here provides a replicable model for understanding and targeting tourists most likely to respond to food porn marketing, while the high post-experience influence scores suggest that creating initial trials through targeted marketing can generate organic word-of-mouth and social media amplification.

6.4. Final synthesis

The hypotheses testing confirm all four proposed relationships (Table 7).

Table 7: Hypothesis testing summary

Hypothesis	Status	Key Finding
H_{01}: Younger tourists (ages 18-35) are more likely to be influenced by Food Porn when choosing a gastronomic tourism destination compared to older tourists (ages 36 and above).	Accepted	Clear divide at age 35; digital natives show significantly higher susceptibility
H_{02}: Female tourists are more likely to be influenced by Food Porn in their travel decisions compared to male tourists.	Accepted	Gender difference significant at $p < .001$; reflects aesthetic and cultural connection patterns
H_{03}: Tourists with higher income levels are more likely to be influenced by Food Porn in their travel choices than those with lower income levels.	Accepted	Threshold effect at 2 lakh INR; aspirational appeal requires discretionary income
H_{04}: Tourists with a strong interest in culinary experiences and adventurous eating are more likely to be influenced by Food Porn when considering a gastronomic tourism destination compared to those with less interest in culinary experiences.	Accepted	Psychographic factors explain 99.7% of variance; beliefs most influential, followed by lifestyle, values, and interests

Source: Authors' research

All four hypotheses are robustly supported by the data, confirming that both demographic and psychographic factors significantly moderate food porn's influence on travel decisions. The consistency of these findings with theoretical predictions while revealing new nuances about thresholds, gradients, and relative importance represents a meaningful advance in food tourism scholarship.

6.5. Concluding remarks

Theoretical contribution: This research advances destination marketing theory by demonstrating how visual food marketing can facilitate perceptual repositioning of emerging destinations. It contributes to consumer behavior literature by quantifying the relative importance of different psychographic dimensions in mediating sensory marketing effectiveness. The findings extend segmentation theory by identifying specific tourist profiles most amenable to food-driven destination development. Most significantly, the study bridges the gap between general food porn research and destination-specific tourism marketing, showing that context matters enormously – what works in established destinations may require adaptation for emerging markets.

Practical contribution: Tourism stakeholders now have evidence-based guidance for adopting psychographic-demographic segmentation in food tourism marketing, developing differentiated content strategies across platforms and audiences, investing in supporting infrastructure that delivers on food porn-generated expectations, and ensuring community involvement and benefit-sharing in tourism development. The visual appeal and cultural authenticity of traditional foods like naphaam offer competitive positioning opportunities that differentiate Assam in increasingly crowded tourism markets. Implementation of these strategies requires coordination across government, private sector, and community stakeholders, but the potential returns – economic development, cultural preservation, and sustainable tourism growth – justify the investment.

Social contribution: Strategic food tourism development can preserve cultural heritage by creating economic incentives for traditional knowledge transmission, empower local communities (particularly women who are primary knowledge holders of culinary traditions), foster inter-cultural understanding through food-mediated cultural exchange, and promote environmental sustainability when aligned with traditional food systems and ethical tourism principles. The study shows that tourism development does not have to be extractive or culturally blurred, but once well managed with community participation and genuine reflection it can even empower cultural identity.

This paper offers the theoretical underpinning and practical advice that can help the emerging food destinations such as Assam tap into the potential of food porn without losing its authenticity, equity or cultural integrity.

CRediT author statement

Sunita Boro: Writing – original draft, Visualization, Software, Methodology, Formal analysis, Conceptualization. **Saurabh Kumar Dixit:** Review & editing, Validation, Supervision, Methodology, Investigation, Formal analysis, Conceptualization.

Declaration of generative AI in the writing process

During the preparation of the paper the authors did not use generative AI and AI-assisted technologies in the writing process.

Conflict of interest

The authors declare no conflict of interest.

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Measuring hotel financial performance: A bibliometric review

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Abstract

Purpose – This article presents a comprehensive review of hotel performance financial measurement achieved through bibliometric analysis. **Methodology** – Leveraging a successful sample of 982 articles from the Scopus database, this paper utilizes Bibliometrix and VOSviewer as suitable tools and selected techniques to pinpoint hot topics, core authors, top journals, and theoretical shifts in the literature. **Findings** – The results indicate a focus on revenue management, pricing, and forecasting. Big data and machine learning trends have begun to signify a shift in the way performance is evaluated in the hospitality industry. With the maturity of the field, gaps persist – especially in the limited access to hotel data and the lack of standardized financial metrics. **Implications** – This bibliometric review charts the field's intellectual structure using performance analysis and science-mapping indicators, and identifies underexplored topics such as the link between profitability and pricing power, elasticity, ESG, and governance in the hotel industry. Anchored in the bibliometric evidence of this study, future researchers may explore new forecasting methods against profit-based metrics and adopt a wider range of empirical approaches.

Keywords: revenue management, profitability, hospitality industry, financial metrics
JEL classification: L83, M41, M21

Merenje finansijskih performansi hotela: Bibliometrijski pregled

Sažetak

Svrha – Ovaj članak predstavlja sveobuhvatan pregled merenja finansijskih performansi hotela postignut bibliometrijskom analizom. **Metodologija** – Na osnovu uzorka sačinjenog od 982 članka iz baze Scopus, u radu se koriste Bibliometrix i VOSviewer kao odgovarajući alati i izabrane tehnike kako bi se identifikovale aktuelne teme, ključni autori, vodeći časopisi i teorijski pomaci u literaturi. **Rezultati** – Nalazi ukazuju na fokus na upravljanje prihodima, formiranje cena i prognoziranje. Trendovi u oblasti velikih podataka i mašinskog učenja počeli su da ukazuju na pomak u načinu na koji se performanse procenjuju u ugostiteljskoj industriji. Sa zrelošću oblasti, i dalje postoje praznine – naročito u ograničenom pristupu hotelskim podacima i nedostatku standardizovanih finansijskih pokazatelja. **Implikacije** – Ovaj bibliometrijski pregled mapira intelektualnu strukturu

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oblasti koristeći pokazatelje analize performansi i naučnog mapiranja i identifikuje nedovoljno istražene teme kao što su veza između profitabilnosti i cenovne moći, elastičnosti, ESG-a i korporativnog upravljanja u hotelskoj industriji. Oslanjajući se na bibliometrijske dokaze ove studije, buduća istraživanja mogu da ispitaju nove metode prognoziranja u odnosu na profitno zasnovane metrike i da usvoje širi spektar empirijskih pristupa.

Ključne reči: upravljanje prihodima, profitabilnost, ugostiteljska industrija, finansijski pokazatelji
JEL klasifikacija: L83, M41, M21

1. Introduction

The hospitality and tourism sector provides much value and is important in employment, investment, and tourism activities worldwide (Sharma et al., 2021; WTTC, 2023). One of the determining features of a firm's financial success is its financial performance. This feature is impacted by internal and external factors such as operational efficiency, the business environment, and strategic planning (Duric & Potočnik Topler, 2021; Nguyen et al., 2023). In an era where competition within the hospitality sector intensifies, assessing financial performance has become paramount to firms looking to stay competitive in the dynamic market (Ashraf et al., 2023). Despite the highlighted importance of measuring financial performance in hotels, the literature indicates that there is still no agreement on effectively analysing it for hotels (Gibraltar et al., 2024; Yoopetch & Chareanporn, 2024).

Measuring hotel financial performance using RevPAR, GOPPAR, and ROI has already been studied (Herath et al., 2023; Olorunsola et al., 2024; Pons et al., 2025; Santoso & Supatmi, 2021). However, these studies take a partial approach by concentrating on a single indicator and neglecting a comprehensive understanding of the existing literature on financial performance measurement. In addition, bibliometric studies in this field are rare (Subying & Yoopetch, 2023). This situation limits the capacity to evaluate the growth of the research, identify critical publications, and identify new research directions. The problem reflects a deficit in the literature on systematic reviews that seek to synthesize data from different sources for hotels and their financial performance.

The performance metrics of hotel finances have become relevant internationally due to the impacts of global downturns and the COVID-19 pandemic (Ozdemir et al., 2021). In the context of hotel businesses, they face many financially intricate problems like evolving consumer tastes, changes in employment, and policy problems (Dutta, 2024). With these changing variables, consideration of the prevailing research gaps identifies the necessity for stakeholders within the industry, government, or academics to formulate implementable measures on financial assessment and regulation in the hospitality sector.

This study presents a bibliometric analysis of research on hotel financial performance. This review aims to identify trends, leading authors, top journals, and emerging themes that have influenced research in this area. Unlike previous review studies, this study is designed to provide an overview of the intellectual structure of the field. This paper also seeks to identify the gaps in the literature and gives directions for future research. To achieve this aim, the paper sets out to answer the following research questions:

1. What are the major themes and new patterns in hotel financial performance measurement literature?
2. What are the most widely used financial measures and analytical and methodological approaches to evaluate hotel performance?

3. Which are the most significant authors and journals publishing work in this discipline?
4. How have the quantity and impact of hotel financial performance research changed over time?
5. What are the theoretical frameworks used in examining hotel financial performance?
6. What are the main research gap areas and future directions for measuring hotel financial performance?

2. Literature review

Previous review work on hotel performance spans the following topics: revenue management (RM) and pricing, efficiency, quality, and performance systems, management accounting practices, digital transformation, sustainability, corporate social responsibility, and reporting quality and earnings management.

Some initial studies suggest that RM has been a matter of considerable concern to academics. Ivanov and Zhechev (2012), Mishra (2019), and Vives et al. (2018) presented descriptions of theory and empirical RM strategic planning with a focus on price optimization and revenue maximization. Subying and Yoopetch (2023) expanded the overview of the intellectual and conceptual development of RM. Likewise, Denizci Guillet and Mohammed (2015) identified future research streams and emerging themes in RM. These reviews emphasized the core position RM takes in realizing profitability and competitiveness for the hospitality industry.

Scholars' review work has moved beyond generic calls for ”better metrics” to specify how hotels design and use performance systems. Tarí et al. (2014) synthesize quantitative studies that link quality-management practices to both operational outcomes and financial results, while Mitrović et al. (2016) detail the architecture of performance-measurement systems, from indicator selection to feedback loops. Vidali et al. (2024) review efficiency techniques – both non-parametric and parametric (e.g., data envelopment analysis and stochastic frontier analysis) – and explain when each capture technical or cost efficiency. Elston (2018) and Campos et al. (2022) also explored the application of management accounting in tracking and improving performance.

