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Digital innovations in tourism: the perceptions of stakeholders

Anda Zvaigzne, Iveta Mietule, Inta Kotane and Sandra Sprudzane
Rezekne Academy of Technologies, Rezekne, Latvia, and
Vaida Bartkute-Norkuniene
Utena University of Applied Sciences, Utena, Lithuania

Abstract

Purpose – This study aims to examine the main aspects of innovation development regarding digital tools used in the tourism industry in a local area.

Design/methodology/approach – A qualitative approach and the descriptive analysis technique was employed to analyse completed semi-structured expert survey questionnaires created in Google Forms. The aim is to examine the opportunities and potential for digital innovation in tourism in the Baltic region. Specialists representing tourism and hotel businesses, the guide profession as well as the disciplines of business and economics were selected as experts.

Findings – The experts indicated that digital marketing was very important for tourism development, and it is still considered a new field of science with huge potential. The research results showed that when introducing/developing digital innovations in a local area, tourism companies were faced with low-quality or no data analytics at all. In addition, long-term maintenance of digital tools was not considered, and the investment outweighed the benefits of implementing the technologies.

Originality/value – The study contributes to the development of digital innovation and the identification of problems in a local area.

Keywords Digital innovations, Tourism industry, Stakeholders

Paper type Research paper

Introduction

The tourism industry is one of the largest and fastest growing industries in the global economy, which significantly contributes to employment and gross domestic product (GDP) (Melović *et al.*, 2022). The tourism industry is also a driver of economic growth (Ye *et al.*, 2022). Today, the development and implementation of innovation is ongoing. Global and virtual competition as well as the fast development of digital technologies and solutions helps to raise efficiency standards, accelerate market changes and shorten product life cycles (Santarsiero *et al.*, 2021).

According to Yström and Agogué, companies need continuous innovation, which should be implemented with the involvement of the company, stakeholders and customers (Yström and Agogué, 2020), and each actor involved in innovation needs to be aware of the company's vision, goals and strategies (Lianto *et al.*, 2018). Digital innovation refers to the creation of new products, services, processes and business models through the development and implementation of digital technologies (Li *et al.*, 2022). The current trends in the global tourism industry are inextricably linked with the development of IT technologies (Khurramov, 2020) and the digitalization and transformation processes occurring in the tourism industry (Filipiak *et al.*, 2020). Any planned activity in the global tourism market is focused on the development of new tourism services and products (Serić *et al.*, 2021) drawing on digital technologies. According to Nematovna (2021), the digitalization of the tourism industry is the primary factor in enhancing the competitiveness of the tourism industry. The fast development of digital technologies is increasingly affecting the ways companies develop continuous innovation or undergo digital transformation (Santarsiero *et al.*, 2021).

The period of the Covid-19 pandemic posed a serious challenge to the tourism, travel and hospitality industry (Zeqiri *et al.*, 2020), and the disruption of tourism activities increased the use of digital technologies and in response companies increasingly adopted digitalization. That said, technology and its implementation in tourism was not unfamiliar (Borges-Tiago *et al.*, 2021; Kindzule-Millere and Zeverte-Rivza, 2022).

This study aims to examine the main aspects of innovation development regarding digital tools used in the tourism industry and the potential for tourism in the Baltic region. Next, the research describes the theoretical framework for the research problem, followed by the methodological approach applied and presentation of the study results.

Theoretical framework

Yström and Agogué (2020) and Melović *et al.* (2022) investigated the effects of digital technologies on the supply of tourism services from the perspective of family businesses and concluded that the use of digital technologies in tourism is significantly affected by the perceived trends in tourism, the crisis and uncertainty caused by the Covid-19 pandemic and the market actors' perceptions, attitudes and understanding of the specifics and advantages of digital technologies offered to tourists. Kindzule-Millere and Zeverte-Rivza (2022) analysed artificial intelligence (AI), big data analytics, the internet of Things, blockchain, mobile technologies/cloud computing, virtual and augmented reality and social media – these are the main technologies used in Tourism 4.0. In the middle of the pandemic, the prospects for tourism were uncertain, though tourism stakeholders were active in advocating for recovery strategies (Roxas *et al.*, 2022).

