



Assessing digital marketing communication quality among tourist information offices: Evidence from Poland

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ABSTRACT

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The article addresses the issue of assessing the quality of digital marketing communication of destinations conducted by 326 certified Tourist Information Offices (TIO) in Poland. The objective of the study was to conduct a multidimensional analysis of the relationship between website quality and social media activity, and the level of digital marketing communication, using secondary analysis and customized indicators: the Digital Maturity Score (DMS), the Social Media Activity (SMA), the Attractiveness of Digital Communication Channels (ADC), and the Integrated Digital Presence Indicator (IDP). These indicators have been identified as key factors in enabling a final typology of TIOs based on the Level of Digital Maturity of Websites (LW) and the Level of Activity in social media (LS) in the destination marketing communication process. The formal TIO certification category (C-TIO) exerts an influence on all indicators of digital marketing communication. The significance of these relationships only attained the recommended minimum effect size (RMPE) in the case of SMA and IDP ($q=0.23$, $p<0.001$). For DMS ($q=0.15$, $p=0.005$) and ADC ($q=0.12$, $p=0.037$), these relationships were extremely weak and below the RMPE threshold ($RMPE<0.20$). The article makes a significant contribution to research on the digital transformation of tourist information organizations and destination e-marketing by proposing indicators and highlighting practical implications. The proposed indicators allow for the identification of the effectiveness and efficiency of internet marketing practiced by TIO and can be used to evaluate the integrated communication process of other institutions managing tourist destinations.

Contribution/Originality: This study advances territorial marketing science and supports the digital transformation of the tourism sector by developing and empirically verifying an original, indicator-based model for assessing the quality of marketing communication in tourist information offices. The integrated system of indicators (DMS–SMA–ADC–IDP) proposed here provides a novel methodological framework for evaluating and comparing the effectiveness of digital marketing communication across destinations.

1. INTRODUCTION

Tourist information has been identified as a key component of the contemporary tourism system, shaping the dynamics of tourism demand and supply (Almeida-Santana, David-Negre, & Moreno-Gil, 2020). Contemporary tourist information management is undergoing dynamic changes under the influence of information and communication technologies (ICT), which have become an integral part of consumer behavior (Gössling, 2021). The transformation encompasses content distribution and interactions with tourists, thereby effecting a transition from e-tourism to smart tourism (Leung, 2022). Digital channels, websites, and social media play a pivotal role not only in the promotion and provision of information about a destination (Nzeku & Duffett, 2021) but also in shaping its image (Pshenichnykh & Novi, 2023), the building of relationships with recipients (Kotler, Bowen, Makens, & Baloglu, 2016), and the creation of purchasing needs in the destination (García-Milon, Olarte-Pascual, Juaneda-Ayensa, & Pelegrín-Borondo, 2021).

The development of e-communication, as part of the broader digitization of the economy, has had a significant impact on the functioning of tourism organizations, including Destination Management Organizations (DMOs) and local governments (P. Kumar, Mishra, & Rao, 2021). As Buhalis and Law (2008) have demonstrated, these changes affect not only booking and sales processes but also information content management and marketing communication (Devasia & Kumar, 2022). Digital tools facilitate the design of tourist experiences (Gebreel & Shuayb, 2022) and the reception of such experiences through recommendations and interactions. The trust placed in content depends on its timeliness, transparency, and professionalism (Abdelsattar, Kortam, & Tarek, 2021). Furthermore, digital tools facilitate the aggregation and management of consumer leads (Hu & Olivieri, 2021). As Bradley, Sparks, and Weber (2015) and Law, Buhalis, and Cobanoglu (2014) note, social media has become a major source of information, influencing consumer perceptions and decisions (Wengel et al., 2022) and supporting travel destination selection (Jamal, Aminudin, & Kausar, 2019; Zhang, Ji, Wang, & Chen, 2017).

The high quality of the digital presence of tourism organizations, including Tourist Information Offices (TIOs), using websites and social media, is now the foundation of effective promotion (Wang & Yan, 2022). This encompasses the functionality of websites, their multilingualism, accessibility for people with disabilities, and omnichannel presence (Park & Stepchenkova, 2023). Failure to adapt websites to accessibility standards (e.g., Web Content Accessibility Guidelines, WCAG) may result in information exclusion and limited effectiveness of promotional activities (Zajadacz, 2014).

The existing literature on place marketing and destination management emphasizes the importance of integrated e-marketing strategies in enhancing the competitiveness and online reputation of destinations (Baber & Baber, 2023; Gato, Dias, Pereira, da Costa, & Gonçalves, 2022). Kotler et al. (2016) highlight the necessity of combining traditional and digital channels, considering market segmentation (Floričić, Šker, & Benassi, 2023). Gretzel, Yuan, and Fesenmaier (2006) stress the importance of continuously adapting communication activities to evolving market conditions and audience expectations through the use of analytical tools, media monitoring, and omnichannel communication integration.

The management of tourist information, including its various instruments such as websites and social media profiles, necessitates not only an online presence but also a strategic approach to content creation, accessibility, and credibility (Shrestha, Wenan, Rajkarnikar, Shrestha, & Jeong, 2021). Transparency, timeliness, and inclusiveness of TIO communication are key to building user trust (Jamshidi, Rousta, & Shafei, 2023), effectively promoting destinations (Gaceu & Oprea, 2024) and supporting tourists' decisions on where to travel (Pan, Rasouli, & Timmermans, 2021) as well as communication at the destination (upon arrival) to support commercialization.

Research on TIO reveals numerous research gaps that limit understanding of their role in the digital environment. The following are identified: (1) the lack of updates to tourist information behavior models (Kang, Kim, & Park, 2020) while the usefulness of existing concepts has been exhausted (Fodness & Murray, 1999) they are not adapted to digital information channels; (2) insufficient recognition of TIOs' role in the digital age and the need to

redefine it in the face of competition from mobile technologies and the need to adapt e-information and e-marketing tools (Chui & Walters, 2022; Dolynska, Shorobura, & Hutsal, 2024); (3) limited use of data generated by TIOs based on the analysis of user activity on their own websites and social media in destination management processes (Iannaccone, Šoltésová, Molokáč, & Taušová, 2024); (4) lack of integration of TIOs with technological innovations such as Big Data, augmented reality, and artificial intelligence (AI) (Mariani, 2020; Pshenichnykh & Novi, 2023); (5) insufficient research on the impact of TIOs on regional development, particularly using qualitative analyses of promotion instruments and their impact on destination competitiveness (Lyu & Hwang, 2015); (6) lack of modern research methods and techniques enabling the collection and analysis of current data from tourism information and promotion instruments, including those used by TIOs (Dharmasena & Jayathilaka, 2021; Zarezadeh, Benckendorff, & Gretzel, 2019). Considering the above, the objective of the study was to conduct a qualitative, multi-faceted assessment of websites and social media profiles of various TIOs types as channels of destination marketing communication. The innovative nature of this study lies in the integration of digital maturity assessment (DMS) and social media activity (SMA) perspectives within a proprietary diagnostic model (C-TIO: DMS–SMA–ADC–IDP), enabling a comprehensive analysis of the quality and coherence of TIOs' digital marketing communications. Unlike previous fragmented approaches, focusing on single channels or aspects of e-communication used by TIOs, the proposed approach fills a significant research gap in the literature, demonstrating the interdependencies and synergistic effects between various dimensions of TIOs' digital presence as activities assigned to them in the sphere of destination marketing. Thus, the study constitutes an original contribution to the development of the methodology for assessing digital transformation in destination marketing, conducted by TIOs (or DMOs), providing an empirically verified tool with high diagnostic and application value in comparative analyses of the effectiveness of integrated digital communication.

2. LITERATURE REVIEW AND RESEARCH HYPOTHESES

2.1. *Digital Transformation in Tourism and the Changing Role of TIOs in Destination Marketing Communication*

The tourism sector is undergoing continuous digital transformation, referred to as Tourism 4.0 or Smart Tourism (Pencarelli, 2020). This process, which involves the use of e-tools (e.g., websites, social media profiles), has been the subject of numerous studies (Bekele & Raj, 2025; S. Kumar, Kumar, Kumari, Kumar, & Attri, 2024), although they focus on selected areas. The digitalisation of the tourism economy increases the efficiency and effectiveness of businesses and benefits consumers (Filipiak, Dylewski, & Kalinowski, 2023). It also includes the digitisation of tourist destinations (Sivarethinamohan, 2023) in terms of promotional processes and the tools used. Effective communication management using these instruments can directly influence the attractiveness and competitiveness of a destination (Mior, Azinuddin, Hanafiah, & Wan, 2023). For this reason, the institutions responsible for these activities (e.g., DMOs or local governments) should create integrated marketing and tourist information systems (Gato et al., 2022), incorporating various data sources in a consistent, complementary, and tailored manner to meet the needs of tourists and other stakeholders in the tourism market. This function can be performed by TIOs, which are responsible for promoting local tourism products and services (Ballantyne, Hughes, & Ritchie, 2009), depending on whether the TIO is part of the organisational structure of the DMO or the local government.

Under growing consumer expectations, modern tourists require accurate, reliable, and up-to-date information (Abdelsattar et al., 2021), which forms the basis for rational purchasing decisions and travel planning (Jamal et al., 2019; Zhang et al., 2017). In response to these needs, tourism sector institutions, including TIOs, should develop operational strategies based on data analysis to support the development of smart tourism in destinations. Technologies such as Big Data and Artificial Intelligence (AI), which enable the automatic collection, processing, and distribution of information tailored to user preferences (Nogueira & Carvalho, 2023), are playing an increasingly important role, posing growing competition for traditional TIOs. Search engines (22% of respondents) and travel websites (20%) are the main digital touchpoints for European travelers and the preferred tools for planning their next

trip in the next six months (with N=4508), alongside online maps (15%) and social media (5%) (A. Kumar (2024). Importantly, 42% of travelers using AI apps for travel planning and 35% of those using generative AI for travel purposes are Millennials aged 25-34 (A. Kumar (2024)

The last decade has seen a decline in the use of direct services in TIOs in favor of digital sources of information. Their immediate availability and ubiquity make them the preferred choice for tourists both before and during their trips and stays (Mandić & Garbin Praničević, 2019). This phenomenon poses challenges, as TIOs continue to offer significant benefits to local communities and visitors (Chui & Walters, 2022).

