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# Digital Tools for Management of Innovative Activities of Tourism Enterprises: Ukrainian Analysis of Wartime Challenges

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### ABSTRACT

The article aims to analyse digital tools for managing the tourism enterprises' innovative activities based on the Ukrainian experience of overcoming the risks of martial law. The novelty of the research consists in determining the possibilities of digital management in war conditions, which is an extremely important experience for European countries that never faced such a crisis. In order to gain a comprehensive understanding of the integration of digital tools in Ukraine's tourism industry, statistical data obtained from over 200 enterprises were analysed. This data leveraging enabled the identification of the key management practices that were implemented during the COVID-19 pandemic and subsequently adapted to the martial law restrictions. An interdisciplinary methodological toolkit was used in order to conduct the research: analysis, synthesis, induction, deduction, and comparison. The results demonstrated modern digital tools for managing tourist activities based on consideration of the world and Ukrainian contexts. Special emphasis was also placed on the development of leadership as a phenomenon capable of improving the perception of innovations and appropriate management decisions against the general implementation of modern management methods. The conclusions showed the capabilities of information systems, multimedia databases, and customer relationship management software. It is also important to emphasise the role of digital tools in the tourism industry of Ukraine and their use as a response to the military challenge. Consequently, the importance of targeted advertising and the widespread use of mobile devices is evident. In martial law conditions, they are an important answer to modern problems.

The modern tourism industry is characterized by active processes of integration, globalization, international approach to work organization, use of professional managers, unified services and service capabilities, improvement of management work, which is associated with the growth of competition in the global dimension, and the functioning of tourism in large areas. For this reason, research to find the latest concepts to improve the organization of tourism enterprises and the use of new models for development are important in the further evolution of the entire sector.

The travel industry has undergone a major transformation as a result of the global quarantine measures imposed by the COVID-19 pandemic. Remote work, including managerial work, has become widespread in economic life. Management opportunities have also changed accordingly, increasingly combined with digitalization processes and adaptation to the modern requirements of remote workflow. At the same time, the formation of new challenges for the tourism industry did not stop with the introduction of restrictions. In 2014, the Russian authorities launched an aggressive invasion of Ukraine and occupied the Crimean Peninsula, later unleashing a war in eastern Ukraine (with the support of local separatists). However, starting in February 2022, the Kremlin regime launched an offensive unprecedented since World War II, using sophisticated weapons. This challenge severely affected all spheres of Ukrainian society, including the tourism industry. For some time, there was talk of a complete shutdown of all hotel and tourist services, as crowds could become a target for Russian missile strikes.

However, with the first victories of the Armed Forces of Ukraine and the revival of economic life in the second half of 2022, interest in further development of the tourism sector revived. An important feature of this was the even more active use of digital technologies and management methods, as the military threat has not ceased. Therefore, enterprises under martial law had to look for new ways to implement management functions. The proposed Ukrainian experience in comparison with the latest European and American models, is an urgent problem for research. The last large-scale war in Europe took place in the 1990s as a result of the collapse of Yugoslavia. Since then, there have been no armed conflicts. For this reason, the use of Ukraine's experience in overcoming problems can be useful in the formation of new challenges on a European or global scale.

To integrate into modern realities, modern tourism organizations in Ukraine aim to maintain their competitiveness through the introduction of information systems and innovative management solutions that can reduce both costs and time for management decisions. First of all, we are talking about such innovative vectors as hardware, software upgrades, and maintaining information in paper or electronic forms, which can significantly speed up the execution of tasks and increase efficiency, interest tourists in original ideas and improve the quality of services provided, and secure their market functioning, survival, and development in an extremely negative competitive environment.

In particular, over the past few decades, many tourism organizations have introduced separate systems for planning the use of enterprise resources to improve work processes and efficiency. Over the past decades, the use of information technology has become a rather controversial issue among researchers and practitioners. Successful investments in information technology can lead to productivity growth, while failures in their use can lead to unreasonable

costs and other undesirable consequences, such as problems in communication with staff, loss of market share, etc.

On the other hand, many tourism organizations in Ukraine sometimes lack the functionality to use and analyze the characteristics of innovative digital systems to use them for business purposes. Consequently, they do not achieve the expected benefits even after they are put into a regular operating schedule. From this point of view, using organizational management solutions under martial law and successfully applying new digital solutions have become urgent management tasks. In other words, tourism organizations need to ensure the success of new innovative technology projects to succeed in developing their strategies and translating their visions into reality.

