Digital Transformation Processes in Tourism

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Abstract

Consumer behaviour and decision-making in tourism are increasingly based on digital information. Content created by users on social networks, the opinions of travel-oriented bloggers and vloggers, and the content and focus of new media are becoming the standard, and it is anticipated that these tendencies will continue to gain momentum. For the supply side, knowledge of consumer preferences for forms of marketing communication is crucial. The aim is to examine the preferences of contemporary tourists in relation to the use of new media in the tourism sector in the Slovak environment, based on the individual phases of travel as well as demographic characteristics. A quantitative study was conducted on 1208 respondents using inferential statistics. The specifics of the Slovak market were identified: websites, as a more traditional digital medium, play a direct role in all purchase phases of travel, while social networks, reviews, and discount portals are also essential. Though newer forms of digital communication, such as digital games or virtual or augmented reality, are certainly in the minds of tourists, the intensity of their use remains low. In terms of demographic characteristics, it was found that women use new media significantly more both during and after a trip than men. Men prefer using entertainment-related media, most often digital games. The findings of this study will serve as a useful basis for formulating strategies of public and private organisations for the digital transformation of tourism.

Key words

digital marketing communication, new media, e-tourism.

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Introduction

In the tourism industry, terminology such as digital tourism, intelligent tourism, e-tourism, e-tourist, tourism 4.0, smart tourism, and the like is used in connection with digitalisation (Stankov & Gretzel, 2020; Ozdemir et al., 2023; Baggio et al., 2020). Digitalisation is the process by which technology and data-driven management change social and economic systems and consumer behaviour. The pressure to adopt digital technologies is driven by the convergence of advanced technologies and the growing social and economic connectivity that has developed during globalisation (OECD, 2021; Madleňák et al., 2021).

An indisputable benefit of digitalisation is, among other things, that all destinations or businesses in tourism (small, lesser known, or completely new) have an impact on the world tourist through

intelligent tourism (Albrecht & Raymond, 2023). Working with Big Data and data analyses are essential for the purpose of making important business decisions (Yallop, 2023), and data collection makes it possible to summarise knowledge about consumers, trends, and the business environment. Data and its collection and interpretation are generally a source of value creation for companies. New media enables interaction and communication with destinations and businesses in tourism (Pencarelli, 2020) as well as the possibility of time setting, which allows the problem of the seasonality of the industry to be solved.

The digitalisation of tourism is intensively projected in the sphere of marketing communication, as traditional marketing techniques are no longer valid. Consumers are becoming fully digital tourists – they use new communication channels and IT devices, which today are almost a necessity. Tourist destinations and businesses in the sector are undergoing a digital transformation (Madzík et al., 2023; Matušíková et al., 2023) in an effort to stay competitive; they are leading a predominantly digital battle to attract potential visitors. At the centre of digital marketing communication is the desire for the offer to reach tourists through various digital platforms (Orden-Mejía & Huertas, 2022).

1. Literature review

Studies that attempt to predict the future development of tourism suggest that information and communication technologies can, and in all probability will, fundamentally change the way that tourists and their experiences can be managed (Buhalis et al., 2023; Carvalho & Ivanov, 2023; Hughes & Moscardo, 2019; Elmahdy, 2017; UNWTO, 2019; WEF, 2019; OECD, 2021). These technologies are irreversibly ubiquitous, and connectivity in all phases of travel punctuates this fact (Dadić et al., 2022; Lončarić et al., 2019; Štefancová et al., 2023). Information technologies enhance the tourist experience (Neuhofer et al., 2014) and the newest can even create an experience in tourism.

Several studies have been conducted that deal with the relationship between digital information and media and services in tourism or destinations (A-khateeb & Al-khateeb, 2020; Bieger & Laesser, 2004; Choi et al., 2018). One recent study (Fernán-dez-Cavia et al., 2020) dealt more deeply with research on the sources of information that tourists use during the individual phases of a trip. The authors of the study divided travel into four phases. Aside from the usual three phases of "before the trip, during the trip and after the trip," they also considered a fourth phase, "choosing the destination."

Unlike the traditional tourist, the digital tourist is more demanding, actively searching for and sharing information in a new way, and is more independent of intermediaries (Buhalis & Law, 2008; Pencarelli, 2019). Marketing communication is thus transformed into a digital form. It becomes a process of using various digital instruments and channels to communicate with the target group (Strauss & Frost, 2020; Kotler, 2017): websites, social media, e-mails, mobile applications, online forums and reviews, augmented and virtual reality, digital games, etc. (Blštáková, 2020). Digital marketing communication, unlike traditional communication, is primarily interactive, targeted, measurable, flexible, and offers multimedia possibilities (Chaffey & Smith, 2017).

Digital information and content are an inseparable part of travel for today's tourists as they enable access to up-to-date information sources, the possibility of constant communication (even during the trip itself) and the sharing of experiences with others. What's more, tourists perceive digital information as enjoyable and convenient, user friendly and useful (Mathew & Soliman, 2020). Tourists use digital information and transactions at every stage of the value chain of a tourism product or service. Digital information is especially important in such a market, where there is more international traffic

(Fernández-Cavia et al., 2013). Authors dealing with consumer behavior in tourism most often distinguish three phases of purchasing behavior (Horner & Swarbrooke 2011; Llodrà-Riera et al., 2015), and one study by Fernández-Cavia et al. (2020) lists four phases of travel (the phase of choosing a place of future vacation is considered as a separate phase) (Table 1).