In the face of dynamic changes in the tourism market, it is essential to monitor trends and adapt the tourist information offer flexibly (Leung, 2022). Additionally, TIOs should actively promote sustainable tourism (Majid, Tussyadiah, Kim, & Pal, 2023; World Economic Forum, 2025). This includes educational activities that encourage responsible behavior among tourists and raise awareness of local initiatives and attractions, including through websites and social media, while emphasizing the importance of protecting and using these resources sustainably.

From a marketing perspective, tourists primarily seek access to reliable information (Kullada & Michelle, 2020). The tourist information system, operating at local and national levels, is responsible for providing the knowledge necessary for making decisions about destinations, attractions, and services. This supports travel planning and influences tourist satisfaction (Mynarski & Walas, 2021; Pan et al., 2021).

Technologies have significantly changed access to tourist services and information, influencing tourist behavior (Pawłowska-Legwand, 2019). TIOs and their managers, DMOs and local governments are trying to take advantage of these changes. Professional tourist information is needed at every stage of tourist consumption, but its form, scope, and delivery should be tailored to customer preferences (Nizioł, 2017; Setiawan & Munandar, 2020). Access to the Internet and cloud technologies via mobile devices necessitates a re-examination of the traditional role of TIOs (Lyu & Hwang, 2015). Research by Foroudi, Gupta, Kitchen, Foroudi, and Nguyen (2016) and Labanauskaitė, Fiore, and Stašys (2020) demonstrates that high-quality websites and social media profiles up-to-date, inclusive, multilingual significantly influence the perceived attractiveness of a destination and effectively support promotion and tourists' purchasing decisions. High-quality websites or social media profiles, maintained by TIOs, not only strengthen the image of a destination but also directly support the commercialization of local tourism services (Rodríguez, Nassanbekova, Pérez, & Urzabayeva, 2020), which leads to the verification of hypothesis H1 that formal TIO certification (C-TIO) influences the digital maturity index of TIO websites (DMS) and the TIO activity index in social media (SMA). It is concerning that a significant proportion of TIOs either do not have their own website or social media profile or manage these in a way that does not align with established recommendations (Korbiel, 2021). Mynarski and Walas (2021) posit that the prevailing model of operation of TIOs is inadequate in terms of its capacity to attract interest, thus impeding their competitiveness with digital sources of information. This situation necessitates the urgent modernization of TIOs, especially with regard to the implementation of new technologies, which leads to the formulation of research hypothesis H2: that the attractiveness index of TIO's digital channels of communication (ADC) is related to the formal certification of TIO (C-TIO).

2.2. The Role of Websites and Social Media in Destination Marketing Communication

Technological progress is transforming key communication methods in destination marketing strategies (Tran & Rudolf, 2022). Internet marketing significantly impacts the information search process undertaken by tourists when planning their trips (Hunter, 2016), and destination websites often managed by TIOs are becoming an increasingly popular source of information, thereby substantially influencing tourist choices (Hinson, Osabutey, & Kosiba, 2020). As noted by Foroudi et al. (2016), these websites help shape a positive image of the destination, encouraging consumers to revisit and recommend it to others. Linking websites to official social media profiles enhances their credibility (Jiménez-Barreto, Rubio, Campo, & Molinillo, 2020), although the level of credibility depends on the characteristics of the target groups, such as Generation Z or Alpha (Hysa, Karasek, & Zdonek, 2021; Liu, Wang,

Zhang, & Qiao, 2023). The synergy between websites and social media profiles strengthens tourists' trust and engagement, influencing the effectiveness of marketing communication and destination branding (Hunter, 2016; Jiménez-Barreto et al., 2020). Therefore, it is reasonable to study the relationship between the quality (digital maturity) of TIO websites and their activity on social media (Sultan, Sharmin, Badulescu, Gavrilit, & Xue, 2021). It is also pertinent to identify variables that enable the assessment of a destination's digital presence based on TIO websites and social media profiles (Yanti, Dalimunthe, Prayogi, & Ismail, 2023). Most studies focus on assessing the accessibility of destination websites for people with disabilities according to the Web Content Accessibility Guidelines (WCAG) (Singh, Ismail, PS, & Singh, 2021) or visual perception (Kanazawa, Lourenção, Caldeira, & De Moura, 2021), often neglecting other important features that influence the promotion of tourist destinations, which is the subject of this study. In the context of digital technology development, the increased use of these technologies in destination marketing is inevitable (Chamboko-Mpotaringa & Tichaawa, 2021), requiring integrated omnichannel strategies where quality supports marketing communication and enhances destination competitiveness (Kourtesopoulou, Christina, Moustakarias, & Theodoula, 2020). Specifically, TIO activity on social media increases a destination's attractiveness to potential visitors and influences their tourism intentions (Agyapong & Yuan, 2022; Baber & Baber, 2023). Effective content selection and updating in digital channels reduce information overload, promote high-quality message reception, and counter misinformation (Önder, Gunter, & Gindl, 2020). Changes in consumer behavior regarding the acquisition and purchase of tourism services are driven by digital environment evolution (Li, Robinson, & Oriade, 2017). Research indicates that credibility and trust in online sources increase when website or profile managers (e.g., TIO) control published content (Jiménez-Barreto et al., 2020), and the quality of marketing communication improves when information is integrated, comprehensive, and regularly updated (Labanauskaitė et al., 2020). Importantly, TIO certification in terms of stars assumes that higher star ratings correspond to higher communication requirements, necessitating verification of hypothesis H3 that the TIO Integrated Digital Presence Index (IDP) in destination marketing communication depends on formal TIO certification (C-TIO).

3. METHODOLOGY

3.1. Sample Description

A total of 326 certified Tourist Information Offices (TIOs) operating across Poland were examined, and their typological structure (in terms of category and location) is presented in Table 1.

Table 1. Spatial structure of the categories of examined TIOs.

Province	1★	2★	3★	4★	Total	1★ (%)	2★ (%)	3★ (%)	4★ (%)
Number of stars of TIOs: 1* - lowest category, 4**** - highest category									
Dolnośląskie	7	2	2	4	15	46.7	13.3	13.3	26.7
Kujawsko-Pomorskie	1	3	3	2	9	11.1	33.3	33.3	22.2
Lubelskie	3	2	5	6	16	18.8	12.5	31.3	37.5
Lubuskie	5	2	3	1	11	45.5	18.2	27.3	9.1
Łódzkie	1	1	3	2	7	14.3	14.3	42.9	28.6
Małopolskie	9	15	5	4	33	27.3	45.5	15.2	12.1
Mazowieckie	3	3	4	4	14	21.4	21.4	28.6	28.6
Opolskie	5	4	2	3	14	35.7	28.6	14.3	21.4
Podkarpackie	8	4	3	4	19	42.1	21.1	15.8	21.1
Podlaskie	4	10	12	2	28	14.3	35.7	42.9	7.1
Pomorskie	2	1	7	0	10	20.0	10.0	70.0	0.0
Śląskie	26	23	12	4	65	40.0	35.4	18.5	6.2
Świętokrzyskie	13	10	4	4	31	41.9	32.3	12.9	12.9
Warmińsko-Mazurskie	2	9	10	3	24	8.3	37.5	41.7	12.5
Wielkopolskie	8	2	5	4	19	42.1	10.5	26.3	21.1
Zachodniopomorskie	2	2	5	2	11	18.2	18.2	45.5	18.2
Total	99	93	85	49	326	30.37	28.53	26.07	15.03

Note: ★ – number of stars awarded to a given tourist information centre/point (1* - lowest category, 4**** - highest category); % - share of a given star category in the total number of TIOs in the province or in the total number of all surveyed facilities.

In Poland, the National Tourist Organisation (PTO) has implemented a decentralised tourist information certification system as part of its communication quality management policy. This system has been operating on a voluntary basis since 2010 in cooperation with regional DMOs. It involves meeting the criteria for categories ranging from * (lowest) to **** (highest).

Fifty-two variables, including eight metric variables, were selected for the desk research study of certified TIOs and were divided into 18 thematic categories. This selection was based on the variables' relevance to the mandatory certification criteria set out in the TIO star rating system adopted by the PTO (*Criteria for the standardisation of tourist information points and centres...*, 2024). However, due to the unavailability of certain quantitative and qualitative data covering the selected variables and the need to exclude incomplete information from the websites and social media profiles of TIOs, the number of variables was reduced to 12 key groups, covering a total of 34 features related to the digital presence of certified TIOs (see Table 2).

Table 2. Types of tested variables of certified TIOs.

Variables examined on TIO websites	
1.	Having a website (HW, 2 variables)
2.	Language availability of the website (LAW, 4 variables)
3.	Timeliness of website content (TW, 1 variable)
4.	Accessibility of the website for people with disabilities (AW, 1 variable)
5.	Scope of information available on the website (data types) (SW, 7 variables)
6.	Possibility of purchasing services (tickets) on the website (PW, 2 variables)
7.	Attractiveness of digital communication channels (ADC, 1 variable)
Variables examined in TIO on social media profiles	
1.	Having a social media profile (HSM, 4 variables)
2.	Timeliness of social media profile (TSM, 1 variable)
3.	Language availability of the social media profile (LASM, 3 variables)
4.	Running other social media profiles (number) (RSM, 3 variables)
5.	Number of social media followers (FSM, 5 variables)

The analysis of the above variables of certified TIOs operating in Poland was conducted using original questionnaires. The entire research process was divided into three stages, utilizing multidirectional analyses and the operational scheme presented in Figure 1.

