DIGITAL TECHNOLOGIES AS THE BASIS FOR DEVELOPMENT TOURISM ACTIVITIES IN UKRAINE

Lyudmila Novitska[1]

Abstract. The scientific article is devoted to the study of possibilities of digitalization of the tourism industry. It is substantiated that tourism in Ukraine is a sphere of socio-economic complex, which in many countries has become a major rapidly developing industry. It serves as a source of foreign exchange earnings and promotes employment of the population; increases the contribution to the balance of payments; contributes to the diversification of the economy through the development of tourism infrastructure; increases the attractiveness of the country as an area of business and business cooperation; creates incentives for the inflow of foreign capital into the national economy.

It is proved that tourism needs new approaches to the organization and management, including the use of modern digital technology, which can significantly improve the quality and efficiency of the tourist product. It is established that in the conditions of total digitalization digital transformation of business is the main condition for the survival of companies in the tourism sector in competition. The main driver of these changes is the consumer, they and their needs dictate the conditions in the digital services market.

It is noted that the development of digital economy forms the main trends in the tourist market around the world, particularly in Ukraine, the most important of which are: the globalization of tourism business, the active development of transnational Internet resources, the convergence of tourism service providers and consumers, the emergence of new distribution channels of tourism product, the massive access of offline companies to the Internet, changing consumption patterns, the formation of an individual approach in organizing travel, etc.

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[1] Candidate of Pedagogical Sciences,
Associate Professor of the Department of Mathematics,
Physics and Computer Technology,
Vinnytsia National Agrarian University, Ukraine

It is established that the latest digital technologies include: big data technologies, cloud services, internet of things, blockchain technologies, mobile technologies and social networks, digital technologies and devices, virtual technologies and others.

It is substantiated that for the managers of travel industry companies the use of digital technology allows: increase the investment attractiveness of the tourist enterprise; control labor productivity and efficiency of business processes; quickly detect "weak points" in the management of processes; increase the availability of tourist services, quality of service and provision of services.

It is proved that the use of digital technology increases the safety and quality of tourist services.

1. Introduction

The modern industry of tourism in Ukraine develops dynamically enough, though from time to time experiencing moments of crisis due to political, economic and epidemiological aggravations in the country.

As a result of changes in the economic vector of Ukraine the tourism industry is increasingly positioning itself as a commercial sphere, able to organically fit into the socio-economic complex of the country. Analyzing the experience of European countries, and in the case of transferring such experience to the domestic cultural and economic soil, the tourism sector will be able to make a significant contribution to the budget, will be a reliable source of foreign exchange earnings, stimulating the inflow of foreign capital into the national economy, can provide employment, increase the attractiveness of the country. as a business sphere, etc.

Given the recent events that have significantly affected the global tourism industry, tourism needs new approaches to the organization and management, in particular with the use of modern digital technologies that can significantly improve the quality and efficiency of the provision of the tourist product.

It should be noted that the development of modern digital technologies in tourist activities depends mainly on factors of internal and external environment. These factors interact with each other and depend on the specific socio-economic conditions of development of the state and the region at the macro level, as well as the enterprise at the micro level.

At the macro level, external reasons for the development of digital technology in tourism are formed. Conventionally they are divided into two groups:

1. Statistical – natural and climatic, geographical, cultural and historical.

2. Dynamic – political and legal, socio-demographic, financial and economic, logistical.

The foundations of tourism at the regional and national level are natural resources, which include natural landscapes, volcanoes, seas, rivers, mountains, mineral waters, healing springs, climate. Also, cultural and historical reasons play a huge role in the development of tourism activities: historical monuments, museums, memorials, culture and customs of local inhabitants of the regions, etc. Tourist activities are mainly aimed at natural-climatic and cultural-historical factors. Unconstructive approaches to the development of territories and the wrong approach in the exploitation of natural and cultural heritage can lead to the decline of tourist potential.

Dynamic factors also have a great impact on the development of tourist activity. Political instability of the region, protracted crises in the economy, military conflicts, increasing unemployment, etc. have a negative impact on the level of tourism development. The socio-demographic factor is more significant in this group. This factor is characterized by such indicators as living standards of the population, degree of well-being, demography, employment level, level of education and culture, urbanization, etc. Such factors as the level of health care system activity, crime rate, as well as the environmental situation in the region can be attributed to separate social factors. The material and technical factors of tourist activity development are the tourism infrastructure, i.e. hotels, hostels, stores, roads, banks, communication, etc.

Internal factors of tourism business development play a huge role in the process of implementing the digital economy. These factors are formed at the micro level of tourism firms. Internal factors include: the policy of digitalization, the strategy of tourist activity of companies, the introduction of the latest digital technologies, as well as their development, the support of innovation from the management of companies, the high level of financial capabilities of companies, as well as organizational and technical readiness to implement and develop innovations.