Recent works also highlight how digital adoption enhances forecast accuracy, cost discipline, and service quality in the hospitality industry. Milton (2024) demonstrates how AI enhances financial management – tightening cash cycle efficiency and sharpening decisions that confer a competitive edge. Alotaibi (2020) shows how ML supports demand forecasts, staffing, and pricing. Additionally, investments in ICT infrastructure can lead to increased productivity and revenue growth (Lin et al., 2024). Supporting this view, Iranmanesh et al. (2022) also mention operational flexibility, creativity, and improvements in service quality. These field experiences established a trend of growing technology-based initiatives aimed at optimizing financial and operational performance in hospitality settings.

Corporate social responsibility and sustainability also became major topics of study for the hospitality sector. Acampora et al. (2022) and Gunduz Songur et al. (2023) wrote about the application of green technology and green hotel practices, detailing their business advantages and constraints. Reem et al. (2022) map the sustainability indicators practitioners actually track – spanning operational, environmental, and community metrics. Lyu et al. (2021) then test whether CSR programs translate into better financial results, treating CSR as both a social commitment and a business strategy. The importance of socially and environmentally conscious business models in the hotel sector is highlighted by these review studies.

A few systematic reviews also take account of earnings management (EM) and financial performance trends in the hotel industry. Gonçalves et al. (2024) follow the trajectory of EM evolution and its drivers, while Nurwitasari et al. (2023) combine the most recent evidence on economic performance. These studies demonstrate how hotels strike a balance between reporting choices and disclosure to address performance signals. Given that the industry is becoming more regulated and consistent, such outcomes are worthwhile information for academic research and applied financial regulation.

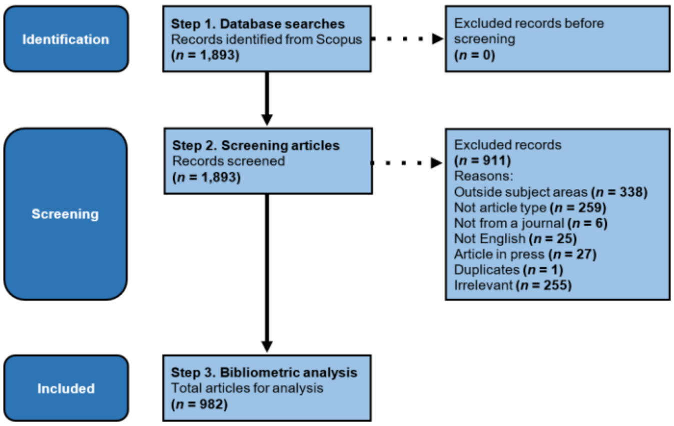
Current research on hotel financial performance is fragmented. Financial indicators are inconsistently defined – over-relying on revenue measures relative to profit and risk. Cross-domain integration is limited, with weak standards for comparability. The field's intellectual structure and theoretical bases are thinly mapped, and longitudinal tracking of productivity and influence is rare. To address these gaps, the review (i) identifies key and emerging themes, ties them to theory, and tracks productivity/impact; (ii) inventories the financial measures and techniques used; and (iii) highlights the most influential contributors and outlets and sets out the main gaps and future priorities.

3. Methods

This study employs a bibliometric research design to systematically map the body of knowledge regarding hotel financial performance measurement. Data were sourced from the Scopus database using this search query ((“financial performance” OR “economic performance” OR “profitability” OR “revenue management” OR “cost efficiency”) AND (“hotel industry” OR “hospitality industry” OR “hotels” OR “lodging sector” OR “hotel management”)). Database searches using abstracts, titles, and keywords were done to allow general coverage of the studies. Accuracy was employed when manually selecting the data set to portray economics, business, and social sciences research articles with the intention of duly balanced data for analysis. Tight filtering criteria were employed – English-language, end-stage publications, CSV format – to offer data integrity and compatibility with top-shelf bibliometric software, including Biblioshiny and VOSviewer.

Figure 1 shows that the study identified 1,893 records from the Scopus database. Using some key features of PRISMA guidelines (Page et al., 2021) in screening documents, a total of 911 records (48.1%) were excluded due to being outside the subject area (51.5% of exclusions), not being the correct article type (39.5%), or other minor factors such as language (3.8%), articles in press (4.1%), duplicates (0.2%), and irrelevant (13.5%). Lastly, 982 articles (51.9%) were available for analysis.

Figure 1: The bibliometric review process



Source: Authors' elaboration of the PRISMA framework

The review employs performance analysis and science mapping to chart the field of hotel finance research using bibliometric tools such as Bibliometrix (Aria & Cuccurullo, 2017) of R-package (RStudio Team, 2024) and VOSviewer version 1.6.20 (Van Eck & Waltman, 2024). Annual publications and average citations identify growth surges and the field's main outlets and authors. Influence is measured with h-, g-, and m-indices to distinguish sustained impact (h), highly cited peaks (g), and career-stage normalization (m). The h-index reflects steady, broad-based impact across multiple papers (Hirsch, 2005), whereas the g-index gives extra weight to profiles driven by a few highly cited works (Egghe, 2006). Only top authors are measured by the m-index, which normalizes career length and makes it possible to compare scholars at different stages of their careers more fairly (Hirsch, 2005). Meanwhile, conceptual mapping, which utilizes authors' keywords, includes a thematic map, trend topics, and thematic evolution to identify how these themes emerge, expand, and reconfigure over time.

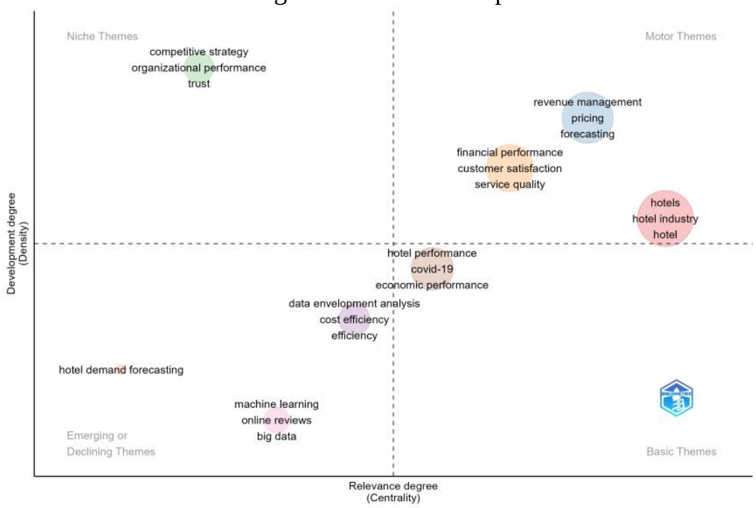
Author keywords from the co-word analysis were mapped to a predefined hotel-finance dictionary. The match produced the dataset's most commonly used metrics and methods. Dominant theoretical frameworks were determined via co-citation analysis in VOSviewer: cited references were exported, mapped to a predetermined list of relevant theories, and tabulated to produce frequency counts of the leading frameworks. Without necessitating a thorough systematic review of the entire dataset, a targeted narrative synthesis of the ten most recent articles was used to identify research gaps and future directions.

4. Results

4.1. Key themes and emerging trends in the literature on hotel financial performance measurement

The upper-right quadrant presents themes such as revenue management, pricing, and forecasting, clustered with financial performance and service quality (see Figure 2). This grouping indicates that current work directly links pricing and forecasting to outcomes such as ADR/RevPAR and GOP. At the same time, efficiency-oriented analytics (data envelopment analysis, cost/efficiency, and economic performance) and COVID-19 occupy a transitional zone near the centre, feeding into performance work without yet being dominant.

Figure 2: Thematic map

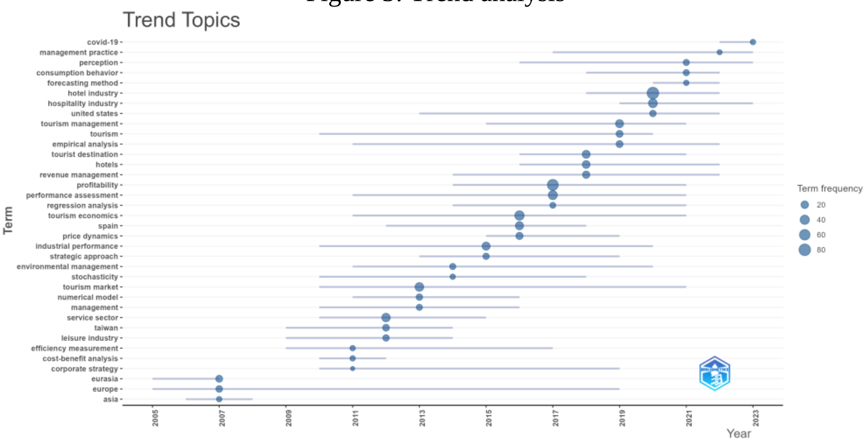


Source: Scopus data analysed using Bibliometrix

On the margins, mature but field-specific topics (competitive strategy, organizational performance, and trust) act as "niche themes", whereas hotel demand forecasting, machine learning, online reviews, and big data fall in the "emerging/declining" quadrant – suggesting growing but still under-integrated, data-driven lines that could become the next wave of revenue and profitability research.

The trend-topics timeline in Figure 3 indicates that hotel-finance research evolved from early cost–efficiency and regional lenses (e.g., efficiency measurement, cost-benefit analysis, corporate strategy, and geographic tags such as Asia/Europe) in the mid-2000s toward operational and market themes in the 2010s (tourism market, numerical model, stochasticity, industrial performance, and price dynamics). After 2016, the largest bubbles are revenue management, profitability, and regression analysis (peaking around 2017–2019), indicating a pivot from descriptive topics to pricing and results that drive ADR/RevPAR and GOP. Since 2019, new bursts – encompassing forecasting methods, management practices, perception/consumption behaviour, and COVID-19 – have pushed the literature toward forecasting-led decisions under demand shocks, with implications for ADR/RevPAR and GOP.