The Russian invasion has led to a rethinking of the tourism institutions management. The war affected economic life but did not stop the activities of tourism enterprises. For this reason, the topic of wartime management peculiarities study is important because it can develop additional mechanisms useful in peacetime as well. This important aspect should not be forgotten, as many modern technologies (including the Internet) were originally military developments. Undoubtedly, there are no digital solutions in the tourism industry, but their use in times of crisis can be an important mechanism for overcoming challenges in the future. This makes the proposed topic even more relevant.

The article aims to analyse digital tools for managing the innovation activities of tourism enterprises based on the Ukrainian experience of overcoming the risks of martial law. The purpose of the article is to realise several important objectives: 1) To highlight modern digital tools in the management of tourism activities (in the global and Ukrainian dimensions). First, it is about general trends in the development of online booking and the use of relevant databases, 2) The identification of the possibilities of digital tools for managing the tourism business in the context of a military challenge (particularly, chatbots and artificial intelligence). This aspect is extremely important for the overall significance of the article, as military operations will continue, and the need for serious transformations in the industry is urgent. In addition, the experience gained may be useful in cases of widespread military operations in other regions of the world, and 3) An analysis of the theoretical basis of the above-mentioned issues as a basis for the formation of scientific conclusions.

The structure of the article is also implemented accordingly, with considerable attention paid to the theoretical review. At the same time, this also facilitated the process of reviewing the main results of the study, since the theoretical review formed the necessary basis for this.

## **Theoretical Framework or Literature Review**

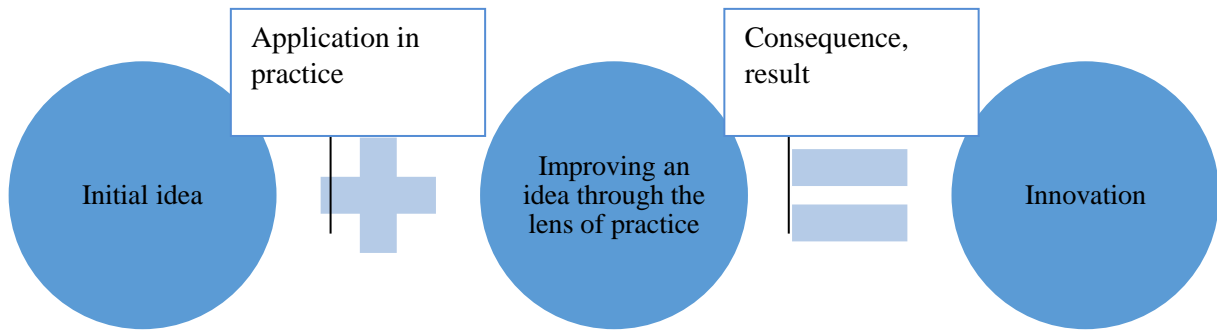
### ***Theoretical Foundations of Studying Innovations in the Tourism Industry and the Concept of Leadership***

The problem of theoretical substantiation of innovations is not new in modern science. However, due to the interdisciplinary nature of the term, it is interpreted by contemporary authors in different ways. The concept of innovation comes from the Latin *innovatus*, which means to renew. According to Alimova et al. (2020), innovation influences the formation and creation of better, more advanced products, technologies, or processes that are subsequently actively accepted by society. Therefore, according to Alimova et al. (2020), innovation is “introducing new objects, methods, procedures aimed at meeting the specific needs of

society”. At the same time, in Sharma and Sharma (2022), the category of innovation is interpreted through the prism of materialized changes in technology and organizational system that result from scientific progress. According to Alimova et al. (2020), the first stage of innovation is an idea. However, not all ideas become “innovations”: implementation, use, and improvement are necessary for this. Therefore, let us depict a schematic path of creating an innovation based on an idea (see Figure 1).

**Figure 1**

*Schematic Model of the “Birth” of an Innovation*



Leonenko (2019), who characterized the key aspects of the use of innovative technologies in the field of tourism, believes that innovations in the tourism industry should be interpreted as certain systemic measures that are innovative, novel and contribute to positive changes in tourism (p. 46). Savitska and Savitska (2021) argue that innovation is the driving force behind tourism, as the latter is the most sensitive to changes in the external and internal environment (p. 124). Despite this, modern researchers identify several types of innovations in the tourism industry. According to Alimova et al. (2020), there are product, process, business model, management improvements, marketing, logistics, institutional innovations, etc. (see Table 1).