In conditions of rather fierce competition in the tourist market the main task for the Ukrainian tourist enterprises is the formation of competitive advantages

and under such conditions the way to improve their position in the competition is the active use in their practice of modern information technology – full automation of the process of placing orders for tourist services, the use of direct channels of communication with partners-tour operators; the use of electronic booking systems of tours, e-tourism system, the use of electronic communication with partners – tour operators. [1, p. 119].

2. Analysis of recent studies and publications

The issue of tourist industry development in the digital economy is not new and is studied by many scientists and researchers, such as O.M. Golovnya, P.I. Zhezhnich, R.B. Kozhukhovskaya, E.V. Kozlovsky, T.V. Marusey, S.V. Melnichenko, M.M. Skopen, O.O. Soprunyuk, Y.V. Stavskaya, etc.

Among the publications devoted to the information support of tourist activity, the study by P.I. Zhezhnich and O.O. Soprunyuk [2] deserves special attention. The authors have successfully considered the dual role of information support in the work of tourist enterprises, which, on the one hand, is designed for effective interaction between the producer and consumer of tourist services, and on the other hand, allows to increase the efficiency of information processing within the tourist enterprise.

According to T.V. Marusey, the main tendencies of development of tourist industry in conditions of digital transformation of economy can be marked the following: globalization of tourist business; active development of transnational Internet resources; convergence of suppliers of tourist services and consumers; appearance of new channels of distribution of tourist product; mass access of offline companies to the Internet; change of consumption model; personification approach in travel organization; use of mobile applications [3].

S.V. Melnichenko covers theoretical and methodological bases and practical tools of information technology application in tourist business; the role and place of information technology in management and marketing of tourist enterprises are defined; recommendations on modification of organizational management structures of tourist enterprises and management system as a whole under the influence of information technology are given [4].

Global computer and Internet networks acquire great importance in tourism. Thanks to information technology will increase the effectiveness of marketing in tourism, the consumer will be able to quickly obtain

the necessary quality information about the tourist product without leaving home [5, p. 27].

The work of M.M. Skopenya focuses on the processes of automation of the firm's activities with the help of office programs, computer equipment used in the work of a travel firm, the creation of effective sites and servers of the travel firm on the Internet [6, p. 87].

Tourism is one of the leading and most dynamic sectors of the economy. A key factor in the development of the economy in modern conditions is the data presented in digital form. In this regard, digital technologies play a decisive role in ensuring the competitiveness of enterprises, industries and entire states.

Currently, tourism has entered a stage of its development at which information and timely transmission play a decisive role in all areas of tourism activities, with modern information technology in tourism becoming the most important factor in the economic growth of the industry. Information and technological progress today is not only the main factor in ensuring the effective functioning of the tourist market, but also the most important condition for the process of its sustainable development. Consequently, priority should be given to modern digital technologies which, thanks to their unique properties, will actively contribute to the dynamic development of all sectors of the tourist market [7, p. 61].

Thanks to modern Internet resources, notions of distance and territorial remoteness are increasingly being leveled. And that is why tourism, which a priori possesses a tool for demolishing spatial barriers, plays a great role. The tourism industry is a multidimensional phenomenon, equipped with many functions and therefore can become an area of multidirectional efforts and involvement of different professional groups.

The purpose of the article is to identify the main types of information systems and technologies that are used in the process of tourist activity and to identify their impact on the successful functioning and development of the tourist enterprise.

Digitalization is the introduction of digital technology in all areas of life: from the interaction between people to industrial production, from household items to children's toys, clothing, etc. It is the transition of biological and physical systems to cyberbiological and cyberphysical systems. The transition of activities from the real world to the virtual (online) world [8].

Digitalization has not escaped the travel industry. There are no segments of the travel business that have not been touched by it. Today it takes only a few minutes to plan a trip: instantly book a plane, find and rent an accommodation anywhere in the world, read a review of any restaurant. Modern technology has made it all accessible and brought it to a new level [3].

Nowadays, customers' desires and demands for the service have grown. Applications for mobile devices such as Skyscanner, Flightradar24, Booking, Airbnb, Couchsurfing, Maps.me. and others. and locality have taken independent travel to a new level: all the features of a small travel agency can now easily fit in your pocket. GPS and maps, currency calculator and city guide – the optimal set of applications helps plan trips and save time, money.

However, in today's world, people are increasingly worried about both money and time spent, so they need a quick fix for their needs, including travel and leisure. A quick solution to this problem can be offered by travel agencies (travel agencies, travel agents). At the same time we should note that the geography of travel and preferences of Ukrainians has greatly expanded. If in 90-s about 70% of all tourists in Ukraine chose Egypt and Turkey, now travel agencies should explore dozens of new directions, among which are exotic islands: Bali, Zanzibar, Maldives, Mauritius, Madagascar, Sri Lanka, and others. But if travel agencies cope with the diversity of destinations and their research, there are serious gaps in the digitalization of business [3].