Table 1. The phases of travel and searched content

Phase of travel	**Before traveling**			**While traveling**	**After traveling**
	Inspiration	Planning	Booking	Use of time	Sharing of experiences
Activities and content	Searching: a) inspiration, b) information, b) comparing destinations and opinions of other travelers. Forming of preferences. Seeking recommendations.	Planning: a) trips, b) spending time during a stay (trips, cultural monuments, attractions and etc.).	Use of instruments: a) booking a stay, b) reservations of unplanned attractions.	Utilization: a) previously-booked services, b) unplanned decisions on a purchase (attractions, events, food, etc.), c) sharing of experiences.	In the case of satisfaction/dissatisfaction: a) desire to repeat the visit, b) recommendations c) discussion and consultation.

Source: developed by the authors.

In terms of the volume of sales of products and services via the Internet the tourism sector has gradually become one of the largest sectors in both the world and in Europe (Statista, 2023; Jin & Hu, 2022, Pojkarová & Gottwald, 2020; Spieß et al., 2022; Uçar et al., 2022). Digital tourism services are among the main industries of online sales (UNWTO, 2019). There are several reasons why: high Internet penetration (over 80% in advanced economies), rapidly developing digitalization and smart systems, and the popularity of new distribution networks (Clement, 2020; Nuenen & Scarles, 2021). European tourists use e-tourism platforms to a great extent when selecting a destination, and in the e-tourism ecosystem the following are predominant: Facebook, TripAdvisor, Google and Booking (David-Negre et al., 2018; Watkins et al., 2018). Differences do exist, however, in the mutual relationship of information sources and their perception among shoppers according to EU countries, based on the economic development and national culture of individual nations (Korneliussen & Greenacre, 2018).

Research on how tourists perceive the use of the latest new media in the sector and the use of artificial intelligence is still in its infancy (Nannelli et al., 2023). The results of a study on the perception of augmented reality in various areas of use in tourism (Schein & Rauschnabel, 2023) show that it is usefully valued by tourists, and the most popular AR applications include virtual guides and applications with historical content. Demographic characteristics are not an important factor with their use. The first research question (RQ1) thus follows from this: What media are most used in individual phases – before travel, during travel and after travel? With regard to the published study (David-Negre et al., 2018), we can assume that social networks, websites and IT applications will be the most used even in the Slovak Republic.

Destinations and tourism industry businesses have embarked on the trajectory of digital technologies. Their rapid development, however, is creating inequality between tourists and businesses in the tourism industry. Empirical experience points to hazards and barriers to their effective use arise. The rate of their adoption determines the use of technological innovations on both the supply and demand

side. In the case of tourists, this is in particular the limited ability of user control (Stankov & Gretzel, 2000), and age categorization is not crucial (Carlisle et al., 2021). On the supply side, differences are found between the digital skills of tourism workers and the competencies needed (Parsons et al., 2023).

Varying opinions on the connection between the use of IT and the age of tourists follow from published findings. A Eurostat report (2017) indicates that there is a decreasing tendency of their use among older tourists (the use of online booking of accommodation and transport was investigated). However, the results of an unpublished study (Schein et al., 2023) which examined the use of the latest technologies in tourism (virtual and augmented reality) and attitudes towards them based on the age of their users show that there are no significant differences in their use in terms of age. Similarly, the results of the study by Pesonen et al. (2015) report that there is no special marketing or website design that older travelers prefer or require, and there is even a new breed of senior tourists who are avid technology users and independent travelers. The study further determined that older travelers even prefer using the Internet to search for information and to book vacations, that they are also creators of e-WOM and are generally open to using technology. Therefore, we ask the second research question (RQ2): What demographic attributes does the use of individual media depend upon? And our assumption, based on the results, is that (Carlisle et al., 2021) Slovak users in all age categories use the selected media in the same way during the various travel phases. That is, the use of individual media is not affected by the age of the traveler.

From the viewpoint of the dependence of IT use and gender (Goswami & Dutta, 2016), it has been shown that gender plays an important role in several contexts: men are more technologically competent and more easily adopt new technology, though there are cases in which it is not possible to differentiate gender differences: the use of e-banking, online shopping, and social networks. Women dominate in creating existing relationships (most often through social networks) and in the use of customer reviews. Gender differences in digital skills and the use of digital devices are gradually narrowing, particularly among young people (European Institute for Gender Equality, 2021). Given the orientation of women and men with regard to information technology, this creates another assumption: Men use technically progressive media (virtual reality, digital games, augmented reality) significantly more often than women.

The aim of the study is to identify the rate of transformation of tourism to the digital era in the circumstances of Slovakia. The demographic associations and differences linked with the use of digital media of tourism between various types of tourists at individual phases of a trip are investigated: before travel, during travel and after travel.

2. Methodology

The aim of the study was to identify the demographic context associated with the use of digital tourism media among Slovak users. The rate of transformation of tourism to the digital era in the circumstances of Slovakia was analyzed with a focus on the differences in the use of technology between different types of tourists based on demographic attributes such as gender and age at different phases of a journey: before travel – occurs before the trip and includes inspirations, product and service booking and travel planning, during travel (use) – this is the time of consumption of a tourism product/services, which can be planned in advance – only partially or completely, after traveling (sharing) – this occurs along the way, most commonly referred to as "e-word of mouth" (eWOM).

The identification of preferred information technologies by tourists is closely associated with the marketing communication of products, services and destinations in tourism and the management of information content. Together they create an increasingly complex system, and a compatible connection is crucial for creating the design of future tourism management strategies.