Figure 3: Trend analysis



Source: Scopus data analysed using Bibliometrix

4.2. Most commonly used financial metrics and analytical and methodological approaches to financial performance

RevPAR, ADR, and occupancy indicators lead the top hotel financial metrics, followed by profit efficiency metrics, such as GOPPAR, NOI, and flow-through (see Table 1). Competitive price sensitivity (RGI, elasticity, RevPAR index) closes the list. On the other hand, dynamic pricing tops the list among the analytical and methodological approaches to financial performance, directly targeting RevPAR/ADR. It is followed by panel-data regression for driver identification and benchmarking, as well as efficiency frontiers (DEA/SFA) for operational productivity. Meanwhile, SEM/PLS-SEM capture latent service constructs that feed financials, and machine-learning forecasts support near-term demand and rate decisions. Meanwhile, hedonic and conjoint models quantify willingness-to-pay, the balanced scorecard anchors a multi-KPI strategy, and trend/seasonality decomposition provides the forecasting baseline.

Table 1: Most common hotel financial metrics and analytical and methodological approaches to financial performance

Rank	Hotel financial metrics	Rank	Analytical and methodological approaches to financial performance
1	Revenue per available room (RevPAR)	1	Dynamic pricing
2	Average daily rate (ADR)	2	Panel-data regression
3	Occupancy rate	3	Data envelopment analysis
4	Gross operating profit per available room (GOPPAR)	4	Structural equation modelling (SEM)/partial least square (PLS)-SEM
5	Net operating income (NOI)	5	Machine learning forecasts
6	Flow-through	6	Stochastic frontier analysis
7	Gross operating profit (GOP)	7	Balanced scorecard and benchmarking
8	Revenue generation index (RGI)	8	Hedonic pricing
9	Price elasticity of demand	9	Conjoint/choice modelling
10	RevPAR index	10	Trend and seasonality decomposition

Source: Authors' research

4.3. Most influential authors and journals

Zvi Schwartz is the most productive researcher in this field, with 33 publications and the highest h- and g-indices of 16 and 25, respectively (see Table 2). Ming-Hsiang Chen follows with a g-index of 12 and 12 articles. Following closely is Anna Mattila with 615 citations and an h-index of 9. Seoki Lee ranks fourth with 1,428 citations, making him the most cited author. Other key authors who have made contributions to this field include Chih-Chien Chen, Rob Law, Sheryl Kimes, Mehmet Altin, Rubén Lado-Sestayo, and Enrique Claver-Cortés.

Table 2: Most influential authors

Rank	Author	h-index	g-index	m-index	TC	Articles
1	Zvi Schwartz	16	25	0.696	664	33
2	Ming-Hsiang Chen	9	12	0.563	558	12
3	Anna Mattila	9	11	0.429	615	11
4	Seoki Lee	8	11	0.4	1428	11
5	Chih-Chien Chen	8	10	0.4	215	10
6	Rob Law	7	10	0.333	215	10
7	Sheryl Kimes	7	9	0.28	576	9
8	Mehmet Altin	7	8	0.7	161	8
9	Rubén Lado-Sestayo	7	7	0.7	204	7
10	Enrique Claver-Cortés	7	7	0.368	359	7

TC = Total citations
Source: Scopus data analysed using Bibliometrix

Meanwhile, the *International Journal of Hospitality Management* stands out as the leading journal in this research area (see Table 3). It scores 48 on the h-index scale, 81 on the g-index scale, and has a total of 7,124 citations. The *International Journal of Contemporary*

Hospitality Management garnered the second most popular journal. It has an h-index of 30, a g-index of 52, and a total citation count of 2,952. *Tourism Management* is the third most popular journal, with a total citation number of 3,189 and an h-index of 34. Other notable journals in this field also include the *Cornell Hospitality Quarterly*, *Journal of Hospitality and Tourism Research*, *Tourism Economics*, *Cornell Hotel and Restaurant Administration Quarterly*, *Journal of Revenue and Pricing Management*, *Journal of Business Research*, and *Sustainability (Switzerland)*.

Table 3: Most impactful journals

Rank	Source	h-index	g-index	TC
1	International Journal of Hospitality Management	48	81	7,124
2	International Journal of Contemporary Hospitality Management	30	52	2,952
3	Tourism Management	22	34	3,189
4	Cornell Hospitality Quarterly	18	34	1,210
5	Journal of Hospitality and Tourism Research	18	30	924
6	Tourism Economics	17	27	884
7	Cornell Hotel and Restaurant Administration Quarterly	15	24	861
8	Journal of Revenue and Pricing Management	13	26	755
9	Journal of Business Research	12	15	774
10	Sustainability (Switzerland)	11	16	325

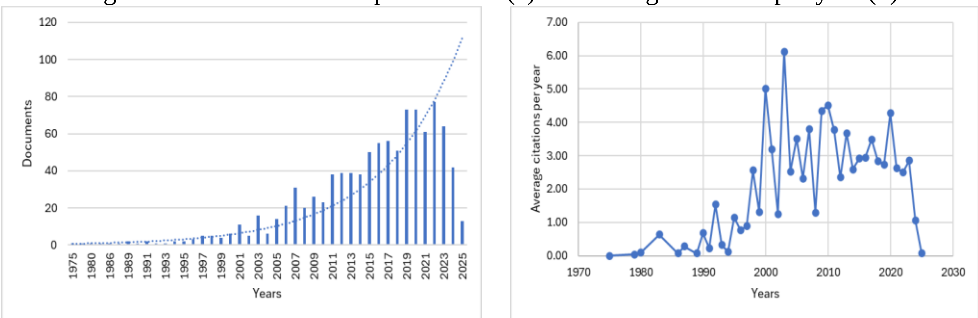
TC = Total citations

Source: Scopus data analysed using Bibliometrix

4.4. Evolution of research on hotel financial performance

Annual publications on hotel financial performance rose slowly until the late 2000s, then accelerated sharply through the 2010s, peaking around 2018–2021 at roughly 70–80 papers per year (See Figure 4). Output dips from 2022 to 2025. On the other hand, the highest average yearly citation was achieved between 2000 and 2010. Moreover, the figure shows that average yearly citations were quite low between the mid-1970s and the mid-1980s. Abruptly, a very strong spike happened in the 1990s and peaked in the early 2000s. From this peak, citation averages move up and down but mostly remain at a higher level than during previous decades.

Figure 4: Annual scientific productions (a) and average citations per year (b)

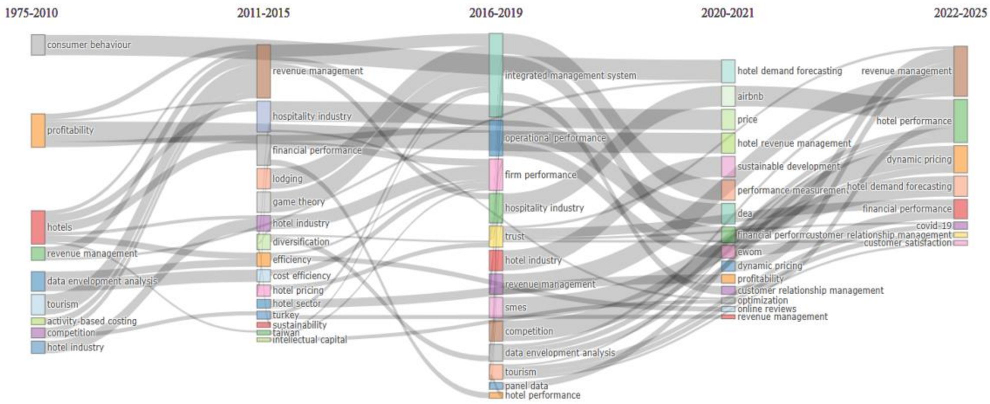


(a) (b)

Source: Authors' elaboration

From 1975 to 2010, the field was anchored by consumer behaviour, profitability, hotels, and early revenue management. From 2011 to 2015, it centred on revenue management within the hospitality industry and managerial/performance themes. From 2016 to 2019, it shifted its focus toward management/control/performance measurement, as well as firm performance. In 2020–2021, pandemic-era work concentrates on hotel demand forecasting, ADR, hotel revenue management, and the rise of Airbnb. From 2022 to 2025, the stream consolidates around revenue management, hotel performance, dynamic pricing, demand forecasting, financial performance, and persistent COVID-19 threats – showing a shift to predicting- and pricing-intensive performance research.

Figure 5: Thematic evolution of global research on hotel financial performance



Source: Scopus data analysed using Bibliometrix

4.5. Dominant theoretical frameworks

Table 4 presents the dominant theories used in the literature. The resource-based view (Barney, 1991; Wernerfelt, 1984) tops in the list and argues that hotels with distinctive, hard-to-imitate assets – such as brand strength, prime location, superior RMS/CRM know-how, and a service-centric culture – convert those advantages into higher RevPAR, stronger GOPPAR, and healthier margins. Agency theory (Fama, 1980; Jensen & Meckling, 1976) follows the list and explains how aligning incentives across owners, operators, and franchisees reduces agency costs and profit volatility, thereby improving the GOP and ROA/ROE. Market orientation (Kohli & Jaworski, 1990; Narver & Slater, 1990) ranks third and closes the loop on demand by continuously sensing guest needs and competitor moves, and responding with targeted offerings and pricing. Market-oriented hotels raise willingness-to-pay and capture demand, driving ADR, occupancy, and RevPAR growth. Other theories that support the research landscape also include the service-profit chain (Heskett et al., 1994), yield management (Belobaba, 1989; Littlewood, 1972), prospect theory (Kahneman & Tversky, 1979), capital structure (Modigliani & Miller, 1963; Myers & Majluf, 1984), transaction cost economics (Coase, 1937; Williamson, 1981), dynamic capabilities (Teece et al., 1997), and the natural resource-based view (Hart, 1995; Hart & Dowell, 2011).