**Table 1**

*Classification of Innovations and their Characteristics*

Innovation	Contents
Innovation as a process	It is about the introduction of improved technology in the provision of tourist services.
Innovation as a product	Creating a new product in the tourism industry
Management innovations	Implementation of new innovative management solutions and improvement of existing ones.
Innovation as a business model	Improving the tourism business through the introduction of new organizational approaches
Marketing improvements	Create new or improve existing marketing solutions
Logistics and institutional innovations	Developing new methods in the logistics system, creating new forms of cooperation between private enterprises, government agencies and the public.
Institutional innovations	Creation of new forms and structures of cooperation between the state, private sector, administration, and the public in the tourism sector.

*Note.* Source: Adapted from Innovative directions of tourism development by Alimova et al. (2020).

Therefore, considering the above considerations regarding the interpretation of innovations in the tourism industry, we believe that this concept should be understood as a new product or a new process in the tourism sector aimed at improving the industry as a whole, attracting more consumers and improving the level of satisfaction of their needs.

At the same time, the role of leadership in the birth of innovation is less appreciated. According to recent research, a true leader is able to share with others, give, and even serve - all of which differs from the idea of this category of people from the pre-information society. By understanding and accepting other people as they are, leaders can offer affordable solutions, recommend a certain pattern, give direction, and share creative solutions and energy. From these perspectives, a leader appears to be a person who is able to manage equally, but also to open up, be strong, and share. In modern practices, ordinary “victims” work for themselves, while leaders are more capable of working for others, or at least for others and themselves (Cousin, 2019). This brings the study back to the definition of leadership as a fundamental - a confident step on the road to self-understanding and self-identification, considering one's unique competencies.

Accordingly, in the management of innovative activities of tourism enterprises, an important and less appreciated factor is the acquisition of the necessary emotional competence of the leader, which involves mastering such important personal skills as self-management and social (interpersonal) skills in communication - first, managing contacts with others.

Among the personal skills of leaders, researchers primarily identify understanding and critical attitude to their own emotions, a true assessment of their strengths, weaknesses, and capabilities, confidence in their gifts and talents, self-esteem, control over emotions, stress resistance, honesty and keeping their word, flexibility, will win, energy, and belief in the best (Filipova & Usheva, 2021). Researchers especially note such valuable qualities as leaders' control over their emotions (primarily negative emotions) and optimism (which manifests itself in difficult circumstances). Such special skills allow modern leaders not only to shape enterprises, create a positive work environment and maintain organizational integrity but also to achieve the goals of enterprise development and management (Haider et al., 2022).

Accordingly, innovation activity is also related to leadership since, in modern conditions, a leader can be considered those who are able to create a new reality, form new or maximally updated rules of the game, take responsibility not only for maintaining a balance but also for the development of many social aspects and entire systems. Since many business structures and organizations in the tourism industry are open systems, leaders influence them through ideas, using their charisma, communication skills, and active implementation of innovative ideas.

At the same time, the concept of leadership is quite ambiguous and, to some extent, paradoxical. It is a rather contextual and extremely capacious phenomenon in various dimensions. For this reason, some researchers recognize the existence of separate systemic thinking among managers or individuals - commonly called systemic leaders. A special characteristic of this phenomenon is the work on an innovative idea: leadership charisma functions to establish communication to implement ideas most successfully (Li & Zalialetdzinau, 2022). Thanks to this, the multiplication of the company's achievements becomes a reality. Therefore, if we consider the results, systemic leaders are much more powerful and promising models of leadership management of innovation activities than charismatic leaders. They are self-sufficient by nature and show little dependence on changes in the rules of the game in the external environment, having an “internal coordinate system”. The focus on internal forces allows them to overcome the challenges of an aggressive environment when others cannot overcome the problem. Their greatest point of support is in the internal environment, so they are not tightly tied to certain external structures that may leave

their boundaries. Systemic leaders have an idea of their own rules of the game and impose them on the world.

### **Overview of Recent Research**

First and foremost, studies that demonstrate the impact of digitalisation on the management of tourist attractions are important. These studies remain relevant, although they were created in wartime and did not consider the peculiarities of wartime. Ambrose and Papamichail (2021) traced the improvement of sustainable development policies and practices to access, diversify, and promote cultural tourism in European regions and areas (p. 25). They also addressed the issue of developing indicators to manage accessibility in European cultural tourism destinations, responding to the growth of the accessible tourism market as a driver of tourism in general. Assoufi et al. (2023) investigated knowledge management as a crucial value for the commercial operation of tourism enterprises. Their study establishes the relationships between knowledge management tools and methods and different knowledge management actions. Morrison (2018) emphasised the importance of digital marketing, including the traveller review sites, relevant podcasts, short messaging messengers, virtual guides and online visitor brochures, and big data and statistics analysis. Digital tools are crucial in his research.