2.1 Data collection

The questionnaire survey was conducted in the spring of 2023 (March – May 2023) in order to achieve the proposed aims. A structured questionnaire was compiled and distributed, and 1208 respondents filled it in. The target population of this study was tourists aged 15 and older. Based on the fact that travel is at present considered a so-called social given, all those who were already participants in the tourism industry were included in the research. The research aim was explained to the respondents by the interviewers, and the questionnaire was subsequently filled out individually. The interviewers were selected from among the students of the UCM Institute of Management in Trnava and subsequently trained. They were made familiar with the issues of new media and their importance in the tourism sector and received instructions on how to correctly address the respondents. A total of 113 interviewers participated, and each interviewer collected an average of 10.7 answers. The interviewers questioned respondents mainly from western and northern Slovakia (Trnava, Bratislava, Nitra, Trenčín and Žilina regions) with regard to all age categories (proportionately). The administration took place using a combined method: through a web application for collecting answers from Google, and personal administration was conducted mainly in the case of seniors. So-called closed questions and verbal rating scales were used. Questions were asked with the aim of determining the experience and use of digital media at different phases of travel: before travel, during travel and after travel. A question on the use of traditional tools and distribution channels was used to verify the responses.

The definition of the term "new media" can appear problematic; in general a) they are categorized as quaternary technologies, although this is a set of diverse media technologies that share the same technological platform as lower stages of development, and b) this is a very numerous and dynamically developing group (Macek, 2011; Coleman, 2018). New media includes a number of technologies: infrastructure, hardware, software, network protocols and web services. When classifying new media in the context of tourism, as reflected in the construction of the questionnaire (Table 2), we were started mainly from works by the authors: Clement (2020); Nuenen and Scarles (2021), David-Negre et al. (2018); Watkins et al. (2018); Nannelli et al. (2023); Ivanov and Soliman (2023), Huang et al. (2023) and Schein et al. (2023).

Table 2. Characteristics of new media in the tourism sector

New Media	Characteristic	Trip phase	Dynamism
E-mail	System for sending messages electronically, especially from one computer to another using the Internet or a message sent electronically.	Pre-trip In-trip	Static/ Dynamic
Website	A set of pages of information on the Internet about a particular subject, that has been published by the same person, company, or organization, and often contains pictures, video, and sound.	Pre-trip In-trip	Static/ Dynamic
SMS message	Short message service: a system for sending written messages from one mobile phone to another.	In-trip	Dynamic

Chat and video platforms (WhatsApp, Viber)	To have a conversation with a person/people on the Internet, when you a) write down what you want to say and can see immediately what the other person or other people are writing or b) online call.	In-trip	Static/ Dynamic
IT travel application (e.g. Maps, Timetable, Eather, other)	The content of the applications is helpful tourist information.	Pre-trip In-trip	Static/ Dynamic
Social media (Facebook, Instragram, TikTok)	Forms of media that allow people to communicate and share information using the Internet or mobile phones.	Pre-trip In-trip Post-trip	Dynamic
Online discussion forum	An online space for people to share and talk about knowledge, opinions, impressions, etc.	Pre-trip Post-trip	Dynamic
Webinar	An occasion when a group of people go online at the same time to study or discuss something.	-	Static/ Dynamic
Augmented reality	Images produced by a computer and used together with a view of the real world.	Pre-trip In-trip	Static/ Dynamic
Virtual reality	A set of images and sounds produced by a computer, which create a place or a situation that a person can take part in.	Pre-trip In-trip	Static/ Dynamic
QR code	A pattern of black-and-white squares that is printed on something and that can be read by some types of mobile phone to give information to the user of the phone.	Pre-trip In-trip	Static
Blog	A record of news, people's opinions, photos, and videos about a particular subject that someone puts on the Internet and adds information, pictures, etc. to regularly.	Pre-trip Post-trip	Static
Influencer	In the context of marketing, following a person or group that has the ability to influence the behavior or opinions of others.	Pre-trip	Static
Podcast	An audio recorded program that can be downloaded from the Internet and listened to on an MP3 player.	Pre-trip	Static
Digital game	A digital game is any game that is played with the assistance of a computer or other electronic device.	In-trip	Static
YouTube	The name of a website that allows people to show videos they have made.	Pre-trip	Static
Streaming platforms	The act of sending sound or video to a computer, mobile phone, etc. directly from the Internet so that it does not need to be downloaded and saved first.	Pre-trip	Static

Source: developed by the authors.

The characteristics of the terms come from the Cambridge Dictionary. The table also included a) types of tourism information channels according to trip phase (the pre-trip phase, in-trip phase and post-trip phase) and b) media according to their dynamism (static and dynamic), which were processed in the study of Benckendorff et al. (2014). Travelers need information at different times and different places and prefer it in different forms. To a large extent, these information needs can be derived from the type of tourist: for example, adventurous or impulsive travelers will need little or no information before the trip, while risk-averse travelers plan for the long term and will need a lot of information before the trip.

2.2 Formulation of the research questions and hypotheses

Based on the survey of published knowledge, it was possible to formulate two research questions and research assumptions formulated on them as research hypotheses.

The first research question (RQ1) was: What media are most used in individual phases – before travel, during travel and after travel?

Research hypothesis RH1: Social networks, websites and IT applications will be the most used media in all phases of travel, even among Slovak users.

The second research question (RQ2): What demographic attributes does the use of individual media depend upon?

Research hypothesis RH2: Slovak users in all age categories use the selected media equally during the different phases of travel.

Research hypothesis RH3: Men use technically progressive media (virtual reality, digital games, augmented reality) significantly more often than women.

2.2 The research set and analysis of obtained data

The research set is made up of 1207 correctly completed questionnaires from Slovak media users within the monitored phases of travel. The more detailed structure of the respondents forming the research set is presented in Table 3.

