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VIRTUALIZATION IN TOURISM: THE PRACTICE OF USE

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Abstract. *This article examines the transformative impact of the phenomenon of virtualization on tourism, in particular, its role in popularizing innovative tourism for cultural and natural tourist attractions. Advantages and disadvantages of tourism virtualization in the modern world are considered. Examples of benefits include preserving the environment, supporting local communities, and enabling people with disabilities to visit historical sites. This process helps to expand tourism opportunities, increase the accessibility and attractiveness of tourist sites, helps to improve communication between tourists and local communities, and innovates the field of travel. Also preserving cultural heritage through digital archives, promoting inclusivity through accessibility of monuments and promoting environmental protection. The concept of virtualization of tourism from various sources, which allows you to deepen your knowledge, and the analysis of the practice of using 3D technologies, VR-virtual reality and AR-augmented reality, these technologies allow users to explore destinations virtually, offering a realistic and interactive experience without physical presence. Also, VR and AR are designed to recreate an exciting virtual tour, shoot high-quality VR video and 360-photo, digitize real objects or make a historical reconstruction in 3D.*

Keywords: *virtualization, tourism, virtual tours, virtual tourism, virtual reality.*

Introduction

Relevance of the topic. The challenges faced by humanity indicate that the tourism industry is on the threshold of profound structural changes. In particular, the global decline in tourism flows will lead to higher prices for travel services, as service providers will have no choice but to raise prices to keep their businesses afloat in the face of falling volumes. As a result, tourism may become the prerogative of wealthy travellers only. Experts do not rule out that, even if not in the near future, virtual trips and excursions will become the fate of people with incomes not above average. Therefore, it is necessary to decide what can and should be done to quickly restore the situation in tourism and how innovative virtualization technologies can help in this.

Research on virtualization in tourism is important for the development of new strategies and approaches to tourism development at the local and national levels.

Tourism enterprises use virtualization to efficiently use hardware resources and obtain additional profit from investments in them. Virtualization also allows cloud computing services to help tourism organizations effectively manage their architecture.

The purpose of the study- to summarize the world and Ukrainian experience of virtualization of various aspects of the development of the tourism sphere and reveal the possibilities of using innovative technologies, in particular, virtualization as a technology for creating virtual representations of servers, storage, networks and other physical devices in the tourism sphere.

Main tasks: consider the main concepts and consequences of virtualization in tourism; to investigate the peculiarities of the world experience of virtual tourism; analyze the development of virtualization in tourism in the world; to analyze the possibilities of virtualization of tourism in Ukraine.

Research methods: analysis of available scientific sources, advertising products of travel companies, information posted on the Internet, comparison, observation. Modern innovative technologies in the field of tourism are directly related to the perception of the world thanks to the huge number of devices, gadgets, websites, applications and information.

Review the main concepts and consequences of virtualization in tourism.

The virtualization of tourism is a phenomenon of our time that significantly affects all spheres of life, including tourism. In the rapid development of technologies, particularly virtual (VR) and augmented reality (AR), new opportunities arise for creating exciting virtual tours, interactive excursions and immersion in cultural and natural landscapes. These innovations allow people to explore the world without leaving their homes and plan their real-life trips more efficiently. This trend opens up new horizons for tourists and tourism professionals, allowing them to explore worlds and sights that were previously inaccessible.

Virtual tourism is a digital experience that allows people to virtually "travel" to destinations or visit tourist attractions from the comfort of their homes. It uses a combination of technical components such as virtual reality software, audio, video, images, narration and more. Virtual travel experiences can be recorded or streamed in live interactive presentations with experienced and engaging guides (Ursula Petula Barzey, 2022)

The concept of virtual tourism is quite broad and is interpreted by scientists because of technologies, methods and trends affecting this field. Analyzing the concept of virtual tourism provided by scientists in the last 5 years helps to understand better how virtualization changes approaches to travel, making them more accessible, interactive and personalized. Virtual tours are one of the most effective and convincing ways of presenting information at the moment, as they create a complete illusion of presence in the viewer. A virtual tour is a multimedia photo panorama in which you can place videos, graphics, text, and links. But unlike a video or a regular series of photos, virtual tours have interactivity (Levkivska, 2023).

The use of VR and AR technologies is becoming an integral part of the development of the tourism and recreation business. Virtual reality allows customers to experience a virtual hotel stay during the booking process before paying for it to make the right choice for their trip. (Krapivina, Marchenko, 2023)

Virtualization technologies have revolutionized ecotourism and cultural tourism, offering immersive experiences that transcend physical boundaries(Bernardino, 2024).