Ukraine has a rather low level of use of digital technology and digitalization. In this regard, the government of the country, in the framework of the project "Ukraine 2030E – a country with a developed digital economy", developed by the Ukrainian Institute of the Future, until 2030 intends to carry out a comprehensive digital transformation of social and economic activity in Ukraine. This requires the development of regulatory regulation of digital technologies, modernization of digital infrastructure, development and implementation of digital platforms and technologies in the main areas of the economy and public administration, personnel training and information security.

Therefore, the relevance of the use of digital technology by tourism enterprises is still higher than ever.

3. Internet technologies

Factors in the development of digital technology in the tourism industry include: an unlimited amount of information, allowing detailed information about the hotel or travel agency; round-the-clock access to information, allowing data to change depending on market dynamics; the breadth of audience coverage, allowing to serve customers remotely; interactive mode, providing information on the number of visitors for a certain period of time and the ability to calculate demand guided by their choice.

Currently, the Internet has become a powerful information system without borders. Its use in organizing tourism activities has several practical directions.

The first direction is the use of information capabilities of the Internet as a source of data for various kinds of research and analysis for the purpose of conducting tourism activities: obtaining information about the country, its history and culture, tourist potential, attractions, local traditions and customs, geographical and climatic conditions, currency exchange rates, etc. However, it should be noted that such information capabilities of the Internet are not only an advantage, there is a significant disadvantage – the need for a large amount of time to search for and process the necessary information.

The second direction of using the Internet is the creation of specialized sites that provide reservation and reservation services for tourist services like electronic reservation systems.

Creation of Internet sites is an important element in the marketing strategy of tourism enterprises. The site of a tourist enterprise can become a kind of a business card of the company and an advertising catalog of tours. The Internet site can be an important element in the organization of tourist activity itself, in particular to become a tool for expanding contacts with partners, to function as a reception of customer orders for the purchase of various tours. The audience of tourist Internet sites are mostly potential tourists who are looking for the necessary information in the global network to plan their trip.

Through the Internet, the customer with a web browser enters the travel company's website. Usually the website contains a catalog or a list of searchable tourist products offered by the travel agency or its partners. The website contains the necessary tools for entering and registering a variety

of information. Customers can choose and form orders for a certain tourist product, make payments via the Internet, get the necessary advice on the planned trip.

4. Mobile technologies and social networks in tourist activity

The functions of mobile applications differ little from those of websites, the main task of which is to present information about an enterprise, its products and services. The main difference between mobile applications is that they have much more opportunities to convey information to consumers. The cell phone is always with the user, and if it is connected to the Internet, its owner can always be interested in a specific commercial offer. The undoubted main advantage of mobile applications is the ability to work even without a connection to the network.

Mobile applications give a travel company a lot of advantages:
– increased sales;
– optimization of business processes and increased efficiency in decision-making;
– creation of their target audience;
– new sales and communication channels;
– increase in customer loyalty;
– centralized statistical data required for further
– additional competitive advantage over other similar enterprises.

Currently, experts highlight the following features of the mobile application market:

1. The growth of mobile advertising. The mobile advertising market is directly related to the mobile app market, and these markets are growing at a fast pace, being essentially related. The growth of mobile advertising budgets is a consistent and natural process, depending on the growth of mobile applications and competition in the market.

2. Growth of mobile consumption. In almost all developed countries the consumption of mobile services by the population is growing, the sale of smartphones and tablets, as well as the use of mobile traffic. Such changes in consumption have a significant impact on the development of the mobile application market.

3. Stimulation of the market by platform owners. Such giants as Google, Apple, Microsoft encourage mobile application developers through

competitions, creating more favorable conditions of cooperation. The goal of platform owners is the maximum number of applications for their platform and quality service for the user.

4. High budgets for development. The mobile app market is more promising in development compared to other software markets, since mobile app budgets have remained at a very high level for many years. Among the minor obstacles to the growth of the mobile app market, experts single out only two points: the complexity of payment and the lack of user awareness.

The complexity of payment for many users remains the main obstacle to the growth of the mobile app market, people do not yet fully trust mobile systems and do not want to leave their payment card data in the system. Smartphone owners, especially the adult audience, do not use many useful functions of the phone, and use it only for making calls and sending text messages.

Depending on the functions performed by mobile applications, they are conventionally divided into entertainment (multimedia), communication, navigation, reference, and applications. The main groups of mobile applications, which are used both by tourists and tourist enterprises are: navigation and maps, purchase of air tickets, hotel reservations, guides, translators, car rentals.