According to Doulamis et al. (2020) the development of society is closely related to the evolution of innovations and vice versa; therefore, innovations are an important part of various manifestations of social (and management) human existence. Thus, Modern European, American, and Asian researchers are actively studying introducing innovative technologies into the tourism industry. This is due not only to research interest but also to the active development of global tourism. In particular, Alimova et al. (2020) characterized the main innovative areas of tourism. The content of modern innovations in this context is studied through the prism of a theoretical analysis of the main definitions. This paper also provides a detailed analysis of the main manifestations of innovative development of the tourism sector. Coroş et al. (2017) described innovative, flexible strategies for tourism development. The authors focused on sustainable tourism, an industry that aims to follow ecological trends to minimize environmental impact. These researchers also explored the peculiarities of introducing new tourism products based on unique local heritage and traditions. Denning and Lewis (2020) characterized the problem of technological adaptation in various social spheres.

Ghazy et al. (2022) studied the problem of digitalization of modern industries through the prism of analyzing the experience of EU countries. Kalvet et al. (2020) described several important innovative tools for developing tourism enterprises. The authors focused on the analysis of modern tools for assessing the impact of tourism and cultural tourism. Papapetrou and Chatzistamatiou (2020) investigated the problem of improving the tourism sector based on the introduction of trends in the preservation and respect for the environment and cultural heritage. Sharma and Sharma (2022) analyzed innovative strategies for tourism development after the COVID-19 pandemic. The results of these authors demonstrate important innovative strategies that affect the improvement of tourism enterprises and provide key recommendations for the further development of the tourism industry amid global challenges. Gallo et al. (2021) studied the key aspects of improving the efficiency of tourism enterprise management based on the analysis of modern innovative methods and means of management. The study by Kopytko et al. (2021) characterizes the main problems of innovation as a factor in strengthening the

economic security of the firm in the context of globalization challenges and the process of integration of the world economic space. These researchers emphasize that in managing the company's activities, the main attention should be paid to the formation of innovative potential of employees and the creation of an appropriate corporate culture of doing business. At the same time, Wyrwa (2020) provided a detailed overview of the main financial instruments and tools used in the European Union that support the innovative work of modern enterprises based on the Industry 4.0 program. Skowron-Grabowska (2017) described the important factors of managing innovation processes in a modern enterprise. The study by Sardak and Sarkisian (2018) describes the development of innovative activities of the enterprise and emphasizes that the key innovations in the field of tourism include innovations that create new tourist services and contribute to the improvement of old ones. In addition, they influence the development of new tourist routes based on the use of modern tools and technologies in servicing the flow of tourists. According to Sardak and Sarkisian (2018), the formation of effective innovations in modern tourism should be accompanied by the following aspects: 1) scientific and technological effectiveness, 2) consistency of formation, 3) the presence of a positive result, 4) presence of immanence of investment processes, 5) compliance with the current needs of modern tourists, 6) taking into account adaptability and competitiveness, and 7) consideration of material and technical aspects and innovative potential of the territory.

Balzer et al. (2020) characterized the features of managing an innovative enterprise in the digital age. The main mechanisms for supporting open innovation in the tourism system were studied by Gusev et al. (2020). Han et al. (2020) described the main innovative strategies for the development of a modern tourism enterprise. Wielki (2020) analyzed the role of digital influencers and their impact on the activities of modern companies. Geissinger et al. (2023) characterized the role of modern Internet media in the innovation activities of a modern enterprise. At the same time, Zrybnieva (2020) studied the key aspects of forming the competitive potential of innovative enterprises. Also important for this study are the works that trace the economic impact of the Russian-Ukrainian war on the Ukrainian economy (Cybulsky, 2022; Humeniuk & Romaniuk, 2023; Stoner, 2022).

Nevertheless, the peculiarities of using digital tools in the management of the tourism industry against the background of global challenges (in particular, military events), and the main aspects of organizing the innovative activities of tourism enterprises of today remain poorly understood. In addition, in many cases, the lack of change management is the reason for the unsuccessful implementation of new information solutions. This aspect is emphasized by many researchers. Indeed, according to the definitions of organizational transformation at work, the introduction of innovations in the work of a tourism enterprise can be considered a form of organizational change. However, not many research efforts have been aimed at understanding the significance of the adoption and use of new digital management tools in terms of organizational transformation. As already mentioned, leadership is considered by researchers to be one of the most important variables that directly affect attitudes toward organizational life. Therefore, in order to compensate for possible shortcomings, an important and under-researched aspect is an attempt to investigate the prerequisites for the formation of employees' attitudes towards innovative solutions in terms of using leadership to make organizational changes. As a result, the author proposes that under martial law, the importance of leadership qualities is especially acute, in particular, with regard to the following scheme: emotional

commitment of employees to the organization through leadership influence on it increases emotional commitment to transformations and thus positively affects employees' understanding of innovative systems.