Cheng *et al.* (2023) analysed digital technologies that met the requirements of Covid-19 (health, cleanliness, safety): artificial intelligence and robotics; big data; cloud computing; blockchain; virtual and augmented reality; mobile terminals and applications; the internet of Things; short-range wireless communication technology and collaborative technology. Further, Jayawardena (2022) posed the question: *What innovations would enable the tourism and hospitality industry to re-build?* This *Worldwide Hospitality and Tourism Themes* issue generated 14 key action points related to the following: rethinking tourism and hospitality products and services, sustaining resilience, collaboration between government, academia and industry, special interest tourism, domestic tourism, crisis management, digital transformation, the health and safety of all stakeholders, operational efficiencies and environmental sustainability.

Methodological approach

As part of this study, we examined digital innovations in tourism in 2022 and, in the second half of 2022, conducted a survey of experts from the Baltic States with the aim of identifying practitioner opinions on the opportunities provided by digital innovations in tourism in the Baltic States. The sample included 11 leading industry experts that were identified according to the following criteria: (1) occupation/position; (2) workplace: an institution/company, the state; (3) experience/education in tourism.

The responses provided by the experts and the data obtained were analysed and summarized. The experts who participated in the survey were leading industry practitioners representing regional tourism associations, university professors and lecturers, regional tourism information centres both senior-level specialists and consultants, as well as representatives of smart villages of the future. The experts' workplaces encompassed companies and institutions, including: the University of Latvia, Utena University, the Lithuanian Tourism and Marketing Association, the Latgale Tourism Association, the Secretariat of Latvian Rural Advisory and Training Centre Ltd, the Rezekne Tourism

Development Centre, Rezekne Academy of Technologies, the Rezekne Culture and Tourism Centre, the Tourism Development and Information Centre of Preili municipality and the Tourism Centre of Ludza municipality. The experts were educated in the field of tourism and they represented: tourism, hotels and the tour guide profession, as well as the disciplines of business and economics. The minimum reported work experience of an expert participating in the study was 6 years, while the maximum was 27 years.

Findings

Technological progress and the role of the Internet

Technological progress has significantly affected the tourism industry: at the end of the 20th century, information about travel options was sought in catalogues, brochures, etc. whereas today, all information can be found online and by using various specialized application programs. Technologies continue to progress quickly - not only mobile applications but also virtual and augmented reality solutions. Çınar (2020) points out that the use of smartphones, tablets and mobile devices have given tourists more opportunities, options and freedom to explore tourist destinations than ever before. For example, videos and photos from a destination reach a wider and more accurately targeted audience than any other marketing tool (Elkhwesky et al., 2022). Additionally, some advocate the use of digital technologies in tourism planning, e.g. big data and social network analysis data (Hu et al., 2021).

As a component of the survey, the experts were asked to rate the importance of potential fields of development such as digital innovations in tourism in a local area, where 1 point meant unimportant, 2 – slightly important, 3 – moderately important, 4 – important and 5 – very important. It should be emphasized that the experts rated the aspects of innovation development in relation to digital tools at 2 points or higher (Table 1).

The role of the internet is no longer in question in any industry; therefore, it is to be expected that 73% of the experts indicated in the survey that they considered Internet availability to be a very important aspect. The literature emphasizes the role of technology in tourism planning, providing users with relevant information and services in an interactive

Aspect	Slightly important 2 points	Rating Moderately important 3 points	Important 4 points	Very important 5 points
Mobile technologies	–	36	28	36
Artificial Intelligence and chatbots	18	55	18	9
Internet availability	–	9	18	73
Social networking platforms	–	10	45	45
Virtual reality traveling	18	55	18	9
Virtual games, amusements	27	27	46	–
3D solutions	18	27	37	18
Tourism visitor map	9	9	27	55
Personalized travel guide	–	18	18	64
Digital marketing	–	9	27	64
Data analytics	9	18	18	55
Spatial data processing and analysis	18	–	36	46
Fintech and contactless payments	18	–	27	55

Table 1.
Experts' ratings of the importance of potential fields of development of digital innovations in tourism in a local area, %

Source(s): Authors

way, which facilitates informed decision making by tourists, which in turn can lead to greater travel satisfaction (Goo *et al.*, 2022).