Table 4: Dominant theories and frameworks in this field

Rank	Theory/framework	Key proponents	Implications for hotel financial metrics
1	Resource-based view	Barney (1991); Wernerfelt (1984)	Ties unique assets (brand, location, RMS) to superior RevPAR and GOPPAR
2	Agency theory	Fama (1980); Jensen and Meckling (1976)	Owner–operator/franchise incentives shape GOP
3	Market orientation	Kohli and Jaworski (1990); Narver and Slater (1990)	Demand sensing improves pricing and mix
4	Service-profit chain	Heskett et al. (1994)	Employee engagement and service quality drive guest satisfaction and loyalty, which translate into higher revenue (RevPAR) and profitability (GOPPAR).
5	Yield management	Belobaba (1989); Littlewood (1972)	Core driver of RevPAR via protection levels/bid prices
6	Prospect theory	Kahneman and Tversky (1979)	Framing/fees/reference prices affect conversion & RevPAR
7	Capital structure	Modigliani and Miller (1963); Myers and Majluf (1984)	Financing preferences shape investment paths and financial performance
8	Transaction cost economics	Coase (1937); Williamson (1981)	Governance/contracting choices impact costs and margins
9	Dynamic capabilities	Teece et al. (1997)	Explains financial performance gains from fast pricing/channel pivots
10	Natural resource-based view	Hart (1995); Hart and Dowell (2011)	Eco-capabilities cut cost, can lift ADR

Source: Authors' research

4.6. Major research gaps and future directions in hotel financial performance measurement

Table 5 presents the persistent gaps extracted from the 10 most recent articles in the dataset. The poor external validity of research on hotel financial performance is caused by several factors, including the lack of detailed data and common standards, the over-reliance on simple ratio analysis, the ambiguity of revenue management roles (especially in small or independent hotels), the underutilization of sophisticated demand/price forecasting, and organizational barriers to putting strong metrics into practice. Important questions still surround the profitability and loyalty impacts of hidden offers, the role of reputation in pricing power and demand elasticity, the impact of governance and entrepreneurial orientation, the relationship between ESG and performance, and the sparse empirical testing of novel theories in hospitality settings.

Table 5: Major research gaps extracted from the 10 most recent articles

Research gaps	Illustrative sources
Limited access to detailed hotel data (ADR, occupancy, RevPAR, costs) and high dependence on secondary data.	Boo et al. (2025); Toker (2025)
No shared standards or benchmarks for hotel financial performance metrics	Boo et al. (2025); Toker (2025)
Heavy reliance on generic ratio analysis in evaluating hotel financial performance	Toker (2025)
Unclear roles and reporting lines for revenue management in independents and small hotels	Sun et al. (2025)
Underutilization of advanced techniques and applications for demand and price forecasting	Rojas and Jatowt (2025)
Uncertain impact of hidden offers on the hotel's profitability and	Zhao et al. (2025)

customer loyalty	
Organizational enablers and barriers to metric adoption	Boo et al. (2025)
Lack of external validity and generalizability	Magnini et al. (2025); Peco-Torres et al. (2025); Rojas and Jatowt (2025); Sun et al. (2025)
Underexplored influence of governance and entrepreneurship orientation on the performance of hospitality enterprises	Lun et al. (2025)
Unclear link between ESG and hotel performance metrics	Lu et al. (2025); Magnini et al. (2025)
The role of reputation on the price power and demand elasticity of hotels	Peco-Torres et al. (2025)
Lack of empirical testing of new theories and constructs in hospitality contexts	Anguera-Torrell and Nicolau (2025); Zhao et al. (2025)

Source: Authors' research

Meanwhile, Table 6 outlines the future directions extracted from the 10 most recent articles in the dataset. Future work should test whether flow-through (especially with PMS/RMS analytics and AI forecasting that uses web/holiday/weather data) outperforms traditional ratios, identify which RM structures and automation choices lift ADR/RevPAR/GOPPAR (and where), quantify the profitability and loyalty effects of opaque deals, pinpoint organizational drivers of NRevPAR/RevPAC adoption, verify generalizability across markets and ownership forms, and examine how board traits/entrepreneurial orientation, property-level ESG, and online reputation shape pricing power, demand elasticity, and firm outcomes.

Table 6: Future research directions synthesized from the 10 most recent articles

Future research questions	**Illustrative sources**
How does flow-through change over time and across lodging vs. F&B, and does it beat traditional ratios at predicting GOPPAR?	Toker (2025)
Do PMS/RMS integrations and analytics make flow-through more accurate and useful than manual methods?	Boo et al. (2025); Toker (2025)
How do different RM structures (to GM, under Sales/Marketing, or none) affect ADR/RevPAR/GOPPAR, and when?	Sun et al. (2025)
When do AI-enabled RMS pay off in SMEs/independents, and which RM tasks should be automated vs. human-led?	Boo et al. (2025); Sun et al. (2025)
Do probabilistic/transformer forecasts with web, holiday, and weather data improve decisions and financial KPIs vs. point forecasts?	Rojas and Jatowt (2025)
How do opaque deals impact profit, channel cannibalization, guest mix, and loyalty, and what drives these effects?	Zhao et al. (2025)
Which organizational factors best predict NRevPAR/RevPAC adoption and its impact on market share and GOPPAR?	Boo et al. (2025)
Do results on RM structure, forecasting, and metric adoption generalize across countries, ownership types, and chains vs. independents?	Magnini et al. (2025); Peco-Torres et al. (2025); Rojas and Jatowt (2025); Sun et al. (2025)
How do board traits and entrepreneurial orientation shape financial performance, and through which RM/innovation channels?	Lun et al. (2025)
How do property-level ESG actions and online reputation influence price power, demand elasticity, and firm outcomes?	Lu et al. (2025); Magnini et al. (2025); Peco-Torres et al. (2025)

Source: Authors' research

5. Discussion

A substantial core cluster of works about pricing, forecasting, and revenue management is revealed by a bibliometric analysis of research on hotel financial performance (Calinao et al., 2022; Lentz et al., 2021; Wu et al., 2022). Big data and machine learning have become the focus of attention in the modern era (Farag et al., 2022; Pereira & Cerqueira, 2022). However, because continuously updated profitability metrics are available for benchmarking, incorporating data analytics tools into revenue management can facilitate better mix, pricing, and inventory decisions in volatile environments. Since 2019, a growing trend in the literature has emerged, with both the supply and demand sides making decisions based on forecasts (Heo et al., 2023). As a result of COVID-19, accurate forecasts became the decision-making powerhouse for hotels (Binesh et al., 2024; Zheng et al., 2024), where times that matched pricing and inventory with reliable projections resulted in enhanced ADR and RevPAR and consequently boosted GOP.

Hotels typically measure RevPAR, ADR, occupancy, and GOPPAR to understand revenue efficiency and adjust prices accordingly to demand (Bianco et al., 2023; Widz et al., 2022). Recently, hotels have begun to track net operating income (NOI) alongside RevPAR and ADR, and deploy dynamic pricing that reacts to booking pace and competitor moves – not just seasonality. Ampountolas et al. (2021) detail how revenue managers integrate NOI targets into pricing rules, while Farag (2022) shows the adoption of market-responsive algorithms in competitive urban markets. This change of focus responds to the hospitality industry's dependency on instant analytics and algorithmic forecasting for revenue management, decision-making to maximize operations, and responding promptly to market movements. Hospitality accounting analysis has also evolved from being opinion-dependent and based on fixed ratios to employing dynamic and predictive models, thereby facilitating better responsiveness, personalization, and sustained profitability in the industry.

Among academic writers who have had a major influence on hotel financial performance studies, Zvi Schwartz and Ming-Hsiang Chen are widely acknowledged as two of the most productive authors with strong citation impacts, due to their pioneering role in revenue management and financial forecasting. These patterns suggest that future scholarship should build on revenue-management and forecasting foundations – for example, by integrating cost-sensitive metrics (e.g., NOI/flow-through) with advanced predictive methods – and seek collaboration or citation linkages with leading author networks to enhance theory refinement and methodological rigor. The International Journal of Hospitality Management and the International Journal of Contemporary Hospitality Management are considered the most influential journals based on bibliometric impact indicators. The result also indicates that these top journals are the most strategic outlets for disseminating hospitality-finance work that bridges research and practice, guiding authors on where to target their submissions and informing practitioners on where to look for evidence-based insights on pricing and financial decision-making.

From 1975 to 2010, scholarship progressed from consumer behaviour and basic profitability toward the foundations of revenue management (O'neill & Mattila, 2007; Schwartz, 2006). In 2011–2015, revenue management was framed within managerial and performance perspectives (Bilgihan et al., 2014), and in 2016–2019 period, the focus shifted inside the firm – strengthening management control and KPIs (RevPAR, ADR, GOPPAR) to connect operations with firm-level outcomes (Kim et al., 2019). ADR resilience, short-horizon demand forecasting, and Airbnb's competitive pressures were given top priority during the pandemic years (Ampountolas, 2019; Gibbs et al., 2018). Predictive demand modelling and dynamic pricing have been the focus of the field since 2022, while still considering COVID-related uncertainty (Anguera-Torrell & Nicolau, 2025). The literature clearly moves beyond descriptive metrics toward an optimization-driven, profit-centric approach that integrates forecasting and pricing with cost-to-serve, channel mix, and risk-adjusted flow-through to support stronger financial decision-making.

The literature has also leaned heavily on a small set of dominant lenses – resource-based view, agency theory, market orientation, revenue/yield management, transaction cost economics, capital structure, dynamic capabilities, and the (natural) RBV. These frameworks provide powerful explanations of capability building, governance, pricing, and risk (Franco et al., 2020; Salama, 2021). However, their repeated use risks conceptual path dependence, keeping inquiry anchored to revenue and control logics. By contrast, behavioural and social perspectives – such as social identity theory, and social learning – remain underused. Broadening the toolkit would enrich explanations of how pricing norms diffuse, how frontline culture shapes compliance with RMS policies, and how guests' reference prices and identities drive mix and margin – allowing our study to link capability and governance choices with psychologically realistic demand responses and, ultimately, profit-centric KPIs.

Due to the scarcity of firm-level data and the lack of harmonized metrics, studies still tend to rely on RevPAR and ADR rather than on profit-oriented indicators such as net profit margin or CPAR (Boo et al., 2025; Toker, 2025). The impact of opaque offers on profit and loyalty also remains unclear (Zhao et al., 2025). Moreover, links among pricing power, demand elasticity, and firm outcomes – and their interplay with governance, entrepreneurial orientation, ESG practices, and online reputation – are underexplored and lack external validity (Anguera-Torrell & Nicolau, 2025; Lu et al., 2025; Lun et al., 2025; Magnini et al., 2025; Peco-Torres et al., 2025).

6. Conclusion

This bibliometric analysis has mapped the intellectual landscape of measuring hotel financial performance, identifying the dominant themes, leading authors, and methods that influence the field. The literature focuses on pricing, forecasting, and revenue management, with a recent shift toward big data and machine learning, as well as a growing emphasis on profit-oriented practices. RevPAR, ADR, occupancy, and GOPPAR were the dominant financial metrics used in the hotel industry. Most papers also relied on a small set of dominant theories, such as resource-based view, agency theory, market orientation, and yield management. Key gaps persist – scarce firm-level data and uneven metrics keep studies tied to RevPAR/ADR, the effects of opaque offers on profit and loyalty are unclear, and links among pricing power, elasticity, governance, ESG, and reputation lack external validity.