## Method

To form an objective picture of the introduction of digital tools in Ukraine's tourism industry, statistical data from more than 200 enterprises were used. Primarily in the Western Ukraine region, this was less affected by the hostilities and did not stop tourism activity in full. This made it possible to summarise certain management elements that have been applied since the COVID-19 pandemic and have been further used under subsequent martial law restrictions. The scientific analysis also includes official statistics that demonstrate the overall impact of military operations on the tourism sector of Ukraine.

The study was realized in several stages. At the first stage, the phenomenon of innovation is theoretically explained, and the main modern studies on the problem are characterized. The second stage characterizes the peculiarities of the introduction of innovative technologies and digital management tools in the tourism industry through the prism of analyzing Ukrainian realities. For this purpose, the article uses interdisciplinary methodological tools: analysis, synthesis, induction, and deduction. On the basis of concretization, the features of the use of technologies (IT, AR, VR) in the tourism industry of Ukraine are investigated. Through the prism of comparative studies, the formation of innovative management methods in the EU and the USA is highlighted based on their correlation with Ukrainian realities. Through the use of abstraction, the article makes a transition from the study of theoretical constructs to the characterization of the features of the use of modern digital tools for managing the tourism industry. The work is also based on a systematic, scientific, and objective approach.

## Results and Discussion

### ***Modern Digital Tools for Managing Tourism Activities: Global and Ukrainian Realities***

Technological solutions in the travel industry emerged in the 1960s when the first global distribution systems were formed. Today, there are extensive online networks that connect travel service providers (hotels, airlines, cruise lines) with intermediaries (primarily online travel agencies). Gaining access to information on available seats, hotel rooms, and tickets by travel service providers has given significant impetus to the development of other digital management tools (Leonenko, 2019). For example, the market for such digital services grew annually and reached more than \$6 billion in 2021. Even during the global pandemic, the market grew and developed at a rapid pace (Sharma & Sharma, 2022).

The use of information technology is making travel services more accessible and flexible (Hereźniak et al., 2018). Consequently, tourism product is becoming more individualized and consumer-oriented (Attila, 2016). Since the beginning of the full-scale invasion, Ukrainian museums, nature reserves (natural and historical), and zoos have begun to use virtual reality technologies that allow traveling from home. In addition, many tour operators have started offering to visit iconic places using digital technologies: virtual tours have become widespread, where the visitor is accompanied by a personal guide who tells in detail about certain sights and attractions. This type of digital travel is also popular in European countries, so the prevalence



of this type of leisure activity confirms the idea that virtual travel can be no less interesting than regular (real) travel (Havlovic, 2020; Papapetrou & Chatzistamatiou, 2020). Despite the military challenges, tourism in areas less affected by hostilities also uses other modern innovative technologies. In particular, AR reality is used for flexible and comfortable navigation in an unfamiliar city: on a smartphone screen, a traveler can see important tourist attractions such as museums, churches, restaurants, municipal authorities, and other attractions (in particular, AR City, Pocket City). In addition, AR-reality relationships can accurately determine the location of a tourist and show traffic signs (Savitska & Savitska, 2021). At the same time, AR browsers disseminate information about a particular object by pointing a smartphone at it. Fans of tourist tours will also find AR technologies useful, as they suggest the locations of cafes and restaurants on the nearby streets. Separately, AR reality applications together with machine translation systems, allow travelers to feel more comfortable in previously unknown places.

### **Databases and Information Systems**

Consumer interests related to improved information transfer, security, and quality of service have contributed to the formation of the latest technological solutions in the field of tourism services (Müller et al., 2012). In recent years, digital tools have become a hallmark of many areas of tourism, and the introduction of IT services has significantly digitalized the tourism industry as an important sector of the digital economy in general (Kalvet et al., 2020). The hospitality and tourism industry offers new package tours, fast and efficient hotel room rentals, and private rentals during vacations or cruises (Kostynets et al., 2020). Influential travel agencies (e.g., Opodo or TUI), and specialized providers of hotel or private accommodation rental services with online booking options (e.g., Booking.com or Hotels.com) have become important modern providers of digital tourism services.