Virtualization in tourism refers to the creation of virtual images of physical locations or experiences using immersive technologies such as virtual reality (VR) and augmented reality

(AR). These technologies allow users to virtually explore destinations, offering a realistic and interactive experience without a physical presence. (Bernardino, 2024).

Virtualization of tourism is an innovative process that transforms traditional tourism into a more modern and understandable one for today's society with the help of digital technologies. It includes the creation of virtual tours, the use of virtual reality for virtual travel, the development of new tourist services using technology. This process helps to expand tourism opportunities, increase the accessibility and attractiveness of tourist sites, help to improve communication between tourists and local communities and innovate the field of travel. (Imersum, 2024)

Virtual tourism is a type of tourism of the 21st century, which involves a virtual visit and contemplation by a person of natural, historical and cultural objects of interest to him using modern information and computer technologies and communications and the Internet at any point of space in the online mode. Elements of virtual tourism are virtual excursions and virtual tours, which in modern tourism management act as effective tools to interest a potential tourist or excursionist to actually visit the objects of these excursions/tours. (Biletskyi, Kotyk 2024).

Thus, after analyzing the concepts of virtual tourism provided by scientists, we can make a general conclusion that virtual tourism is a new type of activity that allows users to explore tourist places and attractions through digital technologies without physical presence. This includes virtual tours, tours and interactive presentations using multimedia components such as video, graphics and text. Virtual technologies are significantly changing the travel business, making it more accessible and attractive, and helping users make informed decisions about their travels.

Having analyzed the definitions of scientists regarding technologies that can be used in virtual tourism, they can be divided into two main groups: virtual reality and augmented reality.

Virtual Reality (VR**)** is a technology that creates an artificial world perceived by a person as reality. With the help of a VR helmet and a controller, users can freely explore this world and interact with virtual objects and characters. This is a revolutionary technology with huge potential to change the world. (Krapivina,, 2023)

In her works, Krapivina divides the technologies of using virtual reality in tourism into 3 main concepts.

Virtual tour. A virtual tour, also known as a virtual excursion, is a new method of displaying three-dimensional space on the screen, which is accompanied by the binding of additional multimedia information components: 3D objects, video and photo gallery, explanatory notes, pop-up windows with additional information, graphically designed keys pop-up controls. control keys (Krapivina, 2023)

Virtual panorama. The 360° photo and video service consists in creating impressive visual content that allows you to view an object or place from all angles in a 360-degree format (Krapivina,, 2023)

Virtual reality. The use of VR and AR technologies is becoming an integral part of the development of the tourism and recreation business. Virtual reality allows tourists and vacationers to experience a virtual hotel stay during the booking process before paying for it to make the right choice for their trip. (Krapivina,, 2023)

According to Krapivina, augmented reality is technology that combines the virtual world with the real one. AR superimposes virtual objects on the real world, for example, through a smartphone or AR glasses. AR/MR is used in various fields such as education, entertainment, design, surgery, etc. AR/MR can increase productivity, visualize information and create new forms of art. (Krapivina,, 2023)

According to the results of the analysis of research related to virtual reality, it is possible to provide 3 main examples of its use in tourism.

Marker Augmented Reality: This type of technology uses a camera and a special passive visual marker, such as a QR code (quick response code), which shows the programmed result only when the sensor reads it. In this way, it is possible to distinguish virtual objects from the real world. This type of augmented reality is most often used for education (for example, placing markers on the pages of textbooks, or printing markers on paper and offering children to investigate certain processes and phenomena within the framework of STEM projects or regular lessons). (Krapivina,, 2023)

Markerless augmented reality: Sometimes it is also called coordinate or GPS-oriented. It may use your device's built-in Global Positioning System (GPS), digital compass, speed sensor, or accelerometer to provide data about your location. Thanks to the mass distribution of smartphones and tablets, this technology is used most often at the moment. The most common use cases are directions, finding places like a cafe or office, or in location-based apps. (Krapivina,, 2023)

Projection Augmented Reality: It works by projecting light images onto physical surfaces. Special applications help to implement the interaction between a person and the projection, determining the moments of a person's contact with the projected light. This is achieved by comparing the expected projection and the one altered by certain obstacles, such as a hand touch. Another interesting method is the use of plasma technology, thanks to which you can create three-dimensional projections in space. (Krapivina,, 2023)

VIO Augmented Reality: Visual Inertial Odometry (Visual Inertial Odometry) is a technology that helps track position and navigate in space using sensors and a camera. Thanks to this, it is possible to create an accurate 3D model of the space around the device, update it in real time, determine the position in it, transfer this data to all applications and overlay additional layers on top of it. The capabilities of this technology are truly unique: you can measure distances, insert various objects into the interior and interact with them. VIO promises to be the most promising technology in AR, currently used by such giants as Google in its Project Tango and Apple in ARKit. (Krapivina,, 2023)

To investigate the peculiarities of the world experience of virtual tourism.