This study advances the hotel financial-performance literature. However, it is limited by the reliance on Scopus, whose English-language bias may have reduced the retrieval of relevant non-English and non-indexed works. Despite the added document-level checks in determining the most commonly used financial metrics and dominant frameworks, the dictionary-based audit of titles, abstracts, keywords, and cited references, rather than full texts, may miss context-specific usage and yield frequency counts that reflect mentions rather than validated operational use of metrics. Moreover, relying on very recent papers may overstate short-term trends. Future work can test newer forecasting methods against profit-based metrics (e.g., GOPPAR, flow-through), examine opaque offers with loyalty status in the model, and use more diverse empirical approaches.

CRediT author statement

Alma Arnejo: Conceptualization, Data curation, Formal analysis, Investigation, Visualization, Writing – original draft, Writing – review & editing. **Melvin Sarsale:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Visualization, Writing – review & editing.

Declaration of generative AI in the writing process

During the preparation of this manuscript, the authors complementarily used Grammarly and ChatGPT to improve the fluency, clarity, and quality of the manuscript. After using the service, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

Conflict of interest

The authors declare no conflict of interest.

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Topic modeling in hospitality and tourism research: Application areas, business insights, and managerial implications

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Abstract

Purpose – Topic modeling (TM) explores customer experience and behaviors from large volumes of textual data, such as online reviews uncovering (dis)satisfaction cues often overlooked by hospitality managers. Despite its potential, TM application in hospitality research is limited compared to other social science methods. This paper aims to investigate the scope of TM research in the hospitality domain and contribute to the understanding of the areas where it can be effectively applied, the purposes it can serve, and the types of problems it can address. **Methodology** – The research methodology is rooted in the systematic literature review – 40 relevant papers were collected and analysed to identify the areas of hospitality where TM is mostly applied, business insights derived from TM application, and commonly utilised TM approaches. **Findings** – TM research in hospitality is conducted in five research areas: accommodation and lodging, food and beverages, attractions and events, nature-based tourism, and travel services. Researchers apply TM to gain nine different business insights, such as dissatisfaction drivers, segment-based preferences, sentiments, preference changes over time, service quality perception, or underexplored areas. **Implications** – TM-based research provides actionable recommendations for the enhancement of managerial practices within the hospitality industry, such as promotion and destination management, service improvements, and reduction of overtourism.

Keywords: topic modeling, natural language processing, hospitality, user-generated content
JEL classification: Z3, C55, C49

Modelovanje tema u istraživanjima iz oblasti ugostiteljstva i turizma: Oblasti primene, poslovni uvidi i implikacije

Sažetak

Svrha – Modelovanje tema (*topic modeling* – TM) istražuje iskustvo i ponašanje potrošača analizom velikih količina tekstualnih podataka, poput onlajn recenzija. Menadžeri u ugostiteljstvu često previđaju ovako otkrivene znakove (ne)zadovoljstva. Uprkos potencijalu, primena TM u ugostiteljstvu je ograničena u poređenju sa drugim metodama društvenih nauka. Rad ima za cilj da ispita TM istraživanja u oblasti ugostiteljstva i doprinese

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razumevanju oblasti u kojima se TM može efikasno primeniti i poslovne probleme koje može adresirati. **Metodologija** – Sistematskim pregledom literature identifikovano je 40 relevantnih radova koji su analizirani kako bi se prepoznale oblasti ugostiteljstva u kojima se TM najviše primenjuje, poslovni uvidi izvedeni primenom TM i najčešće korišćeni pristupi. **Rezultati** – Istraživači primenjuju TM u pet istraživačkih oblasti: smeštaj, hrana i piće, atrakcije i događaji, turizam zasnovan na prirodnim resursima i putničke usluge. Devet različitih vrsta poslovnih uvida izvodi se primenom TM, poput faktora koji utiču na nezadovoljstvo, preferencije po segmentima, sentiment, promene u preferencijama tokom vremena, percepcija o kvalitetu usluga ili nedovoljno istražena područja. **Implikacije** – TM istraživanja pružaju preporuke za unapređenje ugostiteljsko-menadžerske prakse, poput promocije, unapređenja usluga ili smanjenja prekomernog turizma.

Ključne reči: modelovanje tema, obrada prirodnog jezika, ugostiteljstvo, korisnički generisani sadržaj
JEL klasifikacija: Z3, C55, C49

1. Introduction

The Internet and social media have transformed the way people seek and exchange hospitality-related information. Electronic word-of-mouth advertising has replaced the traditional form (Gruen et al., 2006; Liu et al., 2024), allowing individuals to consult online platforms for insights before making purchases or travel-related decisions. After consumption, people share personal experiences in the form of online reviews and ratings. Social media has thus evolved into a valuable channel for capturing the voice of the customers. It offers hospitality managers and marketers valuable input for strategic decisions, improvement of customer engagement, and service offerings. However, traditional analytical approaches cannot handle the scale and complexity of its data (Laureate et al., 2023). Advanced computational resources are required for dealing high data volume and the prevalence of unstructured textual data on social media, estimated at over 80% of the data (Anandarajan et al., 2019), requires the application of artificial intelligence (AI) for effective processing, such as natural language processing (NLP) techniques. In response, techniques and approaches for handling and analysing social media data continue to evolve (Grljević & Marić, 2024). With advancement of AI it becomes imperative for studies to transition toward examining actual customer experiences and measure their real behaviours (Gursoy & Cai, 2025), contrary to traditional use of qualitative methods to gain insights about customer perception (Gursoy & Cai, 2025) or use of hypothetical scenarios to simulate real-life conditions (Law et al., 2024; Xu et al., 2023). To support this shift, this study focuses on topic modeling (TM), a method that enables researchers to analyse actual customer-generated content and derive insights grounded in authentic behavioural data.

TM is an NLP technique applied to a collection of documents to uncover hidden thematic structures within data collection, referred to as corpus, aiding automated information summarization and data comprehension (Maier et al., 2018). Documents can refer to any text, such as one piece of text published on social media platform. TM operates under the assumption that documents are expressed using a limited number of core concepts, called topics. The objectives of TM are to identify topics, to indicate connections between topics, and to track their evolution over time. It is beneficial for monitoring trends, sentiments, rumours, and the factors influencing people's consumption of services or products (Grljević & Marić, 2024). In hospitality, TM is particularly valuable as it often reveals insights into customer experience that are otherwise missed or neglected by marketers (Li et al., 2018; Shafqat & Byun, 2020). It allows for identification of factors contributing to customer satisfaction and root causes of dissatisfaction (Grljević et al., 2025) enabling hospitality managers to use the obtained insights for improvement of customer experience, satisfaction, and loyalty (Nguyen & Ho, 2023).

TM can be used as a stand-alone technique for exploratory or descriptive analysis (Banks et al., 2018; Gao et al., 2022; Nguyen & Ho, 2023), or as part of a more comprehensive AI-based systems, such as a recommendation system (Shafqat & Byun, 2020). However, Papilloud and Hinneburg (2018) found that literature on TM application in hospitality is limited compared to other methods applied in social research. This is due to the present gap in knowledge and skills required to effectively employ it in hospitality-related research. The gap encompasses areas like programming, statistics, and the fundamentals of mathematical modeling (Papilloud & Hinneburg, 2018), indicating the need for stronger interdisciplinary collaboration among researchers. In order for this valuable technique to gain broader practical adoption, a more mature and systematic body of research is needed that will provide researchers understanding of the areas where TM can be effectively applied, the purposes it can serve, and the types of problems it can address. To the best of our knowledge, no previous studies has specifically focused on the applicative use of topic modeling in the hospitality sector. This motivated the research presented in the current study, aiming to characterise TM research in hospitality sector by assessing the scope of TM applications in the hospitality domain and its potential effect on the sector. This distinguishes our work from previous literature reviews that primarily focus on the broader fields, such as artificial intelligence (Gursoy & Cai, 2025; Kim et al., 2025; Law et al., 2024) or machine learning (Núñez et al., 2024) and their applications in hospitality and tourism, rather than on detailed examination of single technique, such as topic modeling and how it is employed as a tool for business knowledge discovery.

The following research questions are defined.

RQ1: What are the areas of hospitality where TM is most applied?

RQ2: What business insights can be derived from TM application in hospitality domain?

RQ3: Which TM approaches (algorithms) are mostly utilized in the hospitality research?

The paper is structured as follows. The second section presents research methodology. Results and discussion are presented in the third section and structured to answer each of the proposed research questions. Practical implications are presented in the fourth section, while concluding remarks are presented in the final section of the paper.

2. Methodology

The research methodology is rooted in a systematic literature review (SLR) (Kitchenham & Charters, 2007). SLR introduces research rigor and allows for obtaining insights that are aligned with the proposed research questions. In this paper, SLR is utilized to comprehensively analyze and document the scientific development of TM in hospitality research. Kitchenham and Charters (2007) suggest three stages of SLR, followed in this paper.

Phase 1 refers to planning the SLR process, where the need, scope, and objectives of SLR are examined. This includes decisions on the academic databases that will be used for literature search and the criteria for inclusion and exclusion of papers from the SLR. This phase results in a search strategy protocol.

Phase 2 is dedicated to conducting an SLR during which the literature is searched by the strategy set in the previous phase. Defined inclusion and exclusion criteria filter studies to retain only the most relevant ones, which are further assessed for quality.

Phase 3 refers to reporting on the results, which are presented in Section 3 of this paper. Conclusions are drawn from the results. Both results and conclusions are aligned with the proposed research questions.

2.1. Selection criteria

Articles were collected through a search of the Web of Science (WoS) and Scopus literature databases. These databases are selected as they comply with high-quality criteria and are cross-linked with many other databases. According to Kirilenko et al. (2021), TM-based research gained momentum in 2019. Motivated by their findings, the search was restricted to peer-reviewed articles published in the five years span (2019-2023) in scientific journals, while the paper collection was conducted in January 2024. The language is restricted to English as the predominant language in scientific literature.

To identify relevant studies, search keywords are set as a combination of terms (including synonyms, alternative spellings, and related terms) with Boolean operators. "Topic modeling" or "topic modelling" is the main concept. The application domains are combined with the main concept using the OR operator: "tourism" OR "destination marketing" OR "tourist perceptions" OR "hospitality" OR "attractions" OR "tourists' preferences" OR "customer satisfaction" OR "destination management".