In the tourism sector, databases and information systems are an integral part of the activities of market players (Trujillo-Gallego et al., 2020). Tourism information systems are constantly being improved and developed (Coroş et al., 2017). For example, multimedia databases of information systems are widely used in international tourism today, allowing for the processing graphic, voice, and video data (Kalvet et al., 2020). However, the main disadvantage of the modern information system in the tourism business is the need to quickly change multimedia databases. Therefore, scientific and technological development creates opportunities for a wide range of applications in the field of tourism, from geographic data entry to software that provides powerful storage, management, analysis, and imaging tools (Bilyaze, 2022).

### **CRM and Online Booking**

Another important digital tool for travel businesses is customer relationship management (CRM) software. This software can help companies collect and analyze customer data and use this information to develop targeted marketing campaigns and personalized offers. CRM software can also help increase customer satisfaction and loyalty, allowing companies to provide better customer service and support (Alimova et al., 2020). Digital marketing tools such as social media management platforms, email marketing software, and search engine optimization (SEO) tools are also important for tourism businesses (Sapiński, 2022). These

tools can help companies reach new customers, engage with existing customers, and promote their products and services more effectively (Kalvet et al., 2020).

At the same time, the overall level of use of innovative technologies in a country is also influenced by society's overall level of digitalization and the share of innovations in it. In particular, the results of this rating can be grouped in [Table 2](#).

**Table 2**

*Grouping of Selected Countries of the World by the Global Innovation Index*

Country	Rating	Place
Switzerland	67.24	1
Sweden	63.65	2
USA	61.73	3
Netherlands	61.44	4
United Kingdom	61.3	5
Ukraine	37.4	26

*Note.* Source: Global Innovation Index (2019).

The results of this index indicate that the innovativeness of the Ukrainian economy is at a rather low level, which makes it difficult to further use digital management solutions. However, the situation with development is quite dynamic. Online booking volumes have been growing significantly in recent years, with certain digital tools becoming popular in the industry (Kovalenko et al., 2021). First of all, we are talking about elements of digital marketing, providing opportunities for the digital presence of companies using travel websites; digital tools for consumer influence through advanced online travel search, secure online booking tools, and travel planning technologies; and using the potential of social networks (Kalvet et al., 2020; Oneshko & Pashchuk, 2021). Experts estimate that the total market for online services in the travel industry is more than \$400 billion. Companies also spent heavily on online advertising to attract more “remote” users (for example, in the United States, this market was more than \$3.5 billion) (Mishra et al., 2020). The industry leader is Booking.com, one of the leaders among visitors and potential tourists.

The penetration of online travel platforms into the Ukrainian market had its specifics. For some time, the Ukrainian tourism market responded poorly to the challenges of digitalization, but the penetration of modern technologies into the provision of relevant services led to a revival of the tourism industry. However, the military aggression of the Russian army led to a significant drop in tourism indicators.