Google Maps is a mobile application that offers the user GPS navigation with voice guidance, diagrams of public transport routes, up-to-date information about roads (congestion, traffic jams). Designed for motorists, cyclists and pedestrians, the application integrates classic and satellite maps, on which you can include the display of internal diagrams of large buildings and panoramic photos of streets. The business directory will help you to find the coordinates of the desired hotel, restaurant, shopping and entertainment center or business.

Google Translate is the best translator, which "speaks" almost all the languages of the world. The most useful application for travel became after it received an offline version. In anticipation of a trip to a particular country, you can download offline dictionaries to your smartphone and easily avoid the difficulties of translation. Google Translate is constantly working on improving the voice module, so now, almost in real time, you can communicate with a person in different languages and understand each

other. For example, receiving a phrase in Ukrainian, the application in the buffer translates and immediately plays its English version.

Skyscanner is one of the best applications for buying airline tickets at the lowest price. In the program you can view the flights of many carriers, including low-cost airlines, for many months in advance, choosing the most reasonable price. Along with Skyscanner you can download a smartphone application such as Flight Track. It is designed for those who are always late to check in, forget the flight number, mix up dates and times. A few days before departure, the program will remind you of the start of the trip, will tell you when check-in and boarding begins, in which airport terminal it takes place. You can also see the layout of seats on the plane, a map of the terminal, etc.

Booking.com is a mobile version of the hotel booking portal of the same name. The application has already become a cult and is very popular among everyone who travels around the world. It allows you to easily and always at the best price to book a room at any hotel. The program has a database of more than a million accommodation facilities. In addition, every day there are special offers on Booking.com, where certain hotels offer accommodation at half price. Loyal users of Booking.com get additional discounts. The menu is available in many languages, including Ukrainian, and you can get room rates in hryvnas, dollars, euro or other currencies.

TripAdvisor is a mobile application that allows you to organize and make a perfect trip. The program has built-in maps, which allows you to quickly get on the ground and find what you need: hotels, restaurants, cafes, and historical and cultural attractions. TripAdvisor will not only mark them on the map and lay the route, but also show photos. In the database of the application the tourist can find more than 150 million reviews, which will help to choose only the best places to visit. A sticker with the logo of this application and the corresponding rating decorates the front door of many hotels, restaurants, bars, store windows, etc.

BlaBlaCar is an Internet platform with a mobile application for joint rides in a car. It is a service that connects drivers and passengers who would like to share the cost of medium- and long-distance trips. Drivers post routes and passengers choose them, and they travel together and share the cost of fuel. The program has thousands of driver profiles from which you can learn about the make of car the number of seats available, the cost of

transportation, and, most importantly, personal information about the driver and his contact information. The application is free and easy to use.

Sixt Rent a Car is a mobile application which allows you to rent a car in any country as Sixt rent-a-car stations are located almost all over the world. Additionally it is possible to order child seat installation depending on the age of children, GPS navigation etc. Regular customers of the company can get a corporate card allowing to make the renting procedure faster, get a discount till 20%, improve the class of a car, get miles and round-the-clock support in any country.

TripbyClick.Ukraine is a mobile app for travel in Ukraine that combines a social network like Instargam with a travel planner. The main interface of the program is a news feed with photos of users of the program from different parts of Ukraine. You can scroll through them, save them as bookmarks or add location to the route of your future trip. You can filter by topic. In his profile, the user can create a travel itinerary by adding the places of interest to it. You can also share photos from your trips with other participants, making sure to specify the location where the photo was taken. The app also has a system of rewards for travelers. You can get them for visiting a certain number of places, publishing, swearing from other users, etc.

Mobile applications created for smartphones and tablets are an innovative means of stimulating national and international tourism. The main advantages of their use can be considered: simplification of communication between the subjects of tourist activity, economic benefit and ease of use. Considering specifics of work of the tourist enterprise and current business priorities, mobile applications proved to be an effective marketing tool for attraction of new customers and convenient service for work with existing client base.

Customers now have the opportunity to form a tour of their own preference via the Internet: choose a hotel, time, way of travel, meal options and additional services. The main part of travel market participants prefer online booking technology, which is based on instantaneous display of real information on availability of free places at current rates with the possibility of their reservation. In practice, these two functions are often distinguished, as instantaneous booking is possible only after providing financial guarantees of payment [9].

Social networks have a great influence on consumer behavior in tourism activities. As practice shows, tourists and businessmen often use

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smartphones and tablets to find information or share impressions about the place of their stay. Most tourists now travel with modern gadgets filled with a variety of convenient features, they use them to access social networks, post photos on Instagram, publish content on their blogs, on the pages of social networks such as Facebook and Twitter.