The search is narrowed to the categories that are in the research focus. In WoS, the selected categories are: Hospitality Leisure Sport Tourism; Management; Business; Environmental Science; Environmental Studies; and Green Sustainable Science Technology. These six categories are also the predominant categories in which papers are published. Within selected categories, the search was further narrowed by filtering out subcategories not correlated with the hospitality industry, such as engineering, marine freshwater biology, toxicology, and geography. In Scopus, the selected categories included: Business, Management and Accounting; Social Sciences; Environmental Science; Economics, Econometrics and Finance; Decision Science; and Computer Science, given that this category was in the top three categories according to the number of published articles. The search resulted in 502 publications from WoS and 213 from Scopus.

2.2. Paper screening

SLR sought to identify articles where TM was employed to investigate some phenomena in the hospitality industry. A screening process was conducted to identify and exclude research that did not meet this criterion. Analysis of the articles not highlighting TM in the title or abstract indicated that researchers did not employ TM. These articles were excluded. A total of 81 articles from WoS and 110 articles from Scopus remained. An additional 54 WoS and 83 Scopus articles were removed following the inclusion and exclusion criteria presented in Table 1.

Table 1: Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Publications in the scope of hospitality	Publications out of hospitality scope
TM is a core method	TM is not a core method
TM is utilized to investigate phenomena in hospitality industry	TM is applied to categorize hospitality literature
The main data type is short text	The main data type is not short text
Non-COVID studies	COVID-related studies
Publications available through institutional subscriptions	Publications unavailable through institutional subscriptions

Source: Author's research

Upon analysing articles and applying these criteria, we identified: 1) Thirty-three articles are characterized as out-of-scope and irrelevant (18 WoS and 15 Scopus) as they focus on various unrelated topics, such as e-government, adaptive clothing customers, and mobile banking. 2) Fifteen articles (2 WoS and 13 Scopus) did not use TM as a core method. As TM represents one of the steps in their overall methodological framework, information and a detailed description of the methodology related to TM are omitted in these papers, as well as a more extensive interpretation of the results of TM. 3) Twenty-three articles (8 WoS and 15 Scopus) that used TM for literature review were excluded as their main focus is bibliometric or scientometric analysis rather than investigating specific hospitality phenomena. 4) Twenty-nine articles (11 WoS and 18 Scopus), although within the research scope, dealt with non-textual data types and were subsequently removed. 5) Twenty-five COVID-related studies (11 WoS and 14 Scopus) were excluded as they address atypical business conditions caused by the pandemic. The insights derived from these studies cannot be generalized to the typical conditions of the hospitality industry. 6) Twelve articles (4 WoS and 8 Scopus) could not be retrieved through institutional subscriptions and were not considered in the SLR.

The resulting papers overlapped in 14 articles, which were excluded. After the screening, 40 articles remained for the SLR, 27 WoS and 13 Scopus articles.

3. Results and discussion

Table 2 presents the resulting collection of studies with respective IDs used in this paper.

Table 2: Studies on TM application in hospitality domain

Publication reference	ID
(Sánchez-Franco & Aramendia-Muneta, 2023)	P1
(Nguyen & Ho, 2023)	P2
(Srinivas & Ramachandiran, 2024)	P3
(Gregoriades et al., 2023)	P4
(Zolfaghari & Choi, 2023)	P5
(Taecharungroj, 2023)	P6
(Shang et al., 2022)	P7
(Kwon et al., 2022)	P8
(Egger & Yu, 2022)	P9

(Shang & Luo, 2022)	P10
(Gao et al., 2022)	P11
(Wu et al., 2022)	P12
(Tang et al., 2022)	P13
(Garner et al., 2022)	P14
(Viñán-Ludeña & de Campos, 2022)	P15
(Wang et al., 2021)	P16
(Mirzaalian & Halpenny, 2021)	P17
(Twil et al., 2021)	P18
(Marcolin et al., 2021)	P19
(Kirilenko et al., 2021)	P20
(Luo et al., 2021)	P21
(Vargas-Calderón et al., 2021)	P22
(Sim et al., 2021)	P23
(Janssens et al., 2021)	P24
(Celuch, 2021)	P25
(Han & Yang, 2021)	P26
(Kar et al., 2021)	P27
(Park et al., 2020)	P28
(Luo et al., 2020)	P29
(Ding et al., 2020)	P30
(Sutherland & Kiatkawsin, 2020)	P31
(Shafqat & Byun, 2020)	P32
(Wen, et al., 2020)	P33
(Kwon et al., 2020)	P34
(Celata et al., 2020)	P35
(Aggarwal & Gour, 2020)	P36
(Hu et al., 2019)	P37
(Kim et al., 2019)	P38
(Zhang, 2019)	P39
(Sanchez-Franco et al., 2019)	P40

Source: Author's research

To answer the research questions authors extracted and analysed data from the collected studies on: a) social media platform used as a data source in the research, b) data focus indicating the content or the subject of collected data, and c) TM approach – an algorithm utilized to extract topics from the data collection. The results of the analysis are presented in the following subsections.

3.1. Corpus origins and data utilization in TM-based hospitality research

Table 3 presents information on social media and data focus with respective study references.

Table 3: Characteristics of TM-based hospitality studies

Social media	No. of studies	Data focus	References
TripAdvisor	6	accommodation reviews	P1, P12, P4, P11, P37, P19
	4	reviews of tourist localities or attractions	P18, P20, P29, P36
	7	reviews of natural sites	P5, P6, P7, P10, P13, P17, P32
Airbnb & Insideairbnb	8	reviews of private accommodation, lodging or short-term rentals	P1, P11, P24, P26, P30, P31, P35, P39
Agoda	1	reviews of hotel products and services	P2
	1	reviews of accommodation	P23
Booking	2	hotel reviews	P4, P22
Yelp	1	review of airline services	P3
	1	reviews of tourist attractions	P14
	1	hotel reviews	P40
	3	restaurant reviews	P8, P28, P34
AllergyEats.com	1	restaurant reviews	P33
Instagram	1	dark tourism	P9
Google reviews	1	reviews of natural sites	P32
Sina Weibo	1	reviews of natural sites	P16
DianPing	1	reviews of natural sites	P10
Ctrip	2	reviews of natural sites	P10, P21
Qunar and Baidu Travel	2	reviews of natural sites	P10, P21
Tongcheng Travel	1	reviews of natural sites	P21
Trustpilot	1	reviews of event services	P25
Twitter	2	reviews of tourist localities or attractions	P15
		service experience	P27
Skytrax	1	airline service reviews	P3

Source: Author's research

TM-based hospitality research utilizes data from 16 different social media platforms, with TripAdvisor being the most prominent data source (42.5%), followed by Airbnb and insideairbnb.com (20%), and Yelp (15%). Predominantly, authors retrieved data from one data source, while in 17.5%, more than one and a maximum of four different data sources are used (two: P1, P3, P4, P11, P32; three: P21; four: P10). The additional data source is introduced to achieve some specific research goals related to differences in language characteristics (P1, P32) or cultural variations (P4). The authors of one article do not report on data source P38.

Except for Instagram, Twitter, and Sina Weibo – a Chinese microblogging website, all social media are review platforms enabling users to freely express their opinion or reflect on personal customer experience. Therefore, the main data type used in hospitality research is online reviews. Authors also use narrative accompanying Instagram photos (P9) or microposts (P15, P16, and P27). These data types imply specific characteristics, such as shortness and colloquial writing style without respect to grammar or spelling, influencing the effectiveness of applied TM algorithms (Tang et al., 2014).

Data focus implies focused data collection on: accommodation, restaurants, localities, attractions, natural resources, or hospitality-related services.

3.2. Application areas of TM in hospitality research

The main data focus, presented in Table 3, indicates that TM-based hospitality research can be grouped into five general research areas: *Accommodation and lodging* (40% of studies), *Food and beverages* (10%), *Attractions and events* (22.5%), *Nature-based tourism* (22.5%), and *Travel services* (5%). Table 4 provides an overview of studies based on the identified research areas. These studies explore customers' preferences or perceptions within the respective hospitality topic. Preferences refer to how much customers appreciate, value, and notice various features of hospitality-related services or products. Customers' perception is associated with the sensory experience of the service or products.

Table 4: Areas of TM applications in hospitality research

Research areas	**No. of studies**	**References**
Accommodation and lodging	16	P1, P2, P4, P11, P12, P19, P22, P23, P24, P26, P30, P31, P35, P37, P39, P40
Food and beverages	4	P8, P28, P33, P34
Attractions and events	9	P9, P14, P15, P18, P20, P25, P29, P36, P38
Nature-based tourism	9	P5, P6, P7, P10, P13, P16, P17, P21, P32
Travel services	2	P3, P27

Source: Author's research

Accommodation and lodging-related research is closely associated with the analysis of tourists' preferences. Research focuses on the evaluation of customer experience by examining factors influencing (dis)satisfaction of customers (P1, P2, P11, P12, P19, P31, P37) or by evaluating the service quality of hotels or alternative accommodation and lodgings (P22, P30, P39). Some of the research explores variations of identified factors across hotel ratings (P11, P37), price levels (P11), room type (P26), customers' scores (P24, P39), seasonal changes (P30), or topic relevance across geographical segments – the spatial analysis (P35). Factors influencing customer satisfaction are explored in terms of building loyalty (P40) and revisit intention (P4). Authors of the P23 study differ in perspective as they measure the influence of listing descriptions on listing demand.

Research related to *food and beverages* naturally builds upon analysis of customers' perception and their sensory experience. Authors explore customers' perception regarding specific phenomena within the hospitality industry, such as perception of green restaurant practices (P28), luxury consumption in restaurants (P8), or restaurants accommodating allergen-free requests (P33). By researching customer perception, the authors aim to identify key factors influencing customer (dis)satisfaction. Only one research tracks changes in customer perception over time (P28).