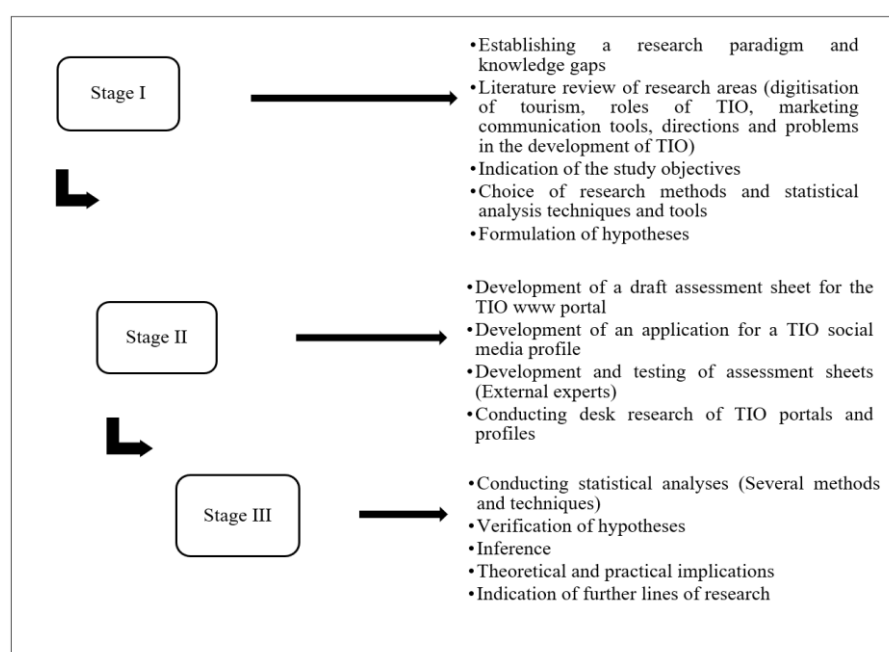


Figure 1. Graphical scheme of study design.

3.2. Measurement Scales

The study incorporated an analysis of both secondary data (documents and analyses of the tourist information system in Poland, TIO category locations and types, and certification criteria) and primary data (the results of a pilot study by experts on the content of TIO assessment questionnaires, and desk research on the characteristics of their websites and social media profiles). A review of the scientific literature was conducted on the following topics: the characteristics and types of TIOs; their certification process; evaluation criteria; their role within the management model; the promotional tools they use; and their scope of activity at national, regional, and local levels. A fundamental methodological component involved desk research into the characteristics (variables) of TIO websites and social media profiles using two original Excel questionnaires with closed questions. The assessment sheets were subjected to a pilot study involving 12 experts representing: PTO; the PTO Tourist Information Forum (leading TIO managers); and tourism academics. The qualitative research component involved 20 Generation Z tourism students (digital natives) who assessed the attractiveness of the surveyed TIOs' websites and social media using a 1–5 Likert scale (1 – unattractive; 5 – very attractive) (ADC).

The data concerning the characteristics of TIO digital marketing communication were aggregated in the form of indicators.

- Indicator of Digital Maturity Score (DMS) using six main variables, including: having a website (HW), language availability of the website (LAW), timeliness of website content (TW), accessibility of the website for people with disabilities (AW), scope of information available on the website (data types) (SW), possibility of purchasing services (tickets) on the website (PW); - Indicator of Social Media Activity (SMA) using five main variables, including: having a social media profile (HSM), timeliness of social media profile (TSM), language availability of the social media profile (LASM), running other social media profiles (number) (RSM), number of social media followers (FSM);
- Attractiveness of Digital Communication Channels (ADC), including a variable determining the level of attractiveness of TIO websites and social media based on the Likert scale;
- Formal TIO category (Indicator of categorisation TIO – C-TIO) comprising four categories of TIO stars (from * to ****);
- TIO (IDP): integrated digital presence indicator, comprising the summary (weighted) values of three indicators: DMS, SMA, and ADC.

In the process of evaluating the selected variables, a uniform weighting system (with a value of 1) was used, with higher weights applied to some variables (LAW=1.5; AW=1.5; SW=2; RSM=1.5; LASM=1.5; FSM=2) to emphasize the greater impact of a given variable on a given indicator. The adopted weighting system reflects the varying impact of individual variables on the overall quality of digital marketing communications, resulting from their functional significance and user content reception.

Variables related to language accessibility (LAW) and accessibility for people with disabilities (AW) were assigned higher weights (1.5) because they enhance the inclusiveness and reach of communication, constituting quality criteria consistent with the WCAG guidelines and the quality standards for multilingual communication in tourism.

The number of social media followers (FSM) was assigned a weight of 2 because it is a key measure of reach and social influence, directly determining the effectiveness of marketing activities and the level of audience engagement. Also, in the process of evaluating the integrated digital presence indicator TIO (IDP), weights of different values were used: DMS=4, SMA=3, ADC=2 to emphasize the greater impact of a given indicator. Based on the calculated DMS and SMA values, the levels of digital maturity of websites (LW) and levels of activity in social media (LS) were additionally determined (Table 3).

Table 3. Level of TIO's digital marketing communication in the destination.

Indicator	Value ranges	TIO digital marketing communication level
LW	DMS score	Level of digital maturity of websites (LW)
LWL	0-7	Low
LWM	8-15	Medium
LWH	16-22	High
LS	SMA score	Level of activity in social media (LS)
LSL	0-7	Low
LSM	8-12	Medium
LSH	13-17	High

For categorised variables (C-TIO, LW, LS), percentage structure indices were calculated, and the significance of differences between them was evaluated using the χ^2 independence test. The relationships between these variables were assessed using Cramer's V coefficient. The normality of the distribution of quantitative variables (C-TIO, DMS, SMA, ADC, IDP) was verified using the Shapiro-Wilk test. Due to the non-normality of the distribution of variables, non-parametric methods were employed. The median and quartile deviation, Spearman's rank correlation coefficient ρ for relationships between indicators, and the Kruskal-Wallis test were used to assess differences in indicator values between levels of categorised variables. For confirmed differences, multiple comparisons were performed using Dunn's post-hoc test. The statistical significance of all results was accepted at $p < 0.05$. In accordance with Ferguson (2009) recommendations, the correlation effect size (for V or ρ) was considered as the 'recommended minimum effect size representing a practically significant effect for social science data' (RMPE). This effect size is categorized as 'moderate' for values in the range $[0.50, 0.80)$ and 'strong' for values ≥ 0.80 , while values in the range $[0.20, 0.50)$ are considered as indicating a 'minimum' effect. All analyses were performed using TIBCO Statistica® 13.3.0 (StatSoft Poland).

4. RESULTS

The characteristics of the digital maturity level (LW) and social media activity level (LS) of websites in relation to the formal C-TIO category are presented in Table 4. A total of 326 TIO websites and profiles were evaluated, with a fairly high percentage characterized by a low DL index (47.55%) and a low SA index (56.13%). A high DL level was recorded for only 21.78% of websites, and a high SA level for only 9.82% of media profiles. Both indicators varied significantly depending on the C-TIO category ($p < 0.05$). As it increased (increase in the number of TIO stars), the percentage of websites and profiles with low LW and LS decreased, while those with high LW and LS increased. Despite the confirmed significance of these relationships, the correlation coefficients were very low (Cramer's $V < 0.20$, $p < 0.05$), below the RMPE, the recommended minimum effect size that represents a 'practically' significant effect for social science data (Ferguson 2009). Similarly, a very weak relationship was observed between the LW index and the LS index regardless of C-TIO ($V = 0.17$, $p = 0.001$).

Formal category (number of stars) of the Tourist Information Office (C-TIO) also differentiates quantitative indicators of digital marketing communication quality, such as: digital maturity of websites (DMS), social media activity (SMA), attractiveness of digital communication channels (ADC), and integrated digital presence index (IDP) (Table 5). It was found that all the examined indicators were higher for 4-star TIOs than for those with only 1 or 2 stars. No significant differences in the examined indicators were observed for 3-star TIOs. The significance of the relationships between C-TIO and all indicators was confirmed; however, only in the case of SMA and IDP did these relationships reach the recommended minimum effect size (RMPE). For the other indicators (DMS and ADC), the relationships with C-TIO were very weak and below RMPE ($\rho < 0.20$). Positive correlation coefficients may suggest a tendency for the values of the indicators (DMS, SMA, ADC, IDP) to increase with the number of TIO stars.

Table 4. Level of digital maturity of websites (LW) and social media activity (LS) depending on the formalized C-TIO category.

Indicator		C-TIO					Cramer's V	χ^2	p
		Formal category of TIO							
	*	**	***	****	Total				
	Low	50	52	34	19	155	0.14	13.37	0.037
	(%)	(15.34)	(15.95)	(10.43)	(5.83)	(47.55)			
	Medium	33	25	25	17	100			
LW	(%)	(10.12)	(7.67)	(7.67)	(5.21)	(30.67)			
	High	14	17	20	20	71			
	(%)	(4.29)	(5.21)	(6.13)	(6.13)	(21.78)			
	Total	97	94	79	56	326			
	(%)	(29.75)	(28.83)	(24.23)	(17.18)	(100.00)	0.19	23.44	0.001
	Low	68	54	40	21	183			
	(%)	(20.86)	(16.56)	(12.27)	(6.44)	(56.13)			
	Medium	24	35	29	23	111			
LS	(%)	(7.36)	(10.74)	(8.90)	(7.06)	(34.05)			
	High	5	5	10	12	32			
	(%)	(1.53)	(1.53)	(3.07)	(3.68)	(9.82)			
	Total	97	94	79	56	326			
	(%)	(29.75)	(28.83)	(24.23)	(17.18)	(100.00)			
Cramer's V		0.17							
χ^2		19.47							
p		0.001							

Note: C-TIO – formal category of Tourist Information Office (★ – number of stars awarded to a given tourist information centre/point (* – lowest category, **, *** – highest category); LW – level of digital maturity of websites, LS – level of activity in social media, Cramer's V – correlation coefficient, χ^2 – value of the independence test, p – probability of error of the χ^2 test.
V values assess the strength of the association, X and p values the significance of the association between the C-TIO and LW and C-TIO and LS categories (results on the right side of the table), and between the LW and LS categories (results at the bottom of the table). Significance of correlations was assumed at $p < 0.05$.