Before starting a trip a tourist usually makes a choice of a place to stay, which depends not only on the standard offers posted on the websites of travel companies or Internet portals. The tourist is guided by his or her own cognitive interests, needs and expectations, the advice of acquaintances and friends. A person is not always ready to spend a lot of time to find the necessary information, but is willing to pay more for a quality product, if it is available and the information about it is reliable. Social networks have created an excellent technical and emotional opportunity to facilitate the collection of a variety of data on available travel offers. They allow to build a so-called "fragment of the collective tourist picture of the world" on the basis of the experience presented in the global network, which allows the potential tourist to get the most relevant information about the visiting country, based on the reviews and comments of people who have been there. The use of social networks allows the consumer to gather information "first-hand" and on this basis to make a responsible decision. Gathering information is possible through blogs and forums, multimedia portals, photo and video sharing. Note that an important role in this process is played by such special platforms for sharing impressions and comments as wanderfly.com (helps to make a travel plan based on the analysis of tourist interests and capabilities), tripwolf.com (travel guide to the world) and other accumulated servers of online content about tourist products and services. The intensity of the use of social networks in tourism activities is constantly growing. Given the low cost of communication, wide audience and high speed of information distribution, social networks have become one of the most important marketing tools in the process of promotion and sales of tourist services. Tourists can now post reviews, comments and demonstrate their own vision of a tourist trip (most often not at all similar to advertising information), as well as easily communicate this information to the global community.

As practice shows, online broadcasts on social networks Facebook or Twitter with the publication of photos and videos attract users more. An

important point in this case is regular updating of pages, posting relevant information and maintaining a news resource to capture the interests of the community. Therefore, the management of a tourist enterprise needs to identify a key person who can be an authoritative opinion leader, able to conduct a dialogue with the audience, comment on the news, give interviews and maintain their personal blog. It should be noted that the result of work in social media can be unpredictable for an enterprise due to incompetence or lack of coordination of personnel, which can damage its image. Therefore, the key factor for the successful promotion of tourist products and services in the global network is a clearly developed strategy and tactics of work, professionalism of employees. Unfortunately, most tourist enterprises are not ready now to allocate funds for marketing activities in social media, which is a confirmation of the underestimation of the importance of such work.

In addition to popular social networking sites, you should pay due attention to well-known video hosting sites like YouTube, which allows Internet users to upload, view and discuss videos. Thanks to its simplicity and ease of use, YouTube has become one of the most popular places to post videos. The site features professionally produced movies and clips, video blogs, as well as amateur videos and video blogs. The advantage of this video hosting site is that it can provide TV information at any time. The modern tourist gets acquainted with a country, a city or a hotel via the Internet, and most often via YouTube. The tourist is interested not only in information about the place of future stay, but also the events directly occurring there, the reaction to them by the authors of blogs and readers who make comments on the site. While the official media try to hide unfavorable events for longer, it is impossible to do so in a video hosting site.

For example, during the large-scale forest fires in southern Turkey in the summer of 2021, many tourists took pictures via mobile devices and posted footage of such an environmental disaster on the site, which contributed to the rapid spread of information about it. This video hosting is an attractive resource for tourism businesses as well as for small TV companies and satellite TV channels. Through YouTube are shown various programs about tourism, history, culture, programs about ecology, fauna and flora. So far the video hosting becomes an information center for millions of modern tourists. Therefore, innovations related to the use of YouTube in the organization of tourist activities have a great prospect.

5. Digital technologies and devices

The main digital technologies of tourism activities are the Internet of Things, artificial intelligence, big data, blockchain, monitoring systems, robotics, virtual reality, cloud computing and many others.

The Internet of Things is already an essential element of the travel service. Devices are connected to the Internet, interacting with each other and equipped with sensors, sensors, and technologies for transmitting and receiving information.

For example, with the help of mobile applications customers can regulate the temperature and lighting in the hotel room around the clock, control the TV, book spas, have access to services in the rooms and their cleaning.

Such an approach solves many problems (economical use of energy and material resources, lack of parking spaces, loss of orientation in an unfamiliar area, control over the movement of luggage, etc.), and also reduces to a minimum all kinds of expectations of the tourist during the rest.

Using artificial intelligence technologies, in particular chat-bots, it is possible to book a hotel room, tell the rules of conduct, order food from a restaurant, control the temperature and lighting in the room, call a cab, plan a travel route or walk around the city.

Chat-bots are computer programs, virtual assistants that mimic a live person, answer questions and customer requests using messenger applications. Chatbots are designed for users who want to quickly find the information they need without directly contacting managers by phone.

A tool like big data can help travel companies improve their operations and make faster and smarter decisions. Data is collected from many sources, including email, mobile devices, apps, etc. This data is grouped, processed, stored, and then analyzed, during which companies gain useful information.