Attractions and events-related studies adopted a more exploratory approach. Authors use TM to uncover general or topics most commonly discussed among visitors of various tourist attractions, such as cultural heritage and historic sites (P9, P18, P20, P38), entertainment and leisure sites (P29), or museums (P20). By examining topics and extracting new insights and knowledge from topics, researchers strived to contribute to and enhance managerial practices in the hospitality industry in the following manner: a) *Monitoring changes in topics over time*, which offers practical insights for destination marketing and management; e.g., P38 identified the visitors of Jeju Island UNESCO heritage sites became less satisfied with visiting heritage sites and began seeking more adventurous experiences in these areas over time; b) C*ustomer satisfaction monitoring*, which provides insights valuable for effective customer dissatisfaction management and helps improve overall customer experience (P18, P20, P36); furthermore, it is closely related to c) *Identification of sentiments* associated with tourists' experience (P18, P14, P15). Authors in P14 study explore worldwide attractions to understand short-term happiness and factors influencing travel satisfaction, providing insights into memorable experiences, while in P15, authors analyzed Granada's tourism, considering places, events, restaurants, and hotels. Their study incorporates a seasonal perspective and offers insights for practitioners and travellers by providing an overview of popular places, major attractions, and valuable information for managing tourism products and targeting influential users for joint promotional activities (P15). One study addresses the events industry by investigating customer sentiments related to the experience of purchasing tickets from a third-party platform to improve overall customer experience (P25).

Research related to *nature-based tourism* explores topics regarding natural reserves and national parks (P5, P16, P17, P21), recreational and outdoor activities (P6, P7, P10), and less explored destinations, such as Jeju Islands' under-emphasized tourist spots (P32) or glacier tourism destinations (P13). These studies focus on the exploration of visitors' preferences and perceptions, with the outcomes of TM carrying managerial implications. Authors of P32 explored possibilities of enhancing recommendations of less explored destinations, while authors of P17 analysed possibilities of application of TM and sentiment analysis for destination marketing and evaluation of destination loyalty. Three studies particularly differ in their perspective of tourists' perception as authors of P7 explore seasonal changes in attributes affecting tourists' perception, P16 analyse differences in perception among on-site and after-trip groups of tourist reviews, while in P10 authors analyse cultural differences in tourist perception through most-talked about topics in reviews of national and international tourists.

Studies related to travel services contribute to improved understanding of customer preferences. Authors of the P3 aim to identify key factors affecting passenger (dis)satisfaction in the airline industry according to each of the service aspects. In P27, authors recognize the importance and impact of factors influencing customer service experiences across different zones of India. The authors highlighted the need for adopting approaches specific to locations or zones when managing customer services or tailoring customer service strategies.

3.3. Business insights supported by TM in hospitality research

Analysis of studies within identified research areas also provides an understanding of the business insights that can be obtained through TM, which can further be utilized for addressing business problems. These insights could be grouped into nine categories, as presented in Table 5.

Table 5: Summary of TM-supported business and research topics

Analytical topic	**No. of studies (%)**	**Research area**	**References**
Identification of factors influencing customer satisfaction and dissatisfaction	16 (40%)	Accommodation and lodging	P1, P2, P4, P11, P12, P19, P31, P37, P40
		Food and beverages	P28, P8, P33
		Attractions and events	P18, P20, P36
		Travel services	P3
Segment-based analysis of perceptions and preferences	8 (20%)	Accommodation and lodging	P11, P24, P26, P35, P37, P39
		Nature-based tourism	P10, P16
Sentiment and emotion analysis of visitor experiences	5 (12.5%)	Attractions and events	P14, P15, P18, P25
		Nature-based tourism	P17
Monitoring changes in customer preferences over time	5 (12.5%)	Accommodation and lodging	P30
		Food and beverages	P28
		Attractions and events	P38
		Nature-based tourism	P7, P16
Evaluation of service quality and performance	5 (12.5%)	Accommodation and lodging	P22, P30, P39
		Travel services	P3, P27
Enhancement of destination marketing and product positioning	4 (10%)	Nature-based tourism	P17, P32
		Attractions and events	P15, P38
Identification of hidden or less explored areas and attractions	2 (5%)	Nature-based tourism	P13, P32
Optimization of digital content	1 (2.5%)	Accommodation and lodging	P23
Support for joint promotional and influencer strategies	1 (2.5%)	Attractions and events	P15

Source: Author's research

Identification of factors influencing customer satisfaction and dissatisfaction is the prevailing analytical topic (40% of studies), followed by segment-based analysis of perceptions and preferences (20%). Sentiment and emotion analysis of visitors experiences, monitoring changes in customer preferences over time and evaluation of service quality and performance are equally present in 12.5% of the studies each. Most of the studies are based on one analytical topics, while 27.5% address two (P3, P11, P16, P17, P18, P28, P30, P32, P37, P38, P39) and only one study addresses three analytical topics (P15).

The results indicate that certain categories are present across wider range of hospitality-related research areas. Namely, identification of influential (dis)satisfaction factors or tracking changes in customer preferences over time characterize four different research areas, while others are more specific, such as identification of hidden or less explored localities, optimization of digital content, and support of joint promotional activities that are specific to one research area only, i.e. *nature-based tourism*, *accommodation and lodging*, and *attractions and events*, respectively. These findings could direct researchers to broaden the research scope and explore possibilities of addressing other problems in the respective research area through TM application.

3.4. TM algorithms in hospitality research

Authors use nine different TM approaches, i.e., algorithms, in the hospitality research, as presented in Table 6. Latent Dirichlet Allocation (LDA) is used in 67.5% of the studies. Structural Topic Model (STM) is the second most commonly employed approach in hospitality research. It is used in 22.5% of studies, while Non-negative Matrix Factorisation (NMF) is used in 5%. Other approaches, i.e. Contextual Topic Model (CxTM), Dynamic Topic Model (DTM), Latent Semantic Analysis (LSA), Correlation Explanation (CorEx), Correlated Topic Model (CTM), and Probabilistic Latent Semantic Analysis (pLSA), are each used in a single study. These findings are in line with Laureate et al.'s (2023) findings about LDA being the prominent approach across all scientific research areas in which it has been applied so far. They also found that the LDA application is not always justified or optimal. LDA has proven effectiveness on longer documents, as opposed to short texts, such as online reviews (Laureate et al., 2023; Mazarura & De Waal, 2016; Tang et al., 2014; Yan et al., 2013; Zou & Song, 2016). This indicates the need for more research on assessing the effectiveness of the LDA algorithm in the hospitality domain.

Table 6: TM approaches according to research areas

TM approach	No. of studies	Research area	References
LDA	27	Accommodation and lodging	P2, P12, P22, P23, P24, P31, P39, P40
		Attractions and events	P9, P15, P18, P20, P25, P29, P36, P38
		Nature-based tourism	P5, P6, P7, P10, P13, P16, P17, P21, P32
		Travel services	P3, P27
STM	9	Accommodation and lodging	P11, P4, P26, P30, P37
		Food and beverages	P8, P28, P33, P34
NMF	2	Accommodation and lodging	P35
		Attractions and events	P9
CxTM	1	Accommodation and lodging	P1
DTM	1	Accommodation and lodging	P2
LSA	1	Accommodation and lodging	P19
CorEx	1	Attractions and events	P9
CTM	1	Attractions and events	P14
pLSA	1	Travel services	P3

Source: Author's research

LDA is applied in all research areas in hospitality, except in *food and beverages*, which is completely based on the application of STM. STM is a more appropriate approach for studying relations between metadata (e.g., price levels, ratings) and topics, and to estimate how they affect the generation of text (Roberts et al., 2014). Studies in *nature-based tourism* research are also completely characterized by a singular TM approach – the LDA. In other research areas, authors applied various TM approaches.

4. Practical implications

Practical implications are discussed in the context of business insights categories presented in Table 5. Identification of factors contributing to customer dissatisfaction (P1, P2, P3, P4, P8, P11, P12, P18, P19, P20, P28, P31, P33, P36, P37, P40) enables hospitality managers to work on improving services to better adhere to customer needs, leading to improved customer experience and loyalty (Grljević et al., 2025), while strengthening revisiting intentions. TM is often combined with sentiment analysis, which broadens analysis of influential factors with customers' sentiments and emotions (P14, P15, P17, P18, and P25). The results could assist hospitality managers in efficiently addressing the emotional responses of visitors or service users, addressing safety concerns, and enhancing trust and perception. These analyses are often segment-based, helping to reveal perceptions and preferences within defined segments, such as price ranges (P11), grades (P11 and P37), geo-locations (P35), cultural origins (P10 and P16), or seasons (P30). Segment-based analysis improves segmentation strategies and enables personalization of offerings. Customer preferences could be monitored over time (P7, P16, P28, P30, and P38) to track changes in preferences and adjust marketing activities or services based on evolving customer needs or expectations. If TM is used for evaluation of service quality (P3, P22, P27, P30, and P39), it may assist in benchmarking, identification of service gaps, and direct improvements accordingly.

Insights gained through TM may also be used for campaign adjustments to promote destinations, optimize marketing, or identify unique selling points that will be further highlighted in promotions. In this way, TM contributes to the enhancement of destination marketing or product positioning (P15, P17, P32, and P38). TM has proven its effectiveness in the identification of hidden or less explored areas and attractions (P13 and P32). By revealing insights in this respect, TM results may contribute to the encouragement of tourist dispersion, reduction of overtourism, and promotion of alternative destinations. Concerning promotional efforts, TM may assist in targeting influential users for marketing and brand positioning (P15), as well as for optimization of digital content (P23), such as listing descriptions. Improved content strategy may positively affect bookings and engagement.

5. Conclusion

TM represents an effective way to understand large volumes of data about customer experience in the hospitality domain. The research based on TM analysis, as results suggest, is grouped into five distinct application areas: accommodation and lodging, food and beverages, attractions and events, nature-based tourism, and travel services. Insights gained through TM span a wide range, from identification of (dis)satisfaction drivers, sentiments, perceptions and preferences among various segments, to changes over time, service quality evaluation, or identification of hidden or less explored areas and attractions. These insights have a direct impact on managerial activities in the hospitality industry and may enhance them, such as to inform strategies for improvement of customer experience and loyalty, help to identify service gaps and direct improvements, optimize marketing according to customers' changing preferences, manage overtourism, or conduct benchmarking.

Although the presented study offers valuable insights into the characteristics of TM research in the hospitality domain, limitations should be acknowledged. Current research is built upon the literature collected from two databases, WoS and Scopus, while other databases were not consulted. The decision was motivated by the fact that WoS and Scopus databases are cross-linked with other databases and they ensure high quality criteria through strict peer-reviewing process. A time span refreshment is needed to encompass recent studies and evaluate the impact of large language models on TM applications in hospitality research. Future work may explore the transferability of TM approaches between hospitality subfields and evaluate the potential for transferring research frameworks across different TM application areas, to assess possibilities to generate similar types of business insights in all application areas.