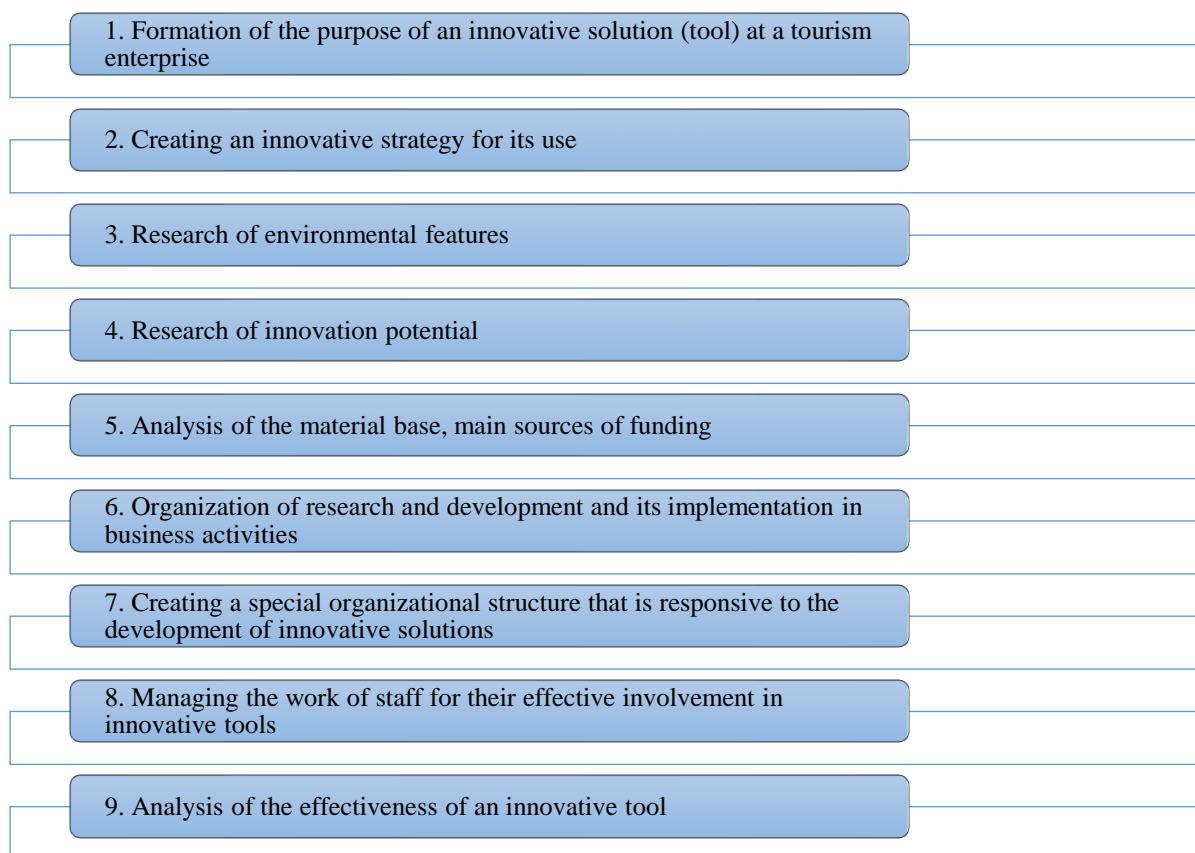
For example, in Ukrainian realities, an important indicator of the economic activity of tourism is the tourist tax, which is paid in accordance with the reservation of rooms in hotels or other establishments. Hence, the payment is proportional to the number of tourists who visit a particular region. COVID-19 has made adjustments to the tourism industry. The figures declined during the coronavirus pandemic in 2019-2020, but a gradual revival began in 2021. Since February 24, 2022 (the beginning of the Russian invasion), the western regions of Ukraine and the city of Kyiv have been the leaders in paying tourist taxes. As a result of Ukrainians moving away from the hostilities to safer parts of the country, the tourist tax increased by more than 65% compared to the same figures in 2021. However, these figures do not indicate an increase in tourist activity but rather demonstrate the complex realities of forming a layer of internally displaced persons among many Ukrainian citizens. Foreigners have also used Booking.com's digital tools to support the hotel industry and humanitarian aid to affected Ukrainians: they booked accommodation online and provided access to it for IDPs.

## Digital Tools in the Tourism Industry of Ukraine: Response to the Military Challenge

Modern managerial innovations in the tourism business should lead to qualitative transformations in the tourism product and improve the tourism infrastructure in general (Tracey & Sherman, 2016). Accordingly, it is important to develop a strategy for their implementation and use. At the same time, the following measures should be taken into account: 1) analysis of the external environment, 2) reduction of all risks, 3) study of innovative opportunities and the current state of the enterprise, 4) consideration of material and technical capabilities and sources of financing. This point is especially important for the further development of innovative activities of Ukrainian tourism enterprises. After all, military actions have affected the reduction of funding sources and, in some regions, enterprises' material and technical capabilities, 5) the creation of an organizational structure conducive to innovation, and 6) analysis of the effectiveness of the innovative solution. These and some other measures are shown in Figure 2.

**Figure 2**

*Structure of Key Means of Implementing an Innovative Tool in the Management of a Tourism Enterprise*



Source: article authors' development

The proposed scheme can be considered a model that other researchers have partially used (Morrison, 2018). Therefore, the use of digital tools has many prospects in the future.

## Levels of Innovation in the Tourism Industry

Innovations should contribute to the restoration and development of tourists' spiritual and physical strength, lead to qualitative changes in the tourism product, increase the efficiency of tourism infrastructure, as well as improve the processes of formation, positioning, and consumption of tourism services and progressive changes in production factors (Leonenko, 2019; Savitska & Savitska, 2021). Trends in innovative tourism development can be divided into several levels (see Table 3).