Table 3. Structure of the research set

Structure of respondent		Gender		
		Row N %		Column N %
		female	male	Total
Age	< 25	55.6%	44.4%	29.5%
	26–40	53.2%	46.8%	21.0%
	41–55	63.1%	36.9%	23.5%
	55 >	60.5%	39.5%	25.9%
Social status	Pensioner	62.4%	37.6%	21.8%
	Unemployed	70.0%	30.0%	2.5%
	Entrepreneur	36.9%	63.1%	9.2%
	Employed part-time/on agreement	62.7%	37.3%	11.8%
	Employed full-time	59.2%	40.8%	40.2%
	Student without own income	56.3%	43.8%	14.6%
Form of housing	Single	48.2%	51.8%	18.4%
	Common household with children/parent	62.9%	37.1%	41.3%
	Common household with life partner	57.7%	42.3%	40.3%
	Total	58.1%	48.9%	100.0%

Source: developed by the authors.

Groups of media in the individual phases of travel were subjected to McDonald's Omega test. The result for the selection and planning phase is 0.917 (n=19), for the during-travel phase is 0.861 (n=14) and for the post-travel phase 0.865 (n=14). These Omega values indicate an acceptable level of reliability. The data were analyzed using basic descriptive statistics (absolute and relative frequency, standard deviation, arithmetic mean) and inferential statistics (Student's t-test for comparison of two independent groups, the anova test) at the 1% and 5% significance levels. The substantive significance of the detected differences was expressed on the basis of Cohen's d and eta squared.

3. Research results

Digital technologies and content play a major role in all phases of travel, significantly influencing the way that people are inspired, how they travel, and how they share and preserve their travel

experiences. The demands for the implementation of information technologies change dynamically over time: some technologies may already be seen as outdated, while the use of others, in contrast, appear to be too ambitious. Designing effective communication strategies is one of the promotional tasks of managers at tourist destinations. Research on the perceptions of the usefulness of IT that is linked to the period of recovery of tourism after the pandemic period in Central Europe, is lacking. What's more, the pandemic had a significant impact on the dynamism of IT use in all spheres. This research paper looks at the question of the use of media by Slovaks in the individual phases of travel as well as their use depending on gender and age. For the purpose of clarity, the results will be divided based on the individual phases of travel.

3.1 Phase of selecting and planning a trip

The results of the use of media in the first phase of travel (that is, before travel) are presented in Figure 1. A total of 19 media were monitored, and the respondents had the chance to answer on a scale from 1 to 3 (1 – I do not know, 2 – I know but do not use, and 3 – I do use). Websites are the most used (average 2.6), followed by social networks – Facebook (2.41) together with IT applications (2.39). These are followed by Instagram (2.26), email (2.25), Chat and video platforms (2.22), SMS messages (2.14), and YouTube channels (2.14). Although on average respondents often know other media, they practically do not use them in the context of tourism: influencers (1.97), streaming platforms, Tik-Tok (1.91), podcasts (1.88) and QR codes (1.83). Other media are relatively unknown to the average user (traveler).

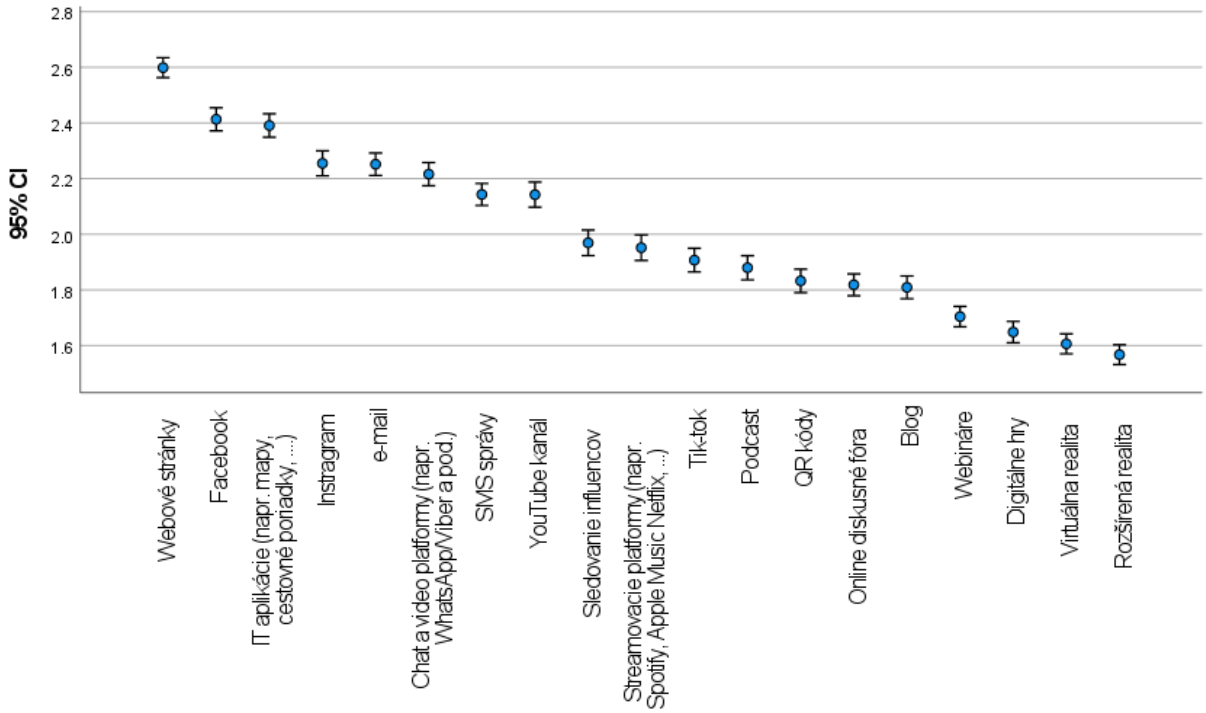

Figure 1. Experience with digital media in Phase I. of travel
Source: developed by the authors.