Table 5. Indicators of the quality of TIO digital marketing communications in relation to their formalized category.

Indicator	C-TIO				p (KW test)	Significance of differences (post-hoc test)	Correlation	
	Formal category of TIO						q	p
	*	**	***	****				
	n=97	n=94	n=79	n=56				
DMS	7.0 ± 5.5	4.8 ± 6.7	8.5 ± 7.8	11.8 ± 8.4	0.023	(**) vs (****)	0.15	0.005
SMA	6.0 ± 2.5	7.0 ± 3.7	7.0 ± 3.0	9.0 ± 3.5	0.001	(*) vs (****)	0.23	<0.001
ADC	0.2 ± 0.3	0.0 ± 0.34	0.0 ± 0.4	0.6 ± 0.4	0.021	(**) vs (****)	0.12	0.037
IDP	4.0 ± 2.0	4.7 ± 2.6	5.8 ± 2.5	6.7 ± 2.9	<0.001	(*) (**) vs (****)	0.23	<0.001

Note: C-TIO – formal category of Tourist Information Office (★ – number of stars awarded to a given tourist information centre/point (* – lowest category, **, *** – highest category); DMS – digital maturity index of websites; SMA – social media activity index; ADC – index of attractiveness of digital communication channels; IDP – integrated digital presence index; p (KW test) – probability of error in the Kruskal-Wallis test; q – Spearman's rank correlation coefficient; p – probability of error in the Spearman's coefficient significance test; (*) (**) vs (****) – indicates a significant difference between C-TIO = * and C-TIO = **** and between C-TIO = ** and C-TIO = ****.
p (KW test) values assess the significance of differences in indicator levels (DMS, SMA, ADC, IDP) between C-TIO categories; rho and p values assess the strength and significance of the association between indicator levels and C-TIO categories, respectively. The significance of differences and correlations was assumed at $p < 0.05$.

The analyzed indicators of digital marketing communication quality of tourist information offices are correlated with each other (Table 6). The integrated digital presence indicator (IDP) was strongly associated with the digital maturity of websites indicator (DMA) ($q=0.84$, $p<0.001$), while it was moderately associated with the social media activity indicator (SMA) ($q=0.65$, $p<0.001$) and the attractiveness of digital communication channels (ADC) ($q=0.67$, $p<0.001$).

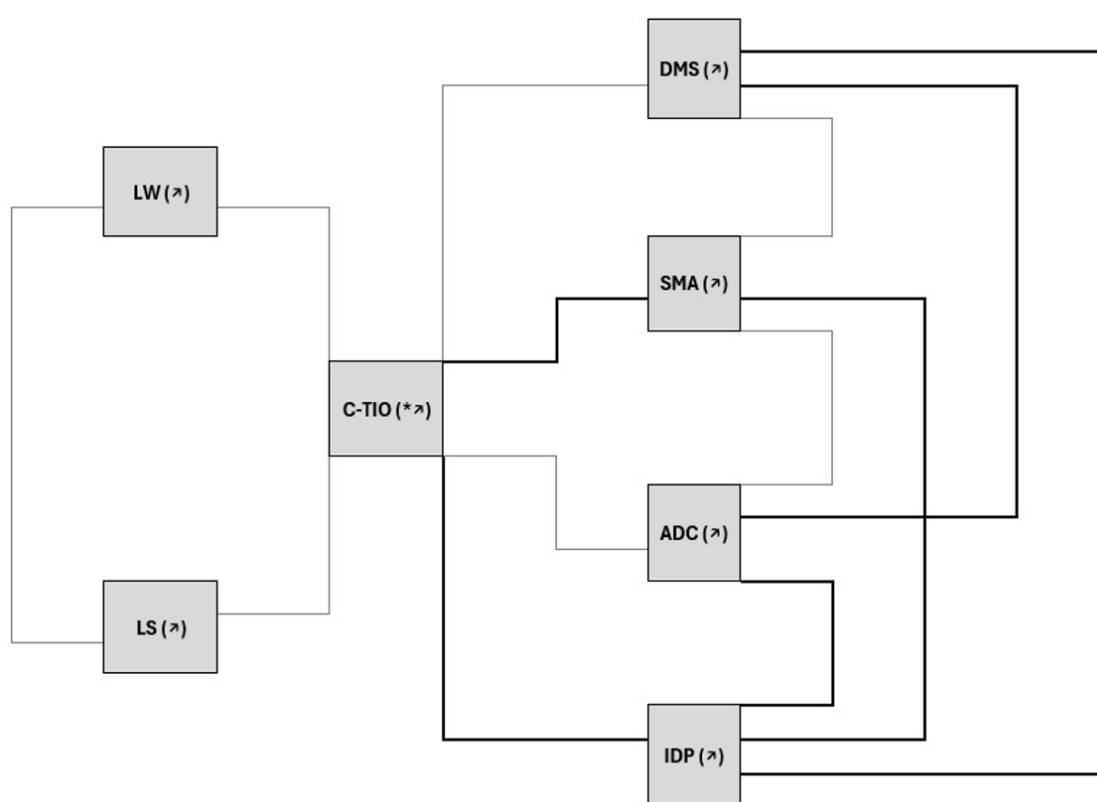
A medium correlation effect was also observed between ADC and DMS ($q=0.75$, $p<0.001$). Only the correlations between social media activity (SMA) and digital maturity of websites (DMS) and digital communication channel attractiveness (ADC) were very weak, below RMPE ($q=0.18$ and $q=0.16$, $p<0.05$, respectively).

Table 6. Relationships between TIO digital marketing communication quality indicators (q - Spearman's rank correlation coefficients).

Indicator	DMS	SMA	ADC	IDP
DMS	1.00			
SMA	0.18 (p=0.001)	1.00		
ADC	0.75 (p<0.001)	0.16 (p=0.004)	1.00	
IDP	0.84 (p<0.001)	0.65 (p<0.001)	0.67 (p=0.001)	1.00

Note: DMS – digital maturity index of websites; SMA – social media activity index; ADC – digital communication channel attractiveness index; IDP – integrated digital presence index; p – probability of error in Spearman's correlation coefficient significance test. q values assess the strength of intercorrelations between DMS, SMA, ADC, and IDP indicator levels; p values (in parentheses) assess the statistical significance of these associations. Significance of correlations was assumed at p<0.05.

Figure 2 presents a diagram of recognized relationships between the C-TIO category and LW, LS, DMS, SMA, ADC, and IDP indicator levels in relation to verified hypotheses.

**Figure 2.** Relationships between the C-TIO category and the levels of LW, LS, DMS, SMA, ADC, and IDP indicators.

Note: All lines between indicators denote statistically significant relationships at p<0.05. Bold lines denote a relationship strength above the recommended minimum effect size, representing a practically significant effect for social science data (RMPE>0.20). Grey lines indicate very weak relationships below RMPE.

The symbol ($\nearrow$) indicates an increase in the indicator level.

Indicators: LW – level of digital maturity of websites, LS – level of activity in social media, C-TIO – formal category of Tourist Information Office (from * to ****), DMS – digital maturity index of websites; SMA – social media activity index; ADC – index of attractiveness of digital communication channels; IDP – integrated digital presence index.

To conduct an in-depth analysis of the quality of TIOs' digital marketing communications, the diversity of DMS, SMA, ADC, and IDP indicators was identified in spatial terms for the TIOs under study, as presented in Figure 3. Values of the indicators falling within the median $\pm$ quartile deviation range were considered typical of the population under study. Despite the use of the same certification criteria for a given category of tourist information office, there are noticeable disparities in the quality of TIO digital presence in the locations measured by the adopted indicators. Importantly, however, only in a few Polish provinces were the selected indicators below typical values.