Digital marketing is still considered to be a new field of science with huge potential to change the way tourists interact with travel destinations when they travel the world (Magano and Cunha, 2020). In this context, the survey revealed that 64% of the experts indicated that digital marketing was very important.

In the field of marketing and commercialization, AI helps to: improve forecasting, adjust prices and offers made to existing and potential customers; enhance customer relationship management (CRM) systems; develop personalized services and experiences through mass customization; enables the deployment of intelligent marketing; facilitates the development of customized predictions; supports agents and smart sales assistants; creates offers in real time that are sent to the user through a context-based and content-based approach, and allows for marketing to be used as a queue management tool (Bulchand-Gidumal, 2020).

The tourism and hospitality industry requires regular communication between businesses and customers. According to prior research studies (Ukpabi *et al.*, 2019), travel companies seek cost-effective ways to stay in touch with customers and so the future of chatbots is already here. The survey revealed that only 9% of the experts indicated that progress in artificial intelligence and the field of chatbots were very important, 18% – important, 55% – moderately important and 18% – unimportant. In the tourism industry, artificial intelligence systems can be incorporated as stand-alone systems or integrated into current application programs and systems. These systems include recommended systems, personalization systems and techniques, conversational systems (chatbots and voice assistants), forecasting tools, autonomous agents, language translation applications and smart tourism destinations (Bulchand-Gidumal, 2020).

Due to the impact of the Covid pandemic, the tourism industry has increased interest in and opportunities to use virtual reality technologies in tourism marketing (Yung *et al.*, 2021). The survey revealed that the field "Virtual reality traveling" was rated as moderately important by 55% of the experts and as important by only 9%. Of the total experts, 46% rated the field "Virtual games, amusements" as important. In view of the high homogeneity of tourism products, the tourism industry creates products that can be visited virtually, using the background of cultural experience. A virtual three-dimensional (3D) scenic modelling system and VR real scene visit interactive tourism products suitable for various scenic sites can be developed in combination with computer-aided design (CAD) (Deng *et al.*, 2020). According to the experts, the field "3D solutions" is very important (18%) and important (37%).

In the smart tourism segment, the amount of data shared between stakeholders is large and generates big data that helps to interpret the behaviour of tourists, as well as many related statistics, thereby contributing to the development of the tourism industry. In addition, in the current era of information technology, big data has become increasingly important in the business world and in modern industries, not least because public and private sector strategic plans can draw on this resource. The survey revealed that the field "Data analytics" was rated as very important by 55% of the experts, important by 18% and moderately important by 18%. As regards the field "Spatial data processing and analysis", 46% of experts rated it as very important, 36% as important and 18% as unimportant.

Internet and mobile phone use has become almost synonymous with social media use. Some researchers note that travellers tend to be more educated and wealthier than the general population; therefore, it can be assumed that the use of social media by travel consumers is even more widespread. At the same time, the researchers point out that there are still a significant number of individuals and businesses that are not available on any social media. This is referred to as the "social media gap". Although the phenomenon of

non-adoption of social media has been researched to some extent by tourism businesses, there is currently only limited information about it and its relative impact on the travel experience (Gretzel, 2018). The survey showed that 45% of the experts rated social networking platforms as "very important" or "important" and only 9% rate this field as moderately important. Rating the potential development of mobile technologies in a local area, the experts felt that this development was very important (36%) moderately important (36%) or important (28%).

Technological progress affects all industries, including financial services and "Fintech" is a new trend that is dynamically progressing and connecting financial services with technological solutions. Today, Fintech companies emphasize remote services and offer customers well-developed tools that can compete with traditional banking services, according to Transact Pro experts (Trends and Development of Fintech, 2017). The survey found that 55% of the experts rated the field "Fintech and contactless payments" as very important, 27% as important and 18% as unimportant. The experts rated a personalized travel guide (64%) and a tourism visitor map (55%) as very important.

Development aspects of digital tools
As part of the survey, the experts were asked to rate the main aspects of innovation development regarding digital tools in the tourism industry in a local area, where 1 point meant unimportant, 2 – slightly important, 3 – moderately important, 4 – important and 5 – very important. It should be emphasized that the experts rated the aspects of innovation development in relation to digital tools at 2 points or higher (Table 2).