Airlines use big data to understand passenger behavior, route choices, overall industry performance, and to increase their revenue opportunities. Hotels and resorts can use big data to provide customer packages and exclusive offers.

Blockchain technologies are already widely used in tourism: collecting and controlling information about the movement of luggage between different airlines and airports; identifying passengers through retinal scans or fingerprints; and arranging payment for services;

Blockchain technologies are responsible for the reliability of orders, reservations, secure payments and other elements of the digital environment.

Work in tourism is another promising area of development. The use of robot-guides in museum tours, robot-guides capable of understanding people, performing the functions they need, are becoming a reality today. Vacuum cleaners-workers are already firmly in use, reducing the need for personnel.

Through the use of artificial intelligence, particularly recognition technology, it is possible to: speed up tourist check-in times at airports; allow visitors to access a hotel room by scanning their retina or fingerprints. Such service provides visitors with additional conveniences, in particular increases the security of stay in the hotel; improve the quality of customer service through personalization of services.

Personalization of service is one of the most important competitive advantages that cannot be achieved without digital technology. To understand a customer's needs and desires, you need to collect and process a huge database related to their previous travel experiences, hotel stays, etc. This will allow to form a certain virtual image of the tourist, to foresee his needs with the help of artificial intelligence systems, to provide remote service with the help of chat-bots. The advantages of servicing with the help of artificial intelligence systems should include the accuracy and speed of providing information to the client. Artificial intelligence allows you to quickly process information and offer different options for solving a problem, for example, by offering several accommodation options with comments personal to the customer. The use of modern digital technology increases the safety and quality of tourist services [3].

For managers of enterprises and organizations in the tourism industry, the use of digital technology allows: increase the investment attractiveness of the tourist enterprise; control labor productivity and efficiency of business processes; quickly identify "weak points" in the management of processes in tourist enterprises; increase the availability of tourist services, quality of service and services; develop tourist industry enterprises through increased integration processes between service organizations and tourist enterprises; accelerate the introduction of energy and resource-saving technologies [9].

In the hotel and restaurant business in conditions of fierce competition the application of digital technologies attracts more and more new visitors.

The development of QR code opened new unlimited opportunities for interaction of companies and consumers on-line. The matrix code is able to hold a huge volume of information by means of text, figures, URLs, calendars, diagrams, images. The speed of QR code recognition is very high, it can be placed on any media, starting from cash register receipts and menus and finishing with different signs. It can be scanned by cell phone or video camera [11].

The restaurants have started to use QR-code to attract the clients. At the entrance to the restaurant they place the advertising poster or the menu with the printed code. Having read the code, the user can get the link and go to the site of the restaurant, look through the menu or get the link to the site, where he can look through the reviews of the users about the restaurant.

Creating an electronic menu that allows the administration to increase the efficiency of communication between customers and employees. It also speeds up the process of updating the menu. For example, customers can independently select a wine by year, price, region, etc. from the house wine list and then choose a dish from the local menu; calculate the caloric value of certain dishes; when choosing dishes, immediately see the final check of the order; while waiting for the order to play games, read the news, etc.

There is a tendency of active introduction of innovative workings out in hotel business: equipment of rooms by conditioners with possibility of adjustment of air stream; electronic locks with keys-perforated cards, in future by mini chips which read the information on an iris of eye or through the special program loaded on guest phone; high-speed intellectual elevators; advanced television systems; wireless output in the Internet; individual alarm system, etc. [12].

Digital technology is actively being introduced in the security of tourists, especially mountain and extreme tourism. Planning tours, providing full information about them, living conditions, climatic features of the country, the system of quick reports on weather changes and emergencies will reduce the risks of tourists and increase the attractiveness of the country for tourists.

6. Virtual technologies

Currently quite popular among the marketing activities of enterprises in the tourism industry are virtual tours, which allow the potential tourist to travel, realistically reflecting the object and service, using modern features and 3D-technology.

Virtual tours are presentations that allow you to see tourist sites before you actually visit them. They can be panoramas of objects of any size (exhibits of museums and art galleries, hotel rooms, streets or city buildings, park alleys, bird's-eye views). Panoramas are connected with each other by simulated long movements inside the object in such a way as to create the illusion of real movement along and inside the object with the possibility of stopping for a circular view in the most interesting places. Virtual tours are often in demand in tourist activities, where they are called "virtual tours. This technology allows you to zoom in or out of any object, examine individual interior details in detail, examine the panorama from afar, look up and down, go back by the sides, move closer to the selected point or away from it, through active zones to move from one panorama to another. You can walk around the house from the inside or look at it from the outside, take a virtual trip to an exotic island without leaving your own apartment. And all this is done in an order and rhythm that is determined by the particular user.