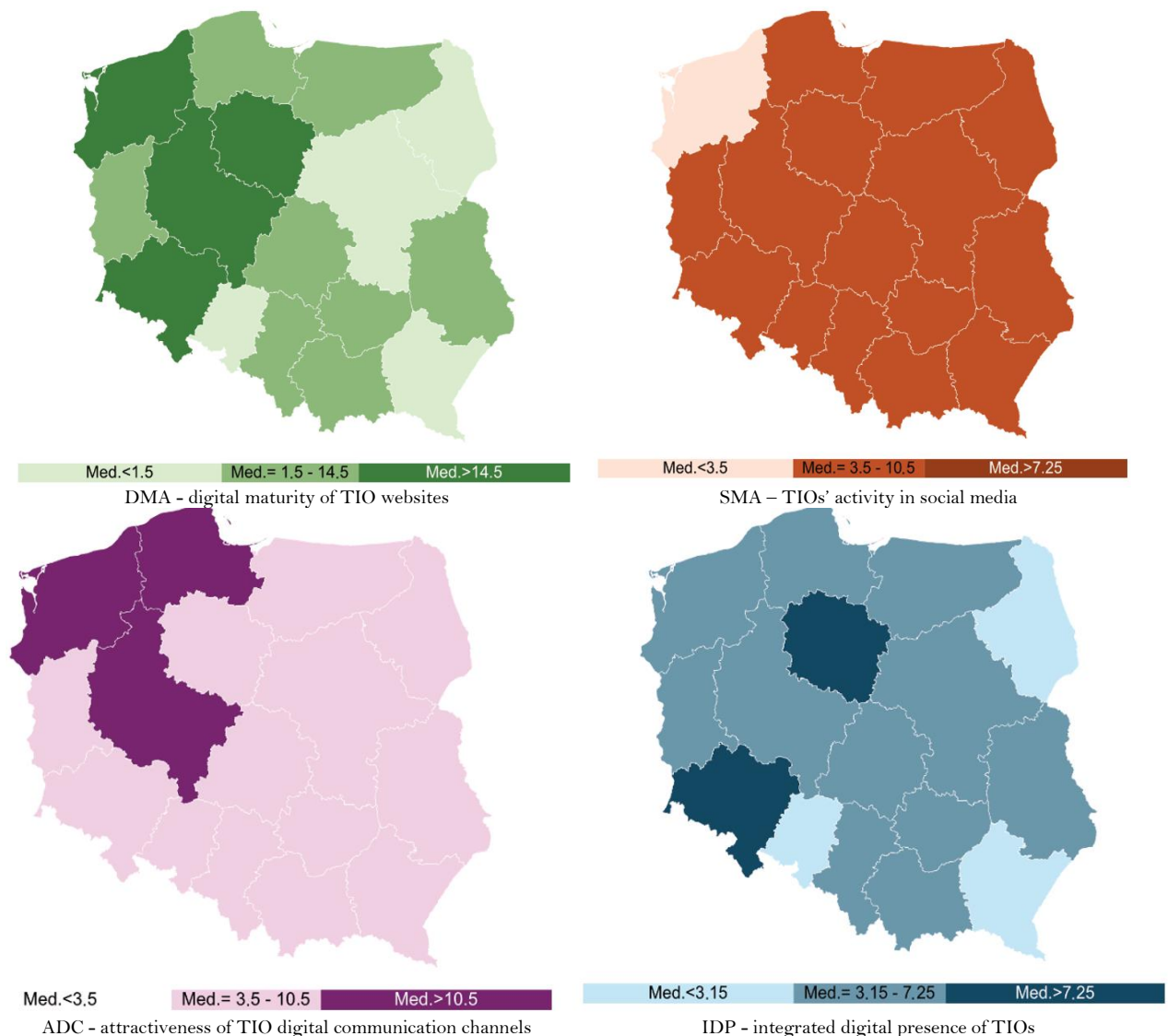


Figure 3. Spatial differentiation of digital presence quality indicators of tourist information offices (TIOs) in Poland.
Note: Med. – Median indicator (Lower and upper limits of indicator values determined based on the median $\pm$ quartile deviation).

5. CONCLUSION AND DISCUSSION

The results of the study showed that the formal category (stars) of TIO (C-TIO) influences all digital marketing communication indicators of tourist information offices relating to the digital maturity of their websites (DMS), their social media activity (SMA), the attractiveness of their digital communication channels (ADC), and the integrity of these instruments (IDP). Significant differences in these indicators were found in relation to C-TIO, with values tending to increase with higher TIO categories. All the areas analyzed in relation to the quality of TIO digital marketing communication, as included in the adopted indicators, were positively related to each other. This suggests that improving one of the indicators could have a positive impact on the quality of another.

The study confirmed hypothesis H1, which states that the formal TIO category (C-TIO) influences digital maturity (DMS) and social media activity (SMA) (see Table 5). Although the relationships were weak ($q=0.15$ and $q=0.23$), and the correlation exceeded the recommended minimum effect size only in the case of the SMA indicator, its statistical significance was confirmed ($p<0.01$). This suggests that when establishing or evolving the criteria for the formal categorization of TIOs, the importance of website quality and technical integration must be emphasized, particularly regarding social media profiles, as Ivanova (2019) directly suggested.

Although their role and mode of operation are constantly evolving under the influence of digitalisation and changing tourist needs, stationary (analogue) TIOs continue to function, as pointed out by Gössling (2021) and Leung

(2022). They are expanding their range of services by combining direct services with modern channels and marketing communication tools, such as social media, mobile applications, and AI (Ivanova, 2019). In some European cities, such as Paris (January 2025), the decision has been made to close all traditional TIOs, arguing that tourists' information needs have almost completely shifted to the internet. This view is supported by Nogueira and Carvalho (2023). Nevertheless, plans are in place to develop smaller, 24-hour 'concierge' TIOs, demonstrating that the demand for direct interaction in TIO spaces is not diminishing, merely evolving (Biadacz & Biadacz, 2015; Mustafaeva, Tappaskhanova, & Thamitloкова, 2020). In this context, the results of this study suggest that modern TIOs must undergo fundamental functional and communicative changes (including their certification), driven by technological progress and evolving consumer expectations. Dynamic changes in digital marketing in the tourism sector (Surya, Rahim, Hamsal, & Furinto, 2023) confirm G. V. Herman, Ilieş, Dumbravă, Wendt, and Ilieş (2019) postulates that certified TIOs need to develop digital competencies (strengthening their digital maturity) and integrate modern communication tools, such as websites and social media, into destination strategies. These results also confirm the second hypothesis (H2), which states that the attractiveness index of digital communication channels (ADC) is related to the formal category of TIOs (C-TIOs) (see Table 5).

The identified relationships enable us to draw valuable practical and theoretical conclusions. According to Chaffey (2000), websites should be designed in accordance with the 6C concept (capture, content, customer orientation, community, commerce, and credibility) to be considered attractive (Mandal, Roy, & Raju, 2017). However, this does not apply to all the TIOs surveyed: only 21.78% of websites were found to have a high level of digital maturity (LW), while 47.55% had a low LW (see Table 5). The low level of digital maturity of TIO websites may also influence the level of user trust in the entity promoting a given destination, as confirmed by the results of Abdelsattar et al. (2021) research. Further activity by TIOs requires them to reformulate their role, moving from being passive content distributors to active creators of personalised tourist experiences. They must strengthen their position as relational and advisory institutions that respond to the changing informational, emotional, and cognitive needs of their users. According to Wang and Yan (2022), the quality of information on websites or social media run by specialised organisations (such as TIOs) can influence not only the perception of a destination but also travel intentions, with self-awareness and trust playing a mediating role. This is reflected in the third hypothesis (H3), which was verified and assumes that the integrated digital presence (IDP) index in the destination marketing communication process conducted by TIOs depends on the formal category of the TIO (see Table 6).

The results also confirm the growing importance of destinations' virtual presence (including that of TIOs), as argued by Jamshidi et al. (2023). They claim that social media influence shapes the attractiveness of destinations, creating memorable experiences and fostering tourist loyalty. In this context, the TIOs surveyed (with low and medium LW values of 78.22% and LS 90.18%, respectively) must urgently modernize their digital infrastructure (i.e., websites and social media profiles) and offer immersive experiences deeply rooted in the local cultural context. This aligns with Chamboko-Mpotaringa and Tichaawa (2021) recommendations on using digital tools to build destinations' competitive advantage. However, as Jovicic (2019) notes, the effective valorization and commercialization of tourist attributes (including the types of information, products, and services presented on the surveyed TIOs' websites and social media profiles) (see Table 2) is almost impossible without integrating digital resources and cooperating with stakeholders in the tourism sector. Despite the dominance of digital channels, the importance of personal interaction should not be overlooked. As Araña, León, Carballo, and Moreno Gil (2016) point out, direct contact with TIO staff remains important to tourists, particularly in building trust and authenticity. Therefore, TIOs should combine modern technological solutions with people skills and local knowledge to ensure their continued functioning. The conclusions also suggest the need to reconsider the formula for TIOs' presence on social media, which is currently dominated by low LS values see Table 4, where, as noted by S. Kumar et al. (2024), tourists become content creators and opinion leaders. The results obtained indicate the need to redefine the role of TIOs in a globalized, digitalized tourism environment. As Ivanic et al. (2024) note, a TIO should be the first port of

call for tourists seeking information about a destination's offerings (including the SW and PW variables studied here), serving as the primary means of promoting the quality of tourist services. To remain useful and competitive, these entities must modernize their promotional tools and transform into dynamic actors that support the development of local tourism ecosystems through technological innovation, high-quality content, and trust-based relationship building.

In a broader perspective, the obtained results can be generalized to similar institutional contexts in any destination. The proposed set of indicators (DMS–SMA–ADC–IDP) constitutes a universal diagnostic tool that can be adapted to assess the quality of digital marketing communications in various cultural, technological, and organizational conditions of the tourism sector. Future international comparative studies could therefore consider differences between countries in the level of digital maturity, marketing communication management practices, and the degree of integration of e-communication tools in the activities of TIOs (including DMOs). Such research would not only allow for empirical verification of the universality of the proposed indicators but would also contribute to the development of an international benchmarking model for the quality of digital marketing communications in the tourism sector, particularly in networks and systems of tourist information providers. Consequently, this approach opens a new line of research in the comparative analysis of destination digital maturity, contributing to the theoretical advancement of territorial marketing and digital tourism governance. Moreover, the proposed model and indicators could serve as a decision-support tool for policymakers and destination management organizations (DMOs) seeking to monitor and enhance the digital competitiveness of tourism information systems.

5.1. Theoretical Implications

The results provide important theoretical foundations for developing knowledge about how tourism entities (including TIOs) promote destinations. As Setiawan and Munandar (2020) have noted, there is a clear need for digital TIOs that can effectively respond to challenges related to the availability of tourist information while also serving as marketing communication tools for destinations. The obtained results confirm the validity of this postulate, emphasizing the importance of TIOs as key elements of a destination's information and promotional infrastructure. This infrastructure must evolve to increase the attractiveness of the digital communication tools used, regardless of the level of certification awarded.

The information service activities of TIOs should be analyzed in terms of both the scope and quality of the content offered. Mistilis and D'ambra (2008) emphasize the need for a multidimensional assessment of TIO functioning, particularly regarding the effectiveness of their promotional tools. The conclusions of this study provide an empirical basis for the further development of theoretical models that consider the quality of TIO promotional activities in the digital environment.