As shown in Table 2, the experts' highest ratings (5 points) were given to the aspects "Improved accessibility of the tourism service" and "Improved cooperation between tourism actors".

Digital tools used in various areas of tourism
During the survey, we wanted to identify areas in which tourism digital tools were likely to be used/developed in a local area. In relation to the field "Cultural tourism", the experts gave

		Rating		
Aspect	Slightly important 2 points	Moderately important 3 points	Important 4 points	Very important 5 points
Improved service management and supply	9	9	18	64
Improved cooperation between tourism actors	9	9	9	73
Travel experience personalization	9	9	36	46
Improved accessibility of the tourism service	–	9	9	82
Virtual reality development	18	37	27	18
Positive impact of tourism on the environment and the population	–	9	73	18
New kinds of experience (e.g. virtual/augmented reality)	18	18	46	18
Reduced negative impact on the environment	18	18	46	18
Lower service provision costs	9	27	37	27

Source(s): Authors

Table 2.
Experts' ratings of the main aspects of innovation development regarding digital tools in the tourism industry in a local area, %

the highest rating to Internet availability and social networking platforms (82%) and mobile technologies (64%). It should be noted that these digital tools are also prominent in other areas of tourism, e.g. in business tourism, as the experts gave the highest rating to Internet availability (82%), mobile technologies (73%) and links to ecotourism. The highest rating was given to mobile technologies, social networking platforms (73%) and Internet availability (64%) in relation to gastronomy tourism: social networking platforms (82%) and mobile technologies and Internet availability (73%).

Some researchers recommend that tourism companies improve their digital capabilities and skills by initially using accessible and affordable technologies (such as social media, e-commerce platforms and smartphone application programs), later investing in more sophisticated technologies (Elkhwesky *et al.*, 2022). Although mobile technologies and Internet availability (91%) were very important in the field "Rural tourism", a tourism visitor map was given the highest rating by 55% of the experts. In relation to the field "Coastal, sea and inland water tourism", 82% of the experts indicated that mobile technologies are important and 55% – virtual reality travelling.

In relation to the field "Health tourism", mobile technologies were considered important by 91%, Fintech and contactless payments by 45% and Data analytics by 36% of the experts. In the field "Medical tourism", mobile technologies and Internet availability were highlighted as important by 82% of respondents and Fintech and contactless payments by 45% experts.

In "Educational tourism", 91% of experts cited the importance of Internet availability, 82% – social networking platforms and mobile technologies and 45% – digital marketing.

At the end of the questionnaire, the experts had an opportunity to indicate a field, which was not mentioned in the questionnaire. The experts gave the following answers:

(1) Lifestyle tourism.

(2) An application program for improving cooperation between small producers.

There are relatively few digital tools available in a local area, and there is no specific demand for them. In the Latgale region of Latvia, the human factor is currently more relevant, i.e. meetings and conversations and perhaps this will change with time, yet currently virtual reality is not what tourists come to Latgale for. According to Ranasinghe *et al.* (2021) and Nematovna (2021), virtual and augmented reality promotes virtual travel, allowing travellers to experience new sites and destinations without leaving home (Ranasinghe *et al.*, 2021; Nematovna, 2021), while social media helps to develop local tourism destinations (Akhtar *et al.*, 2021).

The main digital innovation user groups in tourism in a local area
As part of the survey, the experts were asked to rate the main digital innovation user groups in tourism in a local area, where 1 point meant unimportant, 2 – slightly important, 3 – moderately important, 4 – important and 5 – very important. It should be noted that the experts rated the aspects of innovation development in relation to digital tools at 3 points or higher (Table 3).

Tourists/visitors, who are the main target audience of the tourism industry and companies providing tourism or tourism-related services, were assigned a very important role by 64% of the experts, an important role by 27% and a moderately important role by 9%. In tourism marketing companies or organizations and tourism destination management companies or organizations, 73% of the experts assigned a very important role and 27% a significant role. Of the total sample of experts, 55% assigned a very important role to companies that were intermediaries in tourism or tourism-related services. National institutions were rated by 28% of the experts as very important, by 36% as important and moderately important, residents were rated by 27% as very important and important and 46% as moderately important.

