

UDK 379.85

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INTERNATIONAL APPROACHES TO USING DIGITAL TECHNOLOGIES IN TOURISM

The modern development of tourism is fully connected with digital technologies. Digital tourism is a gradual process of digitalization, which includes, first of all, digitalizing tourist destinations, hospitality, transport systems and tourism enterprises. A study of the world's best practices in digital tourism will allow identifying the characteristic features of international approaches to using digital technologies in tourism.

We will explore the effective use of digital technologies in various sectors of tourism: protection of historical and cultural relics and cultural heritage; digital technologies in museums; digitalization in the hotel business.

The protection of historical and cultural relics and cultural heritage can be observed during the reconstruction of Notre Dame Cathedral after the fire that occurred on April 15, 2019. It was proposed to reconstruct the historical heritage using digital technologies. The restoration of Notre Dame de Paris required complete data on the cathedral. In 2015, the historical modeler Andrew Tallon conducted a study of the cathedral's architectural structure using laser scanning. A digital archive was created for the reconstruction of Notre Dame Cathedral. It was the first time that a laser scanning technology was used. An art historian created a realistic 3D model of Notre Dame Cathedral by collecting billions of light points on a three-dimensional image with drawn lines, then combining panoramic photographs he had taken in the cathedral, coloring them, and adding light shadows.

The Autodesk software used by A. Tallon is a world leader in the development of programs for designing and manufacturing various objects and structures. This software has many years of experience and has been used in architecture, engineering, construction, design, production, and animation. A. Tallon took more than 50 photos of the cathedral and, thanks to these panoramic images, collected more than 1 billion data points for the scan points.

The second stage of the cathedral's restoration involved using another source of digital technology, a computer game company. The realistic model of the cathedral was restored with the help of the video game «Assassin's Creed: Unity», in which the hero can climb both inside and outside the building. The game's artist, Caroline Meeus, studied photos of the cathedral to get the correct architecture, worked with texture artists to make sure that every brick of the cathedral was exactly as it should be in the 3D mapping [1]. Thus, thanks to digital technology, Notre Dame Cathedral was restored.

Another global example of international approaches to using digital technologies in tourism is in providing museum tour services. In China, the Palace Museum app was created in cooperation with the Information Center of the Forbidden City Complex (a UNESCO World Heritage Site), the Sinhua News Agency, and the Tencent Editing Center. Thanks to this program, users can easily buy tickets online, view the

geographical location and the plan of the Museum complex [2]. In this way, consumers are united by the Museum's online digital services which integrate digital achievements of cultural relics, new cultural and creative products, knowledge promotion and functional navigation, and can view a million-dollar rare collection to learn more about the Forbidden City. The application of digital technology in guided museum services is truly beneficial, as users may stay at home, but recognize the surface decorations of a large number of artifacts based on deep digital learning, and identify traditional patterns that are often found in various types of decorative arts. The app contains questions for the «Familiarization Test» that increases the relationship among museum visitors and increases information about cultural relics through the app's fun answers. Thus, in the first days of use, 1.7 million people virtually «visited» the Forbidden City Palace Museum online, which now bears the modern name of the Digital Palace Museum.

Thus, the idea of creating a virtual museum using online digital technologies is widely popular and museum exhibits have become available to visitors around the world. Today, this idea is actively spreading in the world's largest museums.

Another modern international approach is related to using digital technologies in the hotel business. The Transparent Cleaning and Intelligent Supervision system is a system for monitoring the intelligent cleanliness of a room. It was created in China during the COVID-19. Smart technologies in tourism are gaining popularity and simplifying the lives of visitors in tourist destinations and improving the living standards of the population [3].

The Transparent Smart Cleaning system uses radio frequency identification (RFID) technology. The system is divided into three parts: smart control of sanitary ware disinfection; RFID cotton circulation traceability; and smart control of cups and toilets.

Smart management of sanitary ware disinfection allows cleaners and the management platform to recognize problematic cleaning places and their mistakes, if any. For example, cleaners wear RFID ring readers on their wrists. Different areas in the cleaning room have RFID tag chips with special wipes in the cleaning area. These

can be special wipes for cleaning toilets that match the toilet chip. If the cleaner keeps a washbasin cleaning cloth near the toilet, the bracelet provides an alarm and reports this error to the management platform. If a special rag is not used for the job, this will also be reported as a non-compliance. This method of sanitation helps to maintain high standards of sanitary hygiene and use different rags for different cleaning areas. After cleaning the guest room, the hotel manager holds the RFID card reader to scan and simultaneously reads the cleaning information and cotton replacement information. In the scanning process, it is found that the cotton cloth has not been replaced, and a warning message will appear in the background urging employees to replace it immediately.

The traceability of RFID cotton circulation is done through a different chip and type of tag that the cotton has. The hotel is equipped with an RFID card reader to record the time of departure and the return of cotton.

Smart Cup and Toilet Control system monitors cabinet sanitation, cup sanitation standards through the working video captured by the camera in the cup disinfection room and the smart outlet, and then intelligently analyzes the two data to determine whether the cleaning and disinfection meet the standard. If they do not, the system sends alert information to hotel management, the health department, and other parties.

The QR code of the «Room Cleaning Report» is placed in the guest room, and all information about the room cleaning can be obtained by scanning the QR code with a mobile phone.

Thus, digital technologies in tourism help to increase the number of consumers. The analyzed international approaches to using digital technologies in tourism show that they are used in various sectors of the tourism industry. However, these approaches leave room to increasing the possibilities of their use in tourism and open up new prospects.

Literature:

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