Of course, the use of virtual tours helps to eliminate most of the problems that arise when conducting tours in real time: conducting excursions in the real space of museums, galleries or on the streets of the city requires great professional skill, the ability to control oneself in an unfamiliar environment, to hold the listeners' attention during the performance; the administration of museums or galleries often prohibits unauthorized persons to conduct tours in the halls; weather conditions sometimes do not allow implementing the intended plan and conducting tours on the chosen topic on the city streets; the presence of street traffic in a large metropolis sometimes delays bus tours and prevents quickly familiarizing yourself with the various objects.

Stressing all the positive aspects of the virtual excursion, it is necessary to note and one minus – even so close but virtual communication with the values of culture is a surrogate for the real perception of art. Therefore, excursion work with display objects on the Internet should be carried out either as a preparatory to the perception of a work of art in reality, or as a substitute for the perception of a real work of art if it is impossible to see or hear it in the original. The most important task of a virtual tour is to create a desire to come to a museum or an art gallery and see all the exhibits in the original.

Particularly, Google has launched a project Performing Arts, which is a virtual tour of the world-famous theaters with a 360-degree view

that creates the effect of presence. The project Google Cultural Institute allows the lovers of theater and music to virtually visit, among others, the Berlin Philharmonic, Carnegie Hall concert hall in New York, the Royal Shakespeare Company in Britain and others. Performing Arts is a part of the Cultural Institute project, where you can visit online exhibitions, explore museum collections, and make a virtual trip to the theater [13].

The latest digital technologies used in tourism activities are augmented reality systems. These technologies make it possible to significantly increase the amount of information perceived by humans. This expansion of consciousness is achieved by transferring digital information into the real world. The process of augmented reality is formed by the camera of a smartphone, webcam or other device that can process a video signal. A special program supplements the picture with the necessary virtual objects. The main difference between augmented reality technology and its virtual counterpart is the ratio of information received from the real world and processed by the computer. Virtual reality tries to fully absorb the real world, while augmented reality only extends the understanding of the processes occurring in it. People interested in the functions of modern mobile devices have probably heard about Google's technological innovation. We are talking about Google Glass augmented reality glasses, which operate on the basis of the user's verbal and voice commands. These glasses can become one of the first devices that will demonstrate augmented reality technology to a wide range of consumers. We can already name the spheres where glasses have found their niche: medicine, robotics, education and marketing, maintenance and repair, military and aviation navigation, tourist activities (sightseeing and museums), entertainment, etc.

For example, the Abadia Retuerta Le Domaine Hotel, located in the Spanish Abbey. The hotel itself, which was built in the 12th century, is a unique architectural monument. The administration of the institution has bought Google Glass glasses for their use during the interactive tours in and around the hotel. In addition to such tours, the user with this device can get interactive information about the hotel's sports and recreational infrastructure and menus in the local restaurant.

Another example of the use of augmented reality technology in tourist activities can be found in tourist centers, such as Cedar Point amusement and recreation park in Ohio, USA. The organizers developed an augmented reality

application, The Battle, with the help of which tourists can participate in various competitions on the territory of the park and compete with each other by scanning markers. The introduction of this technology made it possible to turn the theme park into a giant video game, due to which the attendance of the park and, accordingly, the income increased significantly [14, p. 220].

The use of augmented reality techniques by botanical gardens will help introduce visitors closer to the world of living nature, show the dynamics of processes and hidden connections, immerse themselves in micro-worlds or go back millions of years.

The Jurassic Garden project in Australia serves an educational function, highlighting plants that were once a source of food or an environment for ancient animals. By downloading the program of the same name, users can take photos of huge virtual dinosaurs created by digital technology. This augmented reality project is now available to visitors of 3 botanical gardens: the Royal Botanical Gardens of Sydney, the Australian Botanical Gardens of Mount Annan and the Blue Mountains Botanical Gardens of Mount Tom.

Augmented reality will provide information not only at certain points, but throughout the entire tour route. For example, you will be able to learn what changes occur to plants at different times of the year, see the change in landscapes during different historical periods, and learn about the history of the exhibits. Since the limited space of greenhouses cannot reproduce the vegetation, augmented reality will help to transport the tourist into the fynbos of South Africa, equatorial forests of South America or subtropical forests of Australia.

Another area of application of augmented reality technology is the reproduction and simulation of historical objects.

Today you can still see more or less preserved medieval castles and fortresses, but many ancient structures have only fragments left. A large number of architectural treasures have been lost on the planet, and their restoration is no longer possible. It is very difficult to imagine how they "fit" into the landscape, but with the help of a special device you can see that once in this very place. An example of the practical implementation of such a project is the company "Pilgrim XXI", the developer of augmented reality devices for the world tourism market. In particular, the company's specialists have restored the Livonian Order castle in Latvia. Now users with this device can see the walls and brick towers, walk through the courtyard of the citadel accompanied by an audio-musical tour [14, p. 221].