	Rating		
Aspect	Moderately important 3 points	Important 4 points	Very important 5 points
Tourists/visitors	9	27	64
Companies that provide tourism or tourism-related services	9	27	64
Companies that mediate tourism or tourism-related services	18	27	55
Tourism marketing companies or organizations	–	27	73
Tourism destination management companies or organizations	–	27	73
National institutions	36	36	28
Residents	46	27	27
Source(s): Authors			

Table 3.
Experts' ratings of the main digital innovation user groups in tourism in a local area, %

At the end of the questionnaire, the experts had an opportunity to indicate other categories of digital users, and the experts named non-governmental organizations (NGOs), cooperation partners and social enterprises, communities and schoolchildren as a separate group of users of digital innovations.

Ability of local tourism companies to implement and develop digital innovations
As a component of the survey, the experts were asked to describe the ability of local tourism companies to introduce and develop digital innovations. The answers given by the experts were different, from descriptors like "poor", "insignificant" and "moderate", to broader comments explaining that the public sector, attracting more funds, introduced digital innovations in tourism more actively than the private sector. Besides, the experts indicated in their answers that new companies and business people succeeded in introducing and developing digital innovations, whereas older business people needed consultants. The responses also mentioned the fact that local tourism companies often lack knowledge about innovations, as well as the finance to implement them. In addition, the responses suggest that there are still a lot of possibilities for growth, yet overall improvements were visible and most of the tourism companies in the local area lacked knowledge and/or funds, as the companies represented mostly small family businesses.

Main problems and challenges
We also included in the survey an open-ended question: "What problems/challenges do tourism companies face when introducing/developing digital innovations in their local area?" In response to this question, the experts indicated that when introducing/developing digital innovations in their local area, tourism companies faced low-quality or no data analytics at all. In addition, the long-term maintenance of digital tools was not considered, and the investment outweighed the benefits of implementing these technologies. The experts also pointed out that the residents of rural areas were mostly elderly and not confident users of technology at the required level and that they responded more slowly to innovative developments. Further, some practitioners who were the initiators of digital innovation lacked experience and knowledge in the field of digital technology, as their main occupation was tourism-related operations.

It follows from the responses of the experts that the most common challenges that companies in the tourism industry faced when implementing digital technology is a lack of underpinning knowledge and finance, as well as a lack of appropriate specialist skills.

Rating the development potential of digital innovations in tourism in Europe, 55% of the experts felt that it was average, giving a rating of 3 points, while 45% of the experts indicated that it was moderately high, while the development potential of digital innovations in the local area was rated at 4.

Conclusions

Research studies have found that the rapid development of digital technology increasingly affects the ways companies develop continuous innovation or undergo digital transformation. As part of the survey, the experts indicated that Internet availability, use of social networking platforms, mobile technologies and digital marketing are important prerequisites for the development of the tourism industry in various tourism areas, which is considered a new field of science with much potential, particularly with reference to the fields "Data analytics" and "Spatial data processing and analysis".

Technological progress affects all industries, including financial services, which in turn affects the tourism industry. The survey found that the experts considered the field of Fintech and contactless payments as important. The following main aspects of development of innovations in the tourism industry in a local area regarding digital tools were given the highest ratings by the experts: "Improved accessibility of the tourism service" and "Improved cooperation between tourism actors".

The ratings of the main digital innovation user groups in tourism in a local area indicated the role of tourism marketing companies or organizations and tourism destination management companies or organizations. An analysis of the experts' answers revealed that when introducing/developing digital innovations in a local area, tourism companies faced low-quality or no data analytics at all. The experts pointed out that local areas had not considered the long-term maintenance of digital tools, and the investment outweighed the benefits of implementing the technologies. The experts also pointed out that the residents of rural areas were mostly elderly and were not confident in using technology at the required level and tended to express difficulty in learning new things, especially in relation to innovation. Specialists who were the initiators of digital innovation lacked experience and knowledge in the field of digital technology, as their main expertise is related to their role as a tourism professional and so they might not have the time or willingness to learn new skills.

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Corresponding author
Anda Zvaigzne can be contacted at: anda.zvaigzne@rta.lv