The following Table 4 shows the difference in the use of media in terms of gender. The results of the T-test indicate significant differences in the use of email, websites, SMS messages, Facebook, and digital games in the first phase. Given the small effect of the identified differences in the use of media by

gender, it is appropriate to investigate in more detail whether this difference is not only in certain age categories, since according to the European Institute for Gender Equality (2021), the gender difference in working with new technologies among young generations is narrowing. For the youngest category – those under 25 years of age – gender differences were found using the T-test, though not all were shown in the summary overview, namely in the use of websites (p=0.008, d=0.286), chat (p=0.035, d=0.226), Instagram (p<0.001, d=0.411), Tik-Tok (p<0.001, d=0.467), influencers (p<0.001, d=0.492), augmented reality (p=0.043, d=- 0.218) and digital games (p=0.012, d=-0.270), while in the case of Instagram, Tik-Tok and influencers, the substantive significance approaches a moderate effect. In the other age categories, differences with a small to minimal effect are identified, which shows that the assumption of minimizing the erasure of gender differences of the young generation in the use of new technologies was not confirmed in the first phase.

Table 4. T-test results for media use depending on gender

Media	Gender			T- test	Cohen's d
	female	male	Total	p-value of T-test	
E-mail	2.31	2.17	2.25	0.001	0.203
Website	2.64	2.54	2.60	0.004	0.167
SMS message	2.21	2.05	2.14	0.000	0.228
Chat and video platforms (WhatsApp, Viber)	2.25	2.17	2.22	0.053	0.113
IT application (e. g. Maps, Timetable, Eather, other)	2.43	2.34	2.39	0.062	0.109
Facebook	2.46	2.34	2.41	0.005	0.164
Instragram	2.27	2.23	2.26	0.336	0.056
Tik-tok	1.93	1.88	1.91	0.215	0.072
Online discuss forum	1.83	1.80	1.82	0.490	0.040
Webinar	1.70	1.70	1.70	0.976	0.002
Augmented reality	1.54	1.60	1.57	0.120	-0.091
Virtual reality	1.59	1.63	1.61	0.262	-0.065
QR code	1.81	1.86	1.83	0.323	-0.058
Blog	1.81	1.80	1.81	0.773	0.017
Iinfluencer	2.00	1.92	1.97	0.079	0.103
Podcast	1.88	1.88	1.88	0.952	-0.003
Digital game	1.61	1.70	1.65	0.041	-0.119
YouTube	2.13	2.16	2.14	0.615	-0.029
Streaming platforms	1.93	1.99	1.95	0.190	-0.077

Source: developed by the authors.

The results of differences in the use of selected media in the first phase of travel are presented in Table 5. Aside from the arithmetic averages on a scale from 1–3 (1 – I do not know, 2 – I know but do not use and 3 – I do use), the results of testing the agreement of the mean values via an anova test on the level of 5% significance are also presented here. The results show a statistically significant difference in the use of media according to the age of the user, and except for the first six items, the use of media decreases linearly with age (test of linearity). With websites, SMS, chat and video platforms, IT apps and Facebook, the highest use of these media is among the category of 41 – 55-year-olds. However, only with email was the linear dependence on age not statistically confirmed. From the viewpoint of substantive significance, the biggest differences in the use of media were identified (based on eta squared – Tab. 5) in the case of Instagram, following influencers, Tik-Tok, streaming platforms, podcasts, blogs, QR codes, YouTube channels and virtual reality.

Table 5. Differences in media use by age in the first phase of travel

Media	Age				Anova test	Test of linearity (anova)	Eta
	< 25	26-40	41-55	55 >	p-value	p-value	squared
E-mail	2.16	2.27	2.55	2.08	<0.001	0.790	0.060
Website	2.69	2.64	2.75	2.32	<0.001	<0.001	0.069
SMS message	2.00	2.10	2.22	2.28	<0.001	<0.001	0.026
Chat and video platforms (WhatsApp, Viber)	2.30	2.30	2.44	1.86	<0.001	<0.001	0.091
IT travel application (e. g. Maps, Timetable, Eather, other)	2.51	2.48	2.59	2.01	<0.001	<0.001	0.093
Facebook	2.51	2.56	2.54	2.06	<0.001	<0.001	0.081
Instragram	2.75	2.54	2.19	1.53	<0.001	<0.001	0.357
Tik-tok	2.32	2.13	1.79	1.36	<0.001	<0.001	0.253
Online discussion forum	1.90	2.00	1.92	1.50	<0.001	<0.001	0.079
Webinar	1.82	1.85	1.79	1.38	<0.001	<0.001	0.089
Augmented reality	1.77	1.68	1.59	1.24	<0.001	<0.001	0.105
Virtual reality	1.82	1.71	1.64	1.26	<0.001	<0.001	0.120
QR code	2.06	1.96	1.95	1.36	<0.001	<0.001	0.141
Blog	2.04	2.02	1.83	1.36	<0.001	<0.001	0.149
Influencer	2.45	2.24	1.85	1.32	<0.001	<0.001	0.300
Podcast	2.26	2.07	1.83	1.35	<0.001	<0.001	0.211
Digital game	1.89	1.76	1.61	1.32	<0.001	<0.001	0.105
YouTube	2.44	2.28	2.19	1.66	<0.001	<0.001	0.143
Streaming platforms	2.32	2.17	1.98	1.34	<0.001	<0.001	0.221

Source: developed by the authors.