To analyze the global experience of virtual tourism, we reviewed information on official platforms and services of tourism virtualization in Ukraine and Lithuania. The most representative platforms for our analysis were Vilnius Go, 3D Vilnius and Amber Museum Virtual Tour Palanga, the description of which is provided in (table 1.)"Popular virtual tourism services and platforms in Lithuania".

Table 1. Popular virtual tourism services and platforms in Lithuania

Name	Description	Services	Link
Vilnius Go	The official tourist app that provides access to various attractions in Vilnius, including museums, galleries and historical sites. The app also offers virtual tours and audio guides.	Virtual tours, interactive maps, audio guides.	https://www.govilnius.lt/visit-vilnius/get-vilnius-pass
3D Vilnius	A project that provides the possibility of a virtual walk around Vilnius in 3D format. Users can explore various historical and cultural sites of the city, getting detailed information about them.	3D tours, interactive maps.	https://3d.vilnius.lt/
Amber Museum Virtual Tour Palanga	Virtual tour of the Amber Museum in Palanga. The tour allows visitors to explore the museum's exhibits, which include unique samples of amber and works of art made from it.	Virtual tours, information guides.	https://turai.limis.lt/gintaro-en/

Sources: official sites of data platforms Vilnius Go, 3D Vilnius, Amber Museum Virtual Tour Palanga

Having analyzed the given information we concluded that virtual tourism in Lithuania actively uses the latest technologies to improve the tourist experience. Here are the main conclusions from the use of virtual tourism technologies in Lithuania:

Improving the accessibility of cultural sites: Platforms such as Vilnius Go facilitate access to cultural and tourist attractions through convenient access to cards that offer free entry, discounts, and interactive tours. This provides convenience and flexibility for tourists, allowing them to plan visits to various facilities within the selected period.

Innovative virtual models: 3D Vilnius offers a detailed 3D model of the city, allowing users to explore Vilnius from different angles. This increases interest in the city and its sights, providing an opportunity to virtually "move" around the city without leaving home.

Immerse yourself in cultural heritage: Amber Museum Virtual Tour Palanga uses virtual tours to showcase the amber museum's exhibits, providing an opportunity to view rare artifacts and learn more about amber and its cultural significance.

Expanding business opportunities: Virtual tourism services like Imersum help create interactive virtual tours and 3D models that not only enhance the tourist experience but also help preserve cultural artifacts and provide new business opportunities in tourism and education.

Global accessibility and convenience: Virtual tourism technologies make cultural objects and tourist destinations accessible to a global audience, which is especially important in conditions of limited opportunities for physical travel.

The most representative platforms for our analysis in Ukraine were Imersum, Ukraine Virtual Tour, Kyiv Digital, Chornobyl VR Project, and Lviv Interactive, the description of which is provided in (table 2.)"Popular virtual tourism services and platforms in Ukraine".The presented table (table 2.) lists five popular virtual tourism services and platforms in Ukraine. They cover a wide range of services, from virtual tours and 360-degree video to interactive maps and VR tours. These services allow users to immerse themselves in virtual trips to various historical, cultural and tourist sites of Ukraine, providing the opportunity to explore them in a

convenient online format. The importance of such platforms is that they allow safe and comfortable visits to places that are either difficult to access or are of significant cultural value.

Table 2. Popular virtual tourism services and platforms in Ukraine

Name	Description	Services	Link
Imersum	A team of specialists who are passionate about developing projects with virtual and augmented reality. We have the necessary knowledge and experience in VR and AR to create an exciting virtual tour, shoot a high-quality VR video and 360 photo for you, digitize real objects or make a historical reconstruction in 3D	Virtual tours, 360-degree videos, 3D modeling and animations.	https://imersum.com/
Ukraine Virtual Tour	A platform offering virtual tours of major tourist destinations in Ukraine, including Kyiv, Lviv, Odesa and other cities. The tour allows users to explore attractions, museums and historical sites in a 360-degree video format.	Virtual tours, 360-degree video.	https://virtualukraine.travel/F1ch1J1iP3/31791736p&0.21h&92.29t
Kyiv Digital	A project that provides the possibility of a virtual walk around Kyiv in 3D format. Users can explore various historical and cultural objects of the capital of Ukraine, receiving detailed information about them.	3D tours, interactive maps.	https://guide.kyivcity.gov.ua/virtual-tours
Chornobyl VR Project	An interactive project that allows users to visit the Chernobyl Exclusion Zone in a virtual reality format. The project includes reconstruction of key places of the zone, such as Pripyat, Chornobyl NPP and others.	Virtual tours, VR excursions.	https://store.steampowered.com/app/504010/Chernobyl_VR_Project/
Lviv Interactive	A platform offering virtual tours of Lviv, including its historical and cultural sites. The platform also provides information about events and routes around the city.	Virtual tours, interactive maps, audio guides.	https://lia.lvivcenter.org/#!/map/