Table 3

*Levels of Innovation in the Tourism Industry*

Level	Meaning
Macro level	At this level, it is assumed that the state participates in the formation of an effective tourism development strategy on an innovative basis. The development of the state's tourism potential should be based on the use of innovative technologies, the latest developments, the experience of countries with a high coefficient of tourism development, global achievements and other development models proposed by the international community. The strategies for the development of tourism and resorts in Ukraine have to some extent contributed to creating the conditions for intensifying the development of tourism and resorts in accordance with international quality standards, taking into account European values and transforming it into a highly profitable, globally integrated and competitive industry. Russian military aggression has not canceled these regulations, but it has significantly limited the real possibilities for their physical implementation. At the same time, taking into account the digitalization process has made it possible to simplify the provision of services and administrative regulation of enterprises.
Suprameso level	Formation of regional tourism strategies that would primarily cover the capabilities of tourism entities whose range of services is interconnected. First and foremost, we are talking about the possibilities of medical and recreational tourism, which is of additional importance in the context of military operations.
Meso-level	At this level, the development of the regional tourism market is expected to be based on innovations. Due to the changing vision and attitude of the population to certain historical events and territories, new ideas for creating tourist routes, such as nostalgic or patriotic tourism, may emerge.
Micro level	This level describes the activities of tourism industry entities. Tourism is a service sector that requires continuous improvement of service quality, which is possible through the use of innovative technologies. The activities of tourism industry entities should be aimed at creating an attractive and competitive tourism product, while providing favorable and comfortable conditions for travelers. The purpose of implementing an effective innovation policy by tourism enterprises is to achieve the planned results from the implementation of a set of measures for the provision of tourism services aimed at introducing innovations in tourism activities and the efficient use of costs for their implementation.

Source: Created by the authors of the article

Digitalization of management and innovation are most effective at the macro level. Managing the innovation activities of hotel enterprises is carried out using key methods and tools such as innovation marketing, benchmarking, franchising, and innovation engineering in the tourism business. In general, access to the potential of innovation marketing involves the use of any possible digital tools to disseminate information about a product or service through digital information channels.

## Chatbots and Artificial Intelligence

Chatbots and artificial intelligence technologies can now be used to improve the standards of tourism enterprises. The use of CRM systems is the basis of modern marketing in tourism, as these platforms can help organize staff work more efficiently. In addition, this tool allows you to conduct analytics and choose the right vector for the development of the enterprise, which will contribute to the deepening of the crisis. For tourism enterprises, as significant subjects of innovation, the increase in the number of users on the Internet opens up new opportunities in terms of management and tools (Haidabrus, 2022; Yarmoliuk, 2022). One of the most effective

digital tools for managing innovation is targeted advertising and contextual advertising, which help to expand the customer base and increase profitability (Ihnatenko, 2022).

The emergence of the coronavirus pandemic has led to an increase in the popularity of virtual tourism, which has gained additional importance in the Ukrainian military context. This technological innovation has made it possible to travel to real places without actually moving to them through modern computer technology and communication networks, creating and receiving the most realistic, meaningful information about the desired destination (Savitska & Savitska, 2021).

Since the spread of the COVID-19 pandemic, tourists have increasingly opted for personalized offers and customized tours, as group tours and mass events have been severely restricted (Sharma & Sharma, 2022). There has also been a growing interest in local and national culture and traditions, especially during the war with the Russian Federation, when there was a need to raise the spirit of patriotism and reject alien customs and traditions associated with the former Soviet Union or modern Russia. This has led to an increase in demand for the Ukrainian language, support for Ukrainian culture and art, and popularization of Ukrainian songs, cuisine, etc. In addition, thanks to the massive presence of travel companies and their services on the Internet, tourists have the opportunity to analyze information, compare and choose tours that meet their needs.

## Conclusion

The examination of utilising contemporary digital tools to oversee innovation endeavours within tourism businesses remains pertinent, as it unlocks avenues for leveraging technology effectively even during times of conflict. The onset of the COVID-19 pandemic resulted in a notable surge in the adoption of remote technologies across Europe and the United States. These developments have reverberated through the utilisation of information systems, multimedia databases, customer relationship management (CRM) software, digital marketing tools like social media management platforms, email marketing software, and search engine optimisation (SEO) tools. Consequently, the market swiftly rebounded from the fluctuations induced by the coronavirus, aided by the increasing capabilities of digital platforms. However, the positive trajectory of recovery in the Ukrainian tourism industry was disrupted by the deployment of Russian military aggression. Nonetheless, Ukrainian tourist attractions have made noteworthy advancements in recent years by incorporating virtual reality and augmented reality tools. Furthermore, digitalisation has enhanced the management systems for innovation activities within tourism enterprises. The recommendation to implement CRM systems, which serve as the foundation of modern marketing in the tourism sector, is put forth. Moreover, this toolkit facilitates analytical processes and aids in selecting the optimal path for enterprise development, thereby fostering crisis mitigation. Targeted advertising and contextual advertising also prove to be effective digital tools for innovation management; however, their efficacy warrants further consideration should hostilities persist.

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