3.2 The phase during travel and after travel

The same media were monitored in the second and third phases of travel; therefore, it is possible to present the use of media in these phases on a common graph (Figure 2). The data are presented in the graph in the form of arithmetic averages of the respondent's answers on a scale of 1–4, where 1 is not at all and 4 is the most.

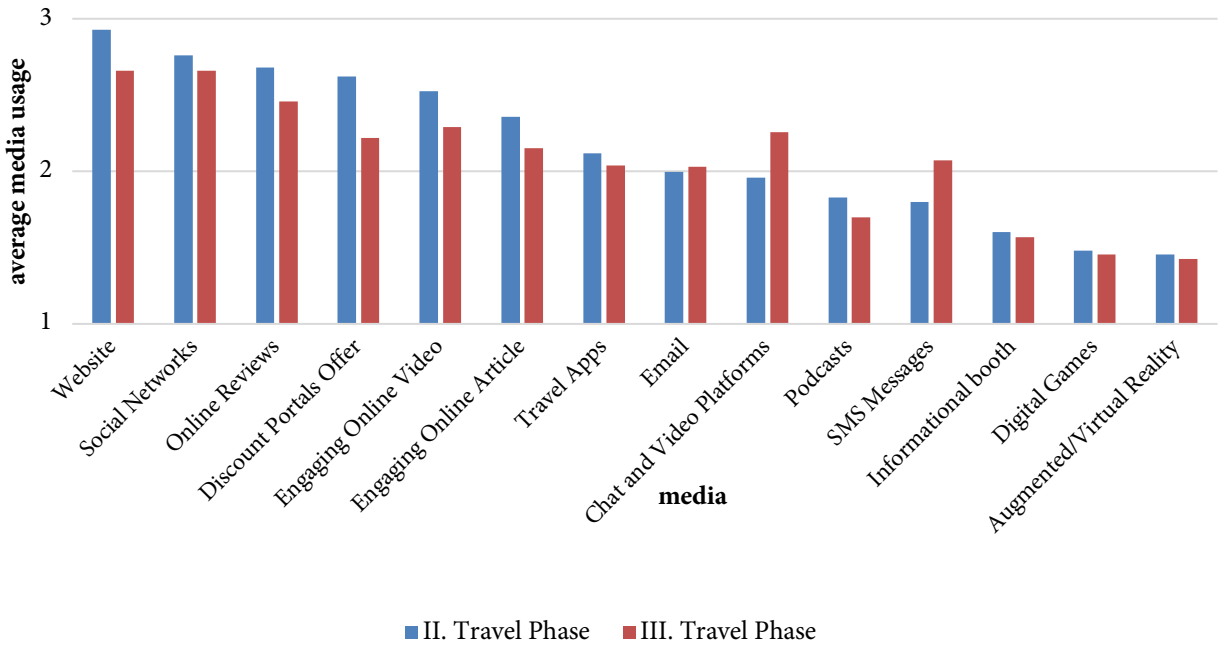

Figure 2. Use of new media in the second and third phases of travel

Source: developed by the authors.

Subsequently, we were interested in the difference in the use of these media based on gender. In terms of gender, the difference for the second phase of travel is presented in Table 6. From the results of the T-test, it is clear that there are differences in usage in terms of gender in both phases: women use significantly more websites, discount portal offers, social networks, and reviews on the Internet (with great substantive significance, which acquires approx. 0.1 higher Cohen's d values in the 3rd phase of travel). In contrast, men use digital games significantly more in both phases of travel (with medium substantive significance).

Table 6. Differences in the use of media in the second and third phases of travel by gender

	Phase travel/ Media	Gender			t-test	
		female	male	Total	p-value	Cohen's d
II. Phase travel	Website	3.04	2.77	2.93	0.000	1.051
	E-mail	2.03	1.96	2.00	0.214	0.925
	SMS message	1.80	1.80	1.80	0.879	0.914
	Chat and video platf. (WhatsApp, Viber)	1.98	1.92	1.96	0.283	0.979
	Discount Portal	2.70	2.51	2.62	0.001	1.022
	Social media	2.87	2.60	2.76	0.000	1.071
	YouTube	2.57	2.47	2.53	0.108	1.096
	Blog	2.41	2.29	2.36	0.070	1.047
	Discussion forum – consumer reviews	2.74	2.59	2.68	0.018	1.061
	IT travel application	2.12	2.11	2.12	0.907	1.054
	Podcast	1.81	1.86	1.83	0.301	0.954
	Digital game	1.41	1.57	1.48	0.001	0.804
	Augmented/virtual reality	1.43	1.50	1.46	0.107	0.775
III. Phase travel	Website	2.74	2.55	2.66	0.000	0.178
	E-mail	2.05	2.00	2.03	0.214	0.051
	SMS message	2.11	2.02	2.07	0.879	0.090
	Chat and video platf. (WhatsApp, Viber)	2.31	2.18	2.26	0.283	0.115
	Discount Portal	2.28	2.14	2.22	0.001	0.131
	Social media	2.75	2.53	2.66	0.000	0.194
	YouTube	2.27	2.32	2.29	0.108	-0.045
	Blog	2.18	2.11	2.15	0.070	0.059
	Discussion forum - consumer reviews	2.50	2.40	2.46	0.018	0.102
	IT travel application	2.07	2.00	2.04	0.907	0.070
	Podcast	1.68	1.72	1.70	0.301	-0.043
	Digital game	1.40	1.53	1.45	0.001	-0.169
	Augmented/virtual reality	1.39	1.48	1.43	0.107	-0.120

Source: developed by the authors.