Additionally, considering Ray, Das, and Chaudhuri (2015) postulates concerning the need to identify key determinants of website quality in tourism promotion, the results obtained indicate significant quality issues in the analysed TIO websites and social media profiles (low LW and LS values). The identified barriers in TIO online communication (including IDP values in relation to DMA and SMA, see Table 6) constitute an important contribution to the process of theoretical modelling of the evolution of the functions and role of the tourist information offices under study in the context of advancing digitalisation. The results of this study may indicate a need for deeper reflection on the quality standards of websites and social media profiles as an integral part of TIO promotional strategies in the face of growing competition in the field of information services from Online Travel Agencies (OTA), as pointed out by Wąsowicz-Zaborek (2022).

5.2. Managerial Implications

The results of this study may have significant implications for the management of TIOs, particularly given the dynamic digital transformation of the tourism sector and the increasing demands of contemporary tourists. As confirmed by Ghosh and Mukherjee (2023), understanding the mechanisms of digital marketing tools such as websites

and social media profiles is crucial for the effective management of a destination's promotional strategy. In the face of dynamic market changes and growing sector competitiveness, it is essential for managers at local, regional, and national levels to be aware of the impact of these tools on communication activity effectiveness, as pointed out by Wąsowicz-Zaborek (2022). Grigore Vasile Herman, Wendt, Dumbravă, and Gozner (2019) propose supporting managers in quantifying the role of organizations (including TIOs) in creating destination images, as reflected in the techniques and proprietary measures used by TIO websites and social media. As Chamboko-Mpotaringa and Tichaawa (2021) note, skillful use and monitoring of digital communication channels enable more precise shaping of marketing strategies and provide a foundation for interventions that support destination competitiveness.

The results presented in Figure 2 show the values of the DMS, SMA, ADC, and IDP indicators in spatial terms. They provide unique information about existing disparities in the quality of the TIO's digital presence and suggest the need to evolve the types of variables used in the certification process to the **** category. This would involve setting clear priorities for the TIO's digital presence criteria (see Table 2). These priorities could then be used to amend the rules or codes of conduct for the TIO's customer service (see User Manual..., 2020).

The research confirmed the need to professionalize TIO's digital presence through developing functional and attractive websites, as well as actively managing multi-channel social media (Foroudi et al., 2016; Wang & Yan, 2022). Neglect in this area leads to a decrease in the credibility of TIOs and a reduction in their promotional impact on tourists' decisions (Hunter, 2016; Jamshidi et al., 2023), as can be seen in the dominant low LW and LS values in correlation with C-TIO (see Table 4).

TIO managers should implement a strategic approach to digital content management based on the principles of content marketing and user-centered design (Chaffey, 2000). It is therefore necessary to systematically monitor the information needs of different user groups, including people with disabilities. This aligns with the recommendations of WCAG and inclusive communication trends via websites (Domínguez, González, & Darcy, 2017; Singh et al., 2021). Research has shown that the degree to which TIO websites are adapted for people with disabilities is insufficient (AW=32%) and requires intervention. This is particularly relevant in the context of WCAG requirements and Zajadacz (2014) findings regarding the threat of information exclusion and the limited effectiveness of marketing communication activities conducted by TIOs.

The results suggest that closer cooperation is needed between TIOs and other tourism stakeholders in the destination, such as tourist attraction managers and entrepreneurs, to expand the limited range of information types available on TIO websites. This is evident from the scope of information available on the website (data types): 0 types: 41% of websites; 1 type: 5%; 2 types: 9%; 3 types: 11%; 4 types: 9%; 5 types: 11%; 6 types: 14%. This serves to build consistent promotional campaigns and a marketing narrative about the destination's attractiveness, as postulated by Gato et al. (2022).

Finally, the active management of e-reputation and the continuous development of digital communication skills on social media are of key importance. This is indicated by the low LS values for TIO and the median SMA values (see Table 4 and Figure 2), which confirm the need for managerial intervention. Appropriate content moderation and a quick response to comments, as well as proactive management of user relations, particularly on social media, can strengthen trust and foster a positive image of the destination (Armutcu, Tan, Amponsah, Parida, & Ramkissoon, 2023; Jiménez-Barreto et al., 2020).

5.3. Limitations and Further Research

The current study has several limitations. Firstly, the analysis of digital content was limited because the desk research methodology only covered publicly available elements of the websites and social media profiles of certified TIOs. This meant that hidden or advanced features, such as analytical systems, CRM, and AI, could not be assessed. Secondly, the study did not involve direct engagement with TIO stakeholders (e.g., interviews with representatives), which limits the assessment of the decision-making context and the subjective perception of the effectiveness of digital

tools by their users. Limitations also arose from the availability of secondary data, as the analysis only covered TIOs for which full online observation was possible (i.e., the same variables were observed across the entire group of 326 TIOs).

Secondly, no analysis of the economic effectiveness of digital activities was conducted. This included the measurement of the impact of TIOs' digital presence on performance indicators, such as the number of website visits, conversions, and ROI. This is because such data is unavailable due to its sensitivity and is not disclosed on websites or social media profiles. The assessment of the attractiveness of the TIOs' websites and social media profiles is also subjective (despite the scale adopted and the random selection of websites for assessment by a given respondent), as some of the data comes from subjective assessments by a group of tourism students, which may introduce perceptual variability and affect the repeatability of the results.

The analysis results suggest the following areas for further research: (1) a systematic audit of the quality and functionality of the digital promotional tools used by TIO, in line with best practices in digital marketing and in accordance with tourist expectations; (2) investment in the digital competence of TIO staff, including defining the content and methods for managing the online community; (3) evaluation of TIO's integrated digital communication strategies for creating consistent promotional narratives; and (4) evaluation of TIO's promotional instruments in terms of increasing audience engagement and improving the destination's image. Implementing this research could significantly boost the effectiveness of TIO's promotional activities, enhancing destination visibility and increasing tourist traffic. Additionally, implementing evidence-based strategies will facilitate more effective justification of investment in TIO's digital sector to stakeholders and decision-makers.

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Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

Competing Interests: The authors declare that they have no competing interests.

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REFERENCES

- Abdelsattar, W. O., Kortam, W., & Tarek, A. (2021). Examining the relationship between tourism information quality dimensions and recommendation adoption. *The International Journal of Business & Management*, 9(8), 263–286. <https://doi.org/10.24940/theijbm/2021/v9/i8/165501-400935-1-SM>
- Agyapong, E., & Yuan, J. (2022). Social media impact on tourism destination decision: Evidence from international students in China. *Open Journal of Applied Sciences*, 12(12), 2055–2080. <https://doi.org/10.4236/ojapps.2022.1212143>
- Almeida-Santana, A., David-Negre, T., & Moreno-Gil, S. (2020). New digital tourism ecosystem: Understanding the relationship between information sources and sharing economy platforms. *International Journal of Tourism Cities*, 6(2), 335–345. <https://doi.org/10.1108/IJTC-09-2019-0173>
- Araña, J. E., León, C. J., Carballo, M. M., & Moreno Gil, S. (2016). Designing tourist information offices: The role of the human factor. *Journal of Travel Research*, 55(6), 764–773. <https://doi.org/10.1177/0047287515587113>
- Armutcu, B., Tan, A., Amponsah, M., Parida, S., & Ramkissoon, H. (2023). Tourist behaviour: The role of digital marketing and social media. *Acta Psychologica*, 240, 104025. <https://doi.org/10.1016/j.actpsy.2023.104025>
- Baber, R., & Baber, P. (2023). Influence of social media marketing efforts, e-reputation and destination image on intention to visit among tourists: Application of S-O-R model. *Journal of Hospitality and Tourism Insights*, 6(5), 2298–2316. <https://doi.org/10.1108/JHTI-06-2022-0270>