Tourist sphere has a rich functionality and one of the leading functions after recreational, of course, is educational. If we analyze classical literary and historical sources, we learn that since the 17th century educational voyages – "grand tours" were popular among the rich aristocratic youth. Through digitalization, such a function can be optimized. You don't have to go to Italy to hear the singers of La Scala Opera.

The experience of holding cultural and educational events on the example of the Potocki Palace in Tulchin is interesting. OPERAFEST started in 2018 and has become a real tourist magnet in the tourist attraction of the region. There is a positive result: for many years the palace was falling apart and now, after attracting the attention of the general public, investors, restoration works will be carried out under the auspices of the Presidential Foundation.

Providing an educational function can be expressed in the creation of digital thematic portals for teachers and with the participation of teachers. After all, many tourist sites are connected with the history of Ukraine and can become a subject illustration of the textbook material. Especially popular are theatrical reconstructions of real battles, such as, say, episodes of Khotyn war, which are held on the territory of Kamyanets-Podilsky fortress by different clubs of historical reconstruction. Even the history of small towns of Voronovitsy and Nemiroff are inscribed in the world and national history, and thanks to the existence of thematic digital portals can be useful when studying the history of Ukraine. Also due to digital technology can happen popularization of such an important area as local history.

Broad involvement of digital technologies will help to establish links cultural and artistic sphere and tourist attractiveness of territories, the definition of areas of common interest. Legislative documents of municipalities and united territorial communities, development strategies are used to pass through the priorities of tourism and culture development. Relevant regional programs are updated on the basis of the most attractive in terms of tourism sites of historical, cultural and natural value. Powerful tourist and hotel complexes are being built, the existence of which is impossible without a wide toolkit of Internet and digital services.

The issue of total digitalization, the transfer of tourist sites in virtual space is in polemical mode. According to research by the World Tourism Organization, about 40% of tourists determine the purpose of their trip on the basis of the cultural offer. Intangible factors such as the "atmosphere of

a place", its connection to famous people, ideas or events – in other words, the culture, history and traditions of a place – are becoming increasingly important to the tourist. In practice, this manifests itself, in particular, in the lobbying by municipalities of major cultural programs and projects that create the "atmosphere of place," preserving the mental map of the region and the national identity, which is especially valuable in the context of globalization.

7. Conclusions

The introduction of digital technology in the tourism business faces a number of problems, which include: high prices for tourist services, underdeveloped communications and transportation network that does not meet the requirements of modern tourists, insufficient use of digital technologies in security and insurance in the organization of tourism activities, the weak development of rural tourism and their digitalization, lack of highly qualified specialists in information support of tourism business.

To overcome the existing problems of the tourism industry of Ukraine needs a serious enough effort to achieve compliance with modern world standards. It is necessary to attract a sufficient amount of financial investment, which Ukraine still does not have in sufficient quantities. Crowdfunding as a modern instrument for financing innovative projects is a way out of the situation.

Crowdfunding is a collective cooperation of people who voluntarily pool their money or other resources together over the Internet to help other people or organizations. In Ukraine there are several platforms on which it is possible to collect money for realization of various projects, in particular, tourist projects: Ukrainian Charity Exchange, Community, Indiegogo, GlobalGiving, Causes, Crowdrise, Firstgiving, Kickstarten, HelpStarter, Na-Starte [15].

The use of digital technology in the tourism industry is a requirement of the times, allowing not only to improve the quality of services, but also to use all available resources rationally. The impact of digital technology on tourism is felt at different stages of activity: marketing, management, service delivery, etc.

Today, tourist and recreational complexes are becoming increasingly important, creating a tourist attraction of the region and satisfying the most demanding requirements of the user of tourist services. Along with the main tourist object there are hotel, restaurant and entertainment complexes, toy stores, souvenir stores, thematic master classes. When

creating the "atmosphere" of the object and providing quality services plays a big role technologically equipped industry. Tourism has always been a technologically dependent industry and has responded organically to the development of digital technology. All information and communication aspects of tourism are transformed into virtual space. Such shifts will significantly improve the promotion and economic component of the tourism industry, of course, if there are programs to support it.

In the future, digitalization of the tourism industry will be accompanied by a further process of displacement of traditional companies with offline offices, the development of designing tours according to the parameters individually set by each specific client, and therefore, the advantages in competition will be those tourist enterprises which can implement the process of customization in the best way. Providing tourist services to consumers, turning them into loyal customers, ensuring their survival in the long term on the basis of consistently high profit and profitability.

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