The last part of the results is an analysis of differences in the second and third phases of travel based on age. Table 7 presents the results of the anova test at the significance level of 1% with substantive significance presented by the eta squared values. From the results it is evident that in the case of all media, information booths and SMS messages excepted, the rate of use of these media is linearly dependent on age. From the fourth item, their use increases linearly with decreasing age. In the case of information booths, no difference is identified in use in both phases depending on age, and in the case of SMS messages, no linear dependence on age is seen. From the viewpoint of substantive significance, the use of social networks (eta squared in the fourth phase 0.165 and third phase 0.189), attractive videos, reviews on the Internet and podcasts (in the third phase also in the use of websites) differs the most.

Table 7. Differences in the second and third phases of travel by age

Phase / Media		Age				Anova test	Test of linearity (anova)	Eta squared
		< 25	26-40	41-55	55 >	p-value	p-value	
I.Phase of travelling	Website	3.00	3.05	3.22	2.50	0.000	0.000	0.064
	E-mail	1.84	2.04	2.23	1.93	0.000	0.044	0.025
	SMS message	1.62	1.85	1.85	1.91	0.000	0.000	0.017
	Chat and video platforms	1.95	2.15	2.13	1.65	0.000	0.000	0.041
	Discount Portal	2.68	2.81	2.66	2.35	0.000	0.000	0.026
	Social media	3.13	3.06	2.82	2.05	0.000	0.000	0.165
	YouTube	2.87	2.75	2.59	1.90	0.000	0.000	0.123
	Blog	2.60	2.56	2.49	1.80	0.000	0.000	0.102
	Discussion forum – consumer reviews	2.89	2.90	2.91	2.07	0.000	0.000	0.117
	IT travel application	2.29	2.35	2.22	1.64	0.000	0.000	0.073
	Podcast	2.07	2.13	1.83	1.32	0.000	0.000	0.113
	Digital game	1.62	1.61	1.49	1.21	0.000	0.000	0.045
	Augmented/virtual reality	1.59	1.55	1.50	1.19	0.000	0.000	0.042
III. Phase of travelling	Website	2.76	2.85	2.97	2.12	0.000	0.000	0.089
	E-mail	1.90	2.15	2.26	1.87	0.000	0.759	0.028
	SMS message	1.85	2.12	2.18	2.17	0.000	0.000	0.020
	Chat and video platforms	2.32	2.44	2.46	1.85	0.000	0.000	0.051
	Discount Portal	2.31	2.42	2.30	1.88	0.000	0.000	0.039
	Social media	3.12	2.94	2.66	1.89	0.000	0.000	0.189
	YouTube	2.68	2.49	2.26	1.73	0.000	0.000	0.115
	Blog	2.36	2.41	2.19	1.67	0.000	0.000	0.080
	Discussion forum – consumer reviews	2.62	2.73	2.57	1.96	0.000	0.000	0.079
	IT travel application	2.17	2.25	2.14	1.63	0.000	0.000	0.057
	Podcast	1.93	1.91	1.67	1.29	0.000	0.000	0.084
	Digital game	1.56	1.60	1.43	1.25	0.000	0.000	0.032
	Augmented/virtual reality	1.51	1.54	1.43	1.23	0.000	0.000	0.026

Source: developed by the authors.

Discussion

Setting up an effective digital communication strategy assumes knowledge of consumer behavior. Travelers today base their decision-making process on relevant and trustworthy tourism information. In this regard new media is the driving force of this sector. The research was oriented on a study of attitudes and habits in the use of new media in the context of tourism. The research was conducted on Slovak travellers. Specifically, it examined habits in the use of new media based on individual phases of travel and demographic characteristics.

The subject of the study in the first research question was to determine what new media are most often used in tourism in the individual phases of travel in the circumstances of Slovakia. It can be stated that the intensity of the use of new media varies according to individual phases of travel. In the first phase, when travelers are seeking inspiration and making decisions about what destination to visit, websites, social networks (Facebook, Instagram) and travel IT applications are used most intensively, though e-mail communication, chat and video platforms (including SMS) as well as watching YouTube channels are also significant. The nature of these media is mainly oriented on the presentation of text, images or video content. For Slovak travelers, however, e-mail communication remains important, even though it is now a traditional digital tool. It can be assumed, however, that it is the most often used in the process of booking services. In the second phase of travel (i.e. at the time of using services), websites and social networks are still the most intensively used, but unlike in the first phase, we recorded an increasing intensity of use of online reviews, discussion portals or inspirational

articles. This fact indicates that at the travel destination (that is, while enjoying the vacation), travelers will very intensively look for information, on the basis of which they make decisions about what other attractions to visit or products to buy. The mentioned media are a form of digital worth-of-mouth (Babić Rosario et al. 2019). Although today's tourists travel with information prepared in advance and have a pre-travel itinerary already planned, these results point to the fact that the use of services, such as attractions, excursions, trips, dining, etc., belong to unplanned decisions and they seek information about them at the site itself. At this moment, tourism management organizations can play an important role, as they can use digital tools and thus take part in the decisions of travelers during the second phase of travel (enjoying a vacation). Consumer behavior among Slovak travelers opens up space for destination management organizations to connect digital media and monitor the steps tourists take during their stay. In the third phase of travel, the use of media such as chat, video platforms and SMS increases in intensity. These results are testimony to the fact that while the search for information predominates in the second phase of travel, in the third phase, tourists move on to the active creation of content through the sharing of text messages and videos. The results of the typology of digital media use do not vary much from the standard European tourist, though a slight deviation can be found in the use of social media. These are considered a dynamic information channel and their consumption is generally more significant in the third phase of travel (Oliveirea et al. 2020). Their use among Slovak travelers is slightly more intensively even in the second phase of travel.