- Ballantyne, R., Hughes, K., & Ritchie, B. W. (2009). Meeting the needs of tourists: The role and function of Australian visitor information centers. *Journal of Travel & Tourism Marketing*, 26(8), 778-794. <https://doi.org/10.1080/10548400903356178>
- Bekele, H., & Raj, S. (2025). Digitalization and digital transformation in the tourism industry: A bibliometric review and research agenda. *Tourism Review*, 80(4), 894-913. <https://doi.org/10.1108/TR-07-2023-0509>
- Biadacz, R., & Biadacz, M. (2015). The use of modern information technology in tourist information systems on the example of city of Czestochowa. *Procedia Computer Science*, 65, 1105-1113. <https://doi.org/10.1016/j.procs.2015.09.039>
- Bradley, G. L., Sparks, B. A., & Weber, K. (2015). The stress of anonymous online reviews: A conceptual model and research agenda. *International Journal of Contemporary Hospitality Management*, 27(5), 739-755. <https://doi.org/10.1108/IJCHM-01-2014-0005>
- Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet—The state of eTourism research. *Tourism management*, 29(4), 609-623. <https://doi.org/10.1016/j.tourman.2008.01.005>
- Chaffey, D. (2000). Achieving Internet marketing success. *The Marketing Review*, 1(1), 35-59. <https://doi.org/10.1362/1469347002523491>
- Chamboko-Mpotaringa, M., & Tichaawa, T. M. (2021). Tourism digital marketing tools and views on future trends: A systematic review of literature. *African Journal of Hospitality, Tourism and Leisure*, 10(2), 712-726.
- Chui, C., & Walters, G. (2022). Visitor information centres and Millennial travellers: Remaining relevant in a digital era. *Tourism Cases*, 0043. <https://doi.org/10.1079/tourism.2022.0043>
- Devasia, D., & Kumar, S. P. V. (2022). Promotion of tourism using digital technology: An analysis of Kerala Tourism. In: Hassan, A. (Eds.), *Handbook of Technology Application in Tourism in Asia*. In (pp. 403-422). Singapore: Springer. https://doi.org/10.1007/978-981-16-2210-6_19
- Dharmasena, T., & Jayathilaka, R. (2021). The nexus between information and consumer confusion: Information provider vs information recipient. *Tourism Review*, 76(3), 594-613. <https://doi.org/10.1108/TR-06-2019-0252>
- Dolynska, O., Shorobura, I., & Hutsal, L. (2024). The role of tourist information centers in regional tourism development. *Market Infrastructure*, 79, 248-252. <https://doi.org/10.32782/infrastructure79-42>
- Domínguez, V. T., González, A. E., & Darcy, S. (2017). Website accessibility in the tourism industry: An analysis of official national tourism organization websites around the world. *Disability and Rehabilitation*, 40(24), 2895-2906. <https://doi.org/10.1080/09638288.2017.1362709>
- Ferguson, C. J. (2009). An effect size primer: A guide for clinicians and researchers. *Professional Psychology: Research and Practice*, 40(5), 532-538. <https://doi.org/10.1037/a0015808>
- Filipiak, B. Z., Dylewski, M., & Kalinowski, M. (2023). Economic development trends in the EU tourism industry. Towards the digitalization process and sustainability. *Quality & Quantity*, 57(Suppl 3), 321-346. <https://doi.org/10.1007/s11135-020-01056-9>
- Floričić, T., Šker, I., & Benassi, H. M. (2023). Enhancing digital promotion of cultural attractions: Assessing websites, online marketing tools and smart technologies. *Business Systems Research*, 14(1), 72-92. <https://doi.org/10.2478/bsrj-2023-0004>
- Fodness, D., & Murray, B. (1999). A model of tourist information search behavior. *Journal of Travel Research*, 37(3), 220-230. <https://doi.org/10.1177/004728759903700302>
- Foroudi, P., Gupta, S., Kitchen, P., Foroudi, M. M., & Nguyen, B. (2016). A framework of place branding, place image, and place reputation: Antecedents and moderators. *Qualitative Market Research: An International Journal*, 19(2), 241-264. <https://doi.org/10.1108/QMR-02-2016-0020>
- Gaceu, I., & Oprea, O. B. (2024). Summary on the role of informational content in the communication and promotion of tourism services in Romania. *Journal of EcoAgriTourism*, 20(1), 23-29.

- García-Milon, A., Olarte-Pascual, C., Juaneda-Ayensa, E., & Pelegrín-Borondo, J. (2021). Tourist purchases in a destination: What leads them to seek information from digital sources? *European Journal of Management and Business Economics*, 30(2), 243-260. <https://doi.org/10.1108/EJMBE-09-2019-0153>
- Gato, M., Dias, Á., Pereira, L., da Costa, R. L., & Gonçalves, R. (2022). Marketing communication and creative tourism: An analysis of the local destination management organization. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(1), 40. <https://doi.org/10.3390/joitmc8010040>
- Gebreel, O. S. S., & Shuayb, A. (2022). Contribution of social media platforms in tourism promotion. *International Journal of Social Science, Education, Communication and Economics*, 1(2), 189-198. <https://doi.org/10.54443/sj.v1i2.19>
- Ghosh, P., & Mukherjee, S. (2023). Understanding tourist behaviour towards destination selection based on social media information: An evaluation using unsupervised clustering algorithms. *Journal of Hospitality and Tourism Insights*, 6(2), 754-778. <https://doi.org/10.1108/JHTI-11-2021-0317>
- Gössling, S. (2021). Tourism, technology and ICT: A critical review of affordances and concessions. *Journal of Sustainable Tourism*, 29(5), 733-750. <https://doi.org/10.1080/09669582.2021.1873353>
- Gretzel, U., Yuan, Y. L., & Fesenmaier, D. R. (2006). Preparing for the new economy: Advertising strategies and change in destination marketing organizations. *Journal of Travel Research*, 45(2), 146-157.
- Herman, G. V., Ilieș, D. C., Dumbravă, R., Wendt, J., & Ilieș, A. (2019). Methodological aspects regarding the quantification of the role of tourism promotion centers in creating the destination image in Romania. *Caribbean Studies*, 43-44. <https://doi.org/10.4000/etudescaribeennes.16642>
- Herman, G. V., Wendt, J. A., Dumbravă, R., & Gozner, M. (2019). The role and importance of promotion centers in creating the image of tourist destination: Romania. *Geographia Polonica*, 92(4), 443-454. <https://doi.org/10.7163/GPol.0158>
- Hinson, R. E., Osabutey, E. L., & Kosiba, J. P. (2020). Exploring the dialogic communication potential of selected African destinations' place websites. *Journal of Business Research*, 116, 690-698. <https://doi.org/10.1016/j.jbusres.2018.03.033>
- Hu, L., & Olivieri, M. (2021). Social media management in the traveller's customer journey: An analysis of the hospitality sector. *Current Issues in Tourism*, 24(12), 1768-1779. <https://doi.org/10.1080/13683500.2020.1819969>
- Hunter, W. C. (2016). The social construction of tourism online destination image: A comparative semiotic analysis of the visual representation of Seoul. *Tourism Management*, 54, 221-229. <https://doi.org/10.1016/j.tourman.2015.11.012>
- Hysa, B., Karasek, A., & Zdonek, I. (2021). Social media usage by different generations as a tool for sustainable tourism marketing in society 5.0 idea. *Sustainability*, 13(3), 1018. <https://doi.org/10.3390/su13031018>
- Iannaccone, B., Šoltésová, M., Molokáč, M., & Taušová, M. (2024). The role of the visitor center in destination development. *Sustainability*, 16(22), 10062. <https://doi.org/10.3390/su162210062>
- Ivanic, A., Contor, R. D., Genig, G. A., Gheorghe, A., Firu-Negoescu, G. A., & Constantinescu, C. S. (2024). The role of tourist information centers in the decision to purchase tourist services. *Agricultural Management Lucrari Stiintifice*, 26(3), 311-319.
- Ivanova, M. (2019). Robots, Artificial Intelligence, and service automation in travel agencies and tourist information centers, In S. Ivanov, & C. Webster (Eds.), *Robots, Artificial Intelligence, and service automation in travel, Tourism and Hospitality*. In: Emerald Publishing Limited. <https://doi.org/10.1108/978-1-78756-687-320191011>
- Jamal, S. A., Aminudin, N., & Kausar, D. R. (2019). Family adventure tourism motives and decision-making: A case of whitewater rafting. *Journal of Outdoor Recreation and Tourism*, 25, 10-15. <https://doi.org/10.1016/j.jort.2018.11.005>
- Jamshidi, D., Rousta, A., & Shafei, R. (2023). Social media destination information features and destination loyalty: Does perceived coolness and memorable tourism experiences matter? *Current Issues in Tourism*, 26(3), 407-428. <https://doi.org/10.1080/13683500.2021.2019204>
- Jiménez-Barreto, J., Rubio, N., Campo, S., & Molinillo, S. (2020). Linking the online destination brand experience and brand credibility with tourists' behavioral intention toward a destination. *Tourism Management*, 79, 104101. <https://doi.org/10.1016/j.tourman.2020.104101>

- Jovicic, D. Z. (2019). From the traditional understanding of tourism destination to the smart tourism destination. *Current Issues in Tourism*, 22(3), 276–282. <https://doi.org/10.1080/13683500.2017.1313203>
- Kanazawa, F. N., Lourenção, M., Caldeira, d. O. J. H., & De Moura, E. G. J. (2021). Destination website management: A social constructionist approach. *Journal of Destination Marketing & Management*, 19, 100545. <https://doi.org/10.1016/j.jdmm.2020.100545>
- Kang, S., Kim, W. G., & Park, D. (2020). Understanding tourist information search behaviour: the power and insight of social network analysis. *Current Issues in Tourism*, 24(3), 403–423. <https://doi.org/10.1080/13683500.2020.1771290>
- Korbiel, K. (2021). The use of Facebook in marketing communication by local tourist organizations in Poland. *Tourism*, 31(2), 25–37. <https://doi.org/10.18778/0867-5856.31.2.02>
- Kotler, P., Bowen, J. T., Makens, J. C., & Baloglu, S. (2016). *Marketing for hospitality and tourism* (7th ed.). United Kingdom: Pearson Education.
- Kourtesopoulou, A., Christina, N., Moustakarias, N. M., & Theodoula, G. (2020). Evaluating quality in tourism destination websites of Peloponnese. In V. Katsoni, T. Spyriadis (Eds.), *Cultural and Tourism Innovation in the Digital Era*. Springer Proceedings in Business and Economics. In (pp. 291–306). Cham: Springer
- Kullada, P., & Michelle, K. C. R. (2020). Examining the influence of digital information quality on tourists' experience. *Journal of Quality Assurance in Hospitality & Tourism*, 22(2), 191–217. <https://doi.org/10.1080/1528008X.2020.1769522>
- Kumar, A. (2024). *Monitoring sentiment for intra-European travel (Wave 21, ETC)*. Brussels, Belgium: European Travel Commission.
- Kumar, P., Mishra, J. M., & Rao, Y. V. (2021). Analysing tourism destination promotion through Facebook by destination marketing organizations of India. *Current Issues in Tourism*, 25(9), 1416–1431. <https://doi.org/10.1080/13683500.2021.1921713>
- Kumar, S., Kumar, V., Kumari, B. I., Kumar, S., & Attri, K. (2024). Digital transformation in tourism sector: Trends and future perspectives from a bibliometric-content analysis. *Journal of Hospitality and Tourism Insights*, 7(3), 1553–1576. <https://doi.org/10.1108/JHTI-10-2022-0472>
- Labanauskaitė, D., Fiore, M., & Stašys, R. (2020). Use of E-marketing tools as communication management in the tourism industry. *Tourism Management Perspectives*, 34, 100652. <https://doi.org/10.1016/j.tmp.2020.100652>
- Law, R., Buhalis, D., & Cobanoglu, C. (2014). Progress on information and communication technologies in hospitality and tourism. *International Journal of Contemporary Hospitality Management*, 26(5), 727–750. <https://doi.org/10.1108/IJCHM-08-2013-0367>
- Leung, R. (2022). Development of information and communication technology: From e-Tourism to Smart Tourism. In Z. Xiang, M. Fuchs, U. Gretzel, W. Höpken (Eds.), *Handbook of e-Tourism*. In (pp. 23–55). Cham: Springer
- Li, S. C., Robinson, P., & Oriade, A. (2017). Destination marketing: The use of technology since the millennium. *Journal of Destination Marketing & Management*, 6(2), 95–102. <https://doi.org/10.1016/j.jdmm.2017.04.008>
- Liu, J., Wang, C., Zhang, T., & Qiao, H. (2023). Delineating the effects of social media marketing activities on Generation Z travel behaviors. *Journal of Travel Research*, 62(5), 1140–1158. <https://doi.org/10.1177/00472875221106394>
- Lyu, S. O., & Hwang, J. (2015). Are the days of tourist information centers gone? Effects of the ubiquitous information environment. *Tourism Management*, 48, 54–63. <https://doi.org/10.1016/j.tourman.2014.11.001>
- Majid, G. M., Tussyadiah, I., Kim, Y. R., & Pal, A. (2023). Intelligent automation for sustainable tourism: A systematic review. *Journal of Sustainable Tourism*, 31(11), 2421–2440. <https://doi.org/10.1080/09669582.2023.2246681>
- Mandal, S., Roy, S., & Raju, A. G. (2017). Exploring the role of website attractiveness in travel and tourism: empirical evidence from the tourism industry in India. *Tourism Planning & Development*, 14(1), 110–134. <https://doi.org/10.1080/21568316.2016.1192058>
- Mandić, A., & Garbin Praničević, D. (2019). Progress on the role of ICTs in establishing destination appeal: Implications for smart tourism destination development. *Journal of Hospitality and Tourism Technology*, 10(4), 791–813. <https://doi.org/10.1108/JHTT-06-2018-0047>