CRediT author statement

The author is responsible for all aspects of the research and manuscript preparation.

Declaration of generative AI in the writing process

During the preparation of the paper, the author used Grammarly and ChatGPT in a complementary manner, solely to improve the linguistic quality of the manuscript, the clarity and the fluency of the English language. In particular, when Grammarly suggestions were challenging to interpret or resolve independently, the author used ChatGPT to better understand and refine those specific language issues. After using this service, the author reviewed and edited the content as needed and takes full responsibility for the content of the published article.

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This paper is part of a broader research initiative on TM application in hospitality research. Two distinct studies have been conducted drawing from a shared body of literature identified through a SLR: the present paper, and a separate study focused on the development of a conceptual model for short-text TM and practical guidelines for researchers and practitioners. Sincere thanks to Assistant Professor Nebojša Taušan, University of Novi Sad, Faculty of Economics in Subotica, for his valuable contribution to the SLR process.

Conflict of interest

The author declares no conflict of interest.

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A model for preparing manuscripts for submission to the journal Hotel and Tourism Management

Title of the paper in English

Name Surname[1*], Name Surname[2], Name Surname[3]

[1] Institution
[2] Institution
[3] Institution

Abstract

This document presents a model for preparing the camera-ready manuscripts to be submitted for publishing in the journal Hotel and Tourism Management. The abstract briefly summarizes the article, at the same time enabling a reader to assess its relevance. All submissions **must** include a **structured abstract**. These four sub-headings and their accompanying explanations must be included: **Purpose** – This is where you explain ‘why’ you undertook this study and what is the main goal of the research. **Methodology** – This is ‘how’ you did it. **Findings** – Here you can explain ‘what’ you found during your study. **Implications** – Here you explain what are the implications of the study to theory and practice.

The abstract in English should be between **150 and 200** words long.

Keywords: 4-6 keywords
JEL classification: 10pt (http://www.aeaweb.org/jel/jel_class_system.php)

Naslov rada na srpskom jeziku

Sažetak

Ovaj dokument predstavlja obrazac za formatiranje radova tako da izgledaju kao da su već spremni za štampu. Sažetak predstavlja kratak informativni prikaz sadržaja članka koji čitaocu treba da omogući brzu i tačnu ocenu njegove relevantnosti. Radovi **moraju** da sadrže **strukturirani sažetak**. Naredna četiri podnaslova i njihova prateća objašnjenja moraju biti uključeni: **Svrha** – Ovde objašnjavate „zašto” ste sproveli istraživanje i koji je glavni cilj rada. **Metodologija** – Ovde objašnjavate kako ste to uradili. **Rezultati** – Ovde možete objasniti „šta” ste otkrili tokom istraživanja. **Implikacije** – Ovde objašnjavate koje su implikacije studije na teoriju i praksu.

Sažetak na engleskom jeziku treba da sadrži od **150 do 200** reči.

Ključne reči: 4-6 ključnih reči
JEL klasifikacija: 10pt (http://www.aeaweb.org/jel/jel_class_system.php)

* Corresponding author: e-mail address

1. Introduction

Papers should be written **in English** using Microsoft Word for Windows. The paper should be between **10** and **15** full pages long including the figures, tables, references list and appendices. The page should be formatted as **B5 (JIS)**. Allow **20mm** for the bottom and top margins and **25mm** for the left and right margins on a page. The line spacing within a paragraph is single whereas the spacing between two paragraphs is **6pt**. The text should be written using **Times New Roman** font. The maximum number of authors per paper is **three**, however, the Editor-in-Chief has an exclusive right to approve the submissions with four authors per paper in exceptional situations.

2. Background

The title page should contain the Title of paper in English (14pt). Names of authors, institutional affiliation and e-mail addresses should be typed as shown at the previous page. After the affiliation of the last author, leave an empty row followed by an abstract (10pt). Keywords should follow the abstract. Below the keywords, the title of paper and the abstract are to be given in Serbian.

For numbered first-level subtitles use a bold font of 12pt whereas a bold font of 10pt is used for second-level subtitles. The text and the references list should be written using the font size 10pt.

Author(s) is(are) encouraged to propose the **hypotheses** or **research questions** in the line with the aim and type of conducted research.

3. Materials and methods

Materials and methods section should provide a reader with sufficient details and argue all the necessary aspects in order to allow other researchers to replicate the research and build the published results.

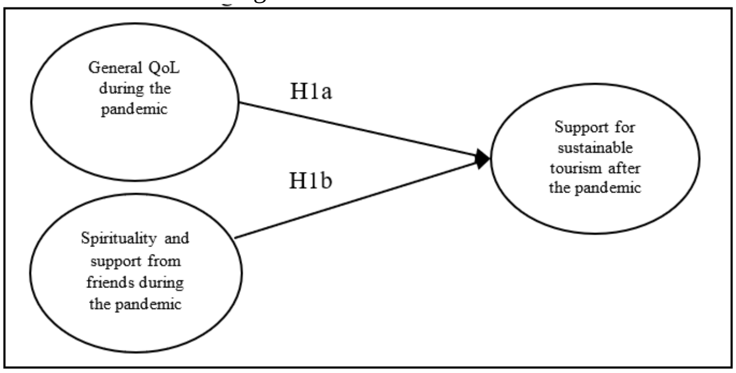
4. Results and discussion

The results obtained in the research should be described in this section. The discussion should highlight the main findings.

Figures, tables and equations

All illustrations whether diagrams, photographs or charts are referred to as Figures. The name and number of figures should be centered on the line above a figure.

Figure 1: Research model



Source: Authors' research

The equations are written using Microsoft Word (MathType); they are consecutively numbered and centered.

$$\mathrm{PVo} = \frac{\mathrm{FVn}}{(1+\mathrm{i})^{\mathrm{n}}} \tag{1}$$

The name and number of tables should be centered above the table.

Table 1: Results of multiple regression analysis

Variable	ß	T	Sig.	VIF
Textual comments	0.609	14.071	0.000*	1.000
Photos	0.484	11.172	0.000*	1.000
Rating	0.152	3.513	0.001*	1.000

* The value is significant at the level equaling 0.05
Source: Authors' research

If the study findings were presented graphically or in a table, author(s) is(are) encouraged to state the source below the figure or table in the following form: **Author's research** (single-authored paper) or **Authors' research** (co-authored paper).

5. Conclusion

The conclusion summarizes the results achieved during the research, along with the **limitations of the conducted research** and **future research recommendations**.

Acknowledgement

For papers that came as a result of the project or programme, the title and number of the project, i.e. programme, and the name of the institution supporting the project would be appreciated. If persons other than authors were involved in important aspects of the preparation of the manuscript, their contribution should be acknowledged. If the paper was previously presented at a scientific conference (with the same or similar title), author(s) is(are) encouraged to specify it within this section. If submitted paper, or some part of the paper, represents an excerpt from the author's PhD thesis, the author must clearly specify it within this section.

Conflict of interest

The author(s) declare no conflict of interest.

References

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One-author book

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A multiple-author book

If there are more authors, they are all named. Before the name of the last author '&' is used. When there are more than seven authors, the names of the first six are given and the name of the last author is preceded by '…'.

E.g.: Barrows, C. W., & Powers, T. (2009). *Introduction to the hospitality industry* (7th ed.). Hoboken, New Jersey: John Wiley&Sons, Inc.

A book, translation

E.g.: Spic, E. H. (2011). *Umetnost i psiha: Studija o psihoanalizi i estetici [Art and psyche: A study of psychoanalysis and aesthetics]*. (A. Nikšić, Transl.). Beograd, Srbija: Clio.

A book with an editor, anthology

If a book is an anthology, editor is considered to be the author of the book. In such a case, his or her name is followed by (Ed.). If there is more than one editor, then use (Eds.).

E.g.: Đurković, M. (Ed.) (2007). *Srbija 2000-2006: Država, društvo, privreda [Serbia 2000-2006: State, society, economy]*. Beograd, Srbija: Institut za evropske studije.

A paper published in proceedings

E.g.: Feret, K. (2011). Serbia and Poland on map of the global air cargo shipment. In V. Babić (Ed.), *Contemporary Issues in Economics, Business and Management - EBM 2010* (pp. 3-16). Kragujevac, Serbia: Faculty of Economics University of Kragujevac.

One-author paper published in a journal

E.g.: Harish, R. (2008). Brand architecture and its application in strategic marketing. *The Icfai University Journal of Brand Management*, *7*(2), 39–51.

Two-author paper published in a journal

If the cited paper is given a **DOI number**, it **should also be included as a link**.

E.g.: Tew, C., & Barbieri, C. (2012). The perceived benefits of agritourism: The provider's perspective. *Tourism Management*, *33*(6), 215–224. https://doi.org/10.1016/j.tourman.2011.02.005

A paper with more than two authors published in a journal

E.g.: Luque-Martinez, T., Castaneda-Garcia, J. A., Frias-Jamilena, D. M., Munoz-Leiva, F., & Rodriguez-Molina, M. A. (2007). Determinants of the use of the Internet as a tourist information source. *The Service Industries Journal*, *27*(7), 881–891. https://doi.org/10.1080/02642060701570586

An article with a known author

E.g.: Mišić, M. (2012, February 1). Ju-es stil smanjio gubitke [US steel has cut losses]. *Politika*, p. 11.

An article with no author given

E.g.: Straževica gotova za dva meseca [Straževica finished in two months]. (2012, February 1). *Politika*, p. 10.

A thesis

E.g.: Dewstow, R. A. (2006). *Using the Internet to enhance teaching at the University of Waikato* (Unpublished master's thesis). University of Waikato, Hamilton, New Zealand.

Documents or data bases taken from the Internet, a private or official Internet page with a known author

E.g.: Kraizer, S. (2012). *Safe child*. Retrieved October 29, 2012 from http://www.safechild.org/

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E.g.: *Penn State Myths*. (2006). Retrieved December 6, 2011 from http://www.psu.edu/ur/about/myths.html

Documents or data bases taken from the Internet, a private or official Internet page with an organization or corporation as an author

E.g.: Ministarstvo finansija i privrede Republike Srbije [Ministry of Finance and Economy of the Republic of Serbia]. (2013). *Informacije o turističkom prometu u Srbiji [Information on tourist traffic in Serbia]*. Retrieved February 6, 2013 from http://www.turizam.mfp.gov.rs/index.php/sr/2010-02-11-17-24-30

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