Compared to the results of studies at the pan-European level (David-Negre et al. 2018; Watkins et al., 2018), certain specificities can be identified in the Slovak market: websites, as a more traditional digital medium, play a direct role in all purchase phases of travel. Social networks as well as online reviews and discount portals play a significant role, in line with the European average. Newer forms of digital communication, such as podcasts, digital games, virtual or augmented reality, are well known among Slovak travelers, but the intensity of their use is the lowest among the monitored media. Whether and to what extent organizations operating in tourism use these tools, or whether Slovak tourists encounter them at all, is a debatable question.

The results of our research were also aimed at the second research question: examining the demographic attributes of contemporary Slovak travelers in relation to their use of new media in the tourism industry. Here we looked for connections related to the use of the latest media in the context of a) the age of the travelers and b) the gender of the travelers.

From the point of view of researching new media and age, we especially observed consumer behavior in the first phase of travel and together in the second and third phases of travel. We found that when travelers form preferences, when they seek inspiration they summarize and evaluate information (that is, in the first phase of travel) new media can be categorized as those that are 1) intensively used across age groups (these include: e-mail communication, websites, SMS, Chat and video platforms, IT travel apps, social networks such as Facebook and Instagram, online discussion forums and webinars) and those that are 2) of a newer character, and that their use decreases with the increasing age of travelers (others, see Tab. 7). An interesting finding is the fact that the age group of travelers from 41 – 55 is the group with the most intensive use of media as such in the first phase of travel. This fact may be connected to the fact that this is the group of most active travelers with the highest economic power. These findings correlate with published studies that show that age categorization is not crucial when using new media (Carlisle et al. 2021), but the ability and measure of user control is decisive (Stankov & Gretzel 2000).

Our findings point to differences in the use of new media in tourism by gender. Differences between the sexes can be seen in the use of these media: e-mail, websites, SMS, Facebook and digital games in the first phase of travel, when these are more intensively used by women, with the exception of digital games, whose use is more intensive among men. However, it needs to be noted that the differences found represent only a low rate, so they are less significant, and that no significant differences were noted in the case of the other researched media. In the second and third phases of travel, women use media significantly more during and after their trip than men. The nature of the media used by women in the second and third phases indicates that their use is connected more with search or by sharing information (websites, discount portals, reviews and social networks) related to travel. Men in the second and third travel phases use media related to entertainment (digital games) more intensively.

A previously published study by Goswami and Dutta (2016) states that men are in general more technologically savvy but recognizes that there are areas where there are no differences: e-banking, online shopping, and the use of media where interaction takes place – especially social networks and consumer reviews. Newer research (European Institute for Gender Equality, 2021) shows a blurring of gender differences, predominately among the younger generation. It turns out that in the conditions of Slovakia, men slightly dominate among the youngest travelers, but taking the whole population into consideration, similar consumer behavior can be found in the tourism segment in Slovakia.

Based on the above-presented results, the research hypotheses can be checked. Research hypothesis (RH1) was confirmed in all the monitored phases of travel. At the same time, it was shown that the newest new media (virtual and augmented reality) are used to a small extent in Slovakia – in all phases of travel. RH2 was not confirmed at the 1% significance level, because the difference in use was not determined for the information booths. RH3 was also not confirmed, as a significant gender difference was only confirmed for digital games at the 5% significance level across all phases of travel.

Conclusions

This research is a source of data that specifies the use of new media in tourism by Slovak travelers. Their number and development dynamics are constantly changing, and it is sometimes difficult for tourism sector enterprises to identify which new media to use in relation to the offered service or product and how to target the content. The analysis of the use of new media is founded on three phases of travel (Neuhofer et al. 2014): before purchase, during purchase and after purchase of tourism products and services. Demographic characteristics related to the use of these media are also discussed in more detail.

In the context of future developments in the tourism sector, a certain difference in the interval of use of new forms of communication can be anticipated between the younger and older generations in favor of the older one. We also assume an increase in the intensity of use of the latest media, such as virtual or augmented reality, digital games, etc., which have the potential to complement the image of destinations. In the first phase of travel, when destinations fight intensively for the visitor, they can rebuild an important tool to strengthen competitiveness.

The presented results of the study on digital marketing communication and the use of new media in tourism will serve to fill the knowledge gap and also as a basis for the orientation of the public sector, business practice and the professional public in strengthening professional competences in this area.

The limitation of the study to selected regions in the Slovak Republic which we can consider to be economically stronger and which results in higher purchasing power, as well as tourism products and services, can be considered a limitation of the research (Statistical Yearbook of the Regions of Slovakia 2022). Another limitation can be the fact that in the case of respondents in the age group over 41 years old there is a slight preponderance of women over men (around 60%). In terms of gender differences, this difference may have slightly distorted the results within these two age categories.

As a subject of further research in the context of digital marketing communication and new media in tourism it would be useful to compare the acquired knowledge with the results of research on the rate of use of new technologies by business entities in the tourism industry from the segment of small and medium-sized enterprises, since these predominate in the tourism sector. Special attention in research could also be devoted to the public sector – destination management organizations, especially in relation to the knowledge and use of the latest technologies: augmented and virtual reality or digital games and their implementation in individual phases of travel. This finding can help to identify a) organizations for which their use will be most useful as well as b) the needs and interests of travelers with the goal of transforming marketing communication into digital forms.

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