- Mariani, M. (2020). Big data and analytics in tourism and hospitality: A perspective article. *Tourism Review*, 75(1), 299-303. <https://doi.org/10.1108/TR-06-2019-0259>
- Mior, S. N. S., Azinuddin, M., Hanafiah, M. H., & Wan, M. Z. W. M. A. (2023). A comprehensive review on tourism destination competitiveness (TDC) literature. *Competitiveness Review: An International Business Journal*, 33(4), 787-819.
- Mistilis, N., & D'ambra, J. (2008). The visitor experience and perception of information quality at the Sydney visitor information centre. *Journal of Travel & Tourism Marketing*, 24(1), 35-46. https://doi.org/10.1300/J073v24n01_03
- Mustafaeva, Z., Tappaskhanova, E., & Thamitlokova, Y. O. (2020). *Digitalization of tourism: Creating tourist information center*. Paper presented at the 2nd International Scientific and Practical Conference "Modern Management Trends and the Digital Economy: from Regional Development to Global Economic Growth"(MTDE 2020), Atlantis Press.
- Mynarski, A., & Walas, B. (2021). Diagnosis of the functioning of tourist information offices in Poland. *Scientific Papers of WSTiE in Sucha Beskidzka*, 19(1), 21-42.
- Nizioł, A. (2017). The tourist information system and its services in the opinion of visitors to the Podkarpackie Voivodeship. *Journal of Education, Technology and Computer Science*, 8(1), 163-168.
- Nogueira, S., & Carvalho, J. (2023). The importance of technology and digital media to promote Tourism destinations: A conceptual review. In J. L. Reis, M. Del Rio Araujo, L. P. Reis & J. P. M. dos Santos (Eds.), *Marketing an (pp.). . In (pp. 515-525)*. Singapore: Springer
- Nzeku, B., & Duffett, R. G. (2021). The use of social media as a marketing tool by tourist attractions: Influence on cognitive, affective and behavioural consumer attitudes. *African Journal of Hospitality, Tourism and Leisure*, 10(2), 742-758.
- Önder, I., Gunter, U., & Gindl, S. (2020). Utilizing Facebook statistics in tourism demand modeling and destination marketing. *Journal of Travel Research*, 59(2), 195-208. <https://doi.org/10.1177/0047287519835969>
- Pan, X., Rasouli, S., & Timmermans, H. (2021). Investigating tourist destination choice: Effect of destination image from social network members. *Tourism Management*, 83, 104217. <https://doi.org/10.1016/j.tourman.2020.104217>
- Park, H., & Stepchenkova, S. (2023). Invisible power of culture: Mapping tourist information flow of national DMO websites. *Journal of Travel Research*, 62(4), 753-767. <https://doi.org/10.1177/00472875221095220>
- Pawłowska-Legwand, A. (2019). The use of information and communication technologies in accessing tourist information and services in light of the results of research conducted among Polish tourists in the Małopolska. *Voivodeship. Tourism*, 29(2), 109-117. <https://doi.org/10.18778/0867-5856.29.2.22>
- Pencarelli, T. (2020). The digital revolution in the travel and tourism industry. *Information Technology & Tourism*, 22(3), 455-476. <https://doi.org/10.1007/s40558-019-00160-3>
- Pshenichnykh, Y., & Novi, I. (2023). The role of information technology in promoting a tourist destination. *International Journal of Media and Information Literacy*, 8(2), 350-359.
- Ray, N., Das, D. K., & Chaudhuri, S. (2015). Tourism promotion through web, Hospitality, travel, and tourism: concepts, methodologies, tools, and applications. In (pp. 366-375). Hershey: IGI Global Scientific Publishing
- Rodríguez, M., Nassanbekova, S., Pérez, L. M., & Urzabayeva, N. (2020). The impact of information quality in DMOs' Facebook pages on the formation of destination image in the Silk Road: the case of Almaty, Kazakhstan. *Current Issues in Tourism*, 23(13), 1587-1592. <https://doi.org/10.1080/13683500.2019.1646225>
- Setiawan, A., & Munandar, J. M. (2020). The role of the tourist information center (TIC) of Soekarno Hatta Airport in the choice of tourist destinations based on tourist characteristics and services. *Jurnal Aplikasi Manajemen*, 18(4), 667-681. <https://doi.org/10.21776/ub.jam.2020.018.04.06>
- Shrestha, D., Wenan, T., Rajkarnikar, N., Shrestha, D., & Jeong, S. R. (2021). Study and evaluation of tourism websites based on user perspective. *Journal of Internet Computing and Services*, 22(4), 65-82. <https://doi.org/10.7472/JKSII.2021.22.4.65>
- Singh, R., Ismail, A., PS, S., & Singh, D. (2021). Compliance of accessibility in tourism websites: A pledge towards disability. *Journal of Hospitality and Tourism Insights*, 4(3), 263-281. <https://doi.org/10.1108/JHTI-05-2020-0092>

- Sivarethinamohan, R. (2023). *Exploring the transformation of digital tourism: Trends, Impacts, and Future Prospects*. Paper presented at the 2023 International Conference on Digital Applications, Transformation & Economy (ICDATE), Miri, Sarawak, Malaysia, 260–266.
- Sultan, M. T., Sharmin, F., Badulescu, A., Gavrilut, D., & Xue, K. (2021). Social media-based content towards image formation: A new approach to the selection of sustainable destinations. *Sustainability*, 13(8), 4241. <https://doi.org/10.3390/su13084241>
- Surya, H., Rahim, R. K., Hamsal, M., & Furinto, A. (2023). *Tourism destinations' digital marketing: Current trends and issues*. Paper presented at the ICEME '23: Proceedings of the 2023 14th International Conference on E-business, Management and Economics, Association for Computing Machinery, New York.
- Tran, N. L., & Rudolf, W. (2022). Social media and destination branding in tourism: A systematic review of the literature. *Sustainability*, 14(20), 13528. <https://doi.org/10.3390/su142013528>
- Wang, H., & Yan, J. (2022). Effects of social media tourism information quality on destination travel intention: Mediation effect of self-congruity and trust. *Frontiers in Psychology*, 13, 1049149. <https://doi.org/10.3389/fpsyg.2022.1049149>
- Wąsowicz-Zaborek, E. (2022). Consumer choice determinants of online intermediary tourism platforms. *International Journal of Management and Economics*, 58(2), 161–178. <https://doi.org/10.2478/ijme-2022-0013>
- Wengel, Y., Ma, L., Ma, Y., Apollo, M., Maciuk, K., & Ashton, A. S. (2022). The TikTok effect on destination development: Famous overnight, now what? *Journal of Outdoor Recreation and Tourism*, 37, 100458. <https://doi.org/10.1016/j.jort.2021.100458>
- World Economic Forum, K. (2025). *Four scenarios for the future of travel and tourism*. Geneva, Switzerland: World Economic Forum.
- Yanti, D., Dalimunthe, F. I., Prayogi, B., & Ismail, W. N. A. T. (2023). The effectiveness of digital media management by local governments in tourism marketing. *Planning Malaysia*, 21(30), 1-6. <https://doi.org/10.21837/pm.v21i30.1382>
- Zajadacz, A. (2014). Tourism for people with disabilities. Barriers, needs and the new modeling of the tourist offer. *Quaestiones Geographicae*, 33(2), 135–143.
- Zarezadeh, Z., Benckendorff, P., & Gretzel, U. (2019). Lack of progress in tourist information search research: A critique of citation behaviour and knowledge development. *Current Issues in Tourism*, 22(19), 2415–2429. <https://doi.org/10.1080/13683500.2018.1459511>
- Zhang, H.-y., Ji, P., Wang, J.-q., & Chen, X.-h. (2017). A novel decision support model for satisfactory restaurants utilizing social information: A case study of TripAdvisor. com. *Tourism Management*, 59, 281–297. <https://doi.org/10.1016/j.tourman.2016.08.010>