Sources: official sites of data platforms Imersum, Ukraine Virtual Tour, Kyiv Digital, Chornobyl VR Project, Lviv Interactive

An analysis of five virtual tourism platforms in Ukraine demonstrates their important contribution to the development of access to the country's cultural and historical heritage. Services such as Imersum, Ukraine Virtual Tour, Kyiv Digital, Chernobyl VR Project, and Lviv Interactive allow users to immerse themselves in detailed virtual tours, visit important tourist sites, and explore cultural attractions from anywhere in the world. Thanks to the use of modern technologies, these platforms significantly expand the possibilities for virtual tourism, making it accessible, convenient and safe for a wide audience.

To analyze the development of virtualization in tourism in the world.

Advantages and challenges associated with the virtualization of tourism

In their works, the scientists studied virtual tourism from the point of view of its advantages and challenges for the development of the tourism industry. For example, Bernardino believes that the advantages of the virtualization of tourism are such factors as:

Environmental friendliness: Virtual tours help protect the environment by reducing the number of actual trips and the associated emissions. They can also protect historical monuments from vandalism and destruction (Bernardino, 2024)

Accessibility: Virtual tourism allows people with disabilities, financial constraints or those who cannot travel physically to experience the atmosphere of different countries and cities. Also, virtual tours are an opportunity to visit hard-to-reach or closed-to-visit places, such as archaeological excavations, Antarctic expeditions or space missions. (Bernardino, 2024)

Protection from destruction: Historic objects lost to the passage of time or destruction can be preserved and restored. (Bernardino, 2024)

Saving time and money: Virtual tours are much cheaper than real trips, and the time spent on planning and organizing the trip is reduced to a minimum. They ensure visits to different places without the need for long journeys. (Bernardino, 2024)

Safety: Virtual tours are completely safe as users are not exposed to any of the risks associated with real travel. (Bernardino, 2024)

Interactivity: Modern technologies allow creating high-quality virtual models with interactive elements, which makes virtual tourism more interesting and exciting. Indeed, it is possible to create personalized excursions based on the preferences of the tourist. (Bernardino, 2024)

Marketing and Promotion: Virtual tours are an effective tool for marketing and promoting travel destinations, as they allow potential tourists to get to know a destination before making a travel decision. The ability to view places before the actual trip helps to better plan routes and determine priorities. (Bernardino, 2024)

Educational applications: Using VR for educational purposes allows students and researchers to be immersed in historical and cultural contexts. (Bernardino, 2024)

(Bernardino, 2024), also examines the challenges of virtual tourism and believes that the main factors related to this are the following aspects:

Hardware: VR and AR hardware is expensive and not always available. To create high-quality virtual tours, you need a powerful Internet, which can be difficult to achieve in some countries. (Bernardino, 2024)

Perception of reality: Excessive use of VR tours can distort the real perception of the journey. (Bernardino, 2024)

Impact on the traditional tourism industry: Demand for traditional tourism services may decrease, which may adversely affect the economy of tourism-dependent regions. (Bernardino, 2024)

Lack of realism: despite the high degree of realism of virtual tours, they cannot completely replace a real trip and do not allow visitors to experience all the nuances and features of the places they visit. (Bernardino, 2024)

Lack of social interaction: Virtual tours do not involve interacting with other travelers or locals, which is an important element of real travel. (Bernardino, 2024)

Dependence on the quality of the content: The quality of the virtual tour depends on the quality of the content created. Low-quality models and lack of details can spoil the experience of a virtual trip. (Bernardino, 2024)

Copyright Issues: Creating virtual models of real places may infringe copyright. (Bernardino, 2024)

Based on the analysis of studies conducted by Bernardino, it is possible to compare what advantages and challenges virtual tourism provides for the development of the relevant industry in general. The following table shows the main benefits and challenges associated with virtual tourism.

Table 3. Advantages and challenges of virtual tourism

Advantages	Challenges
Virtual tours help protect the environment by reducing the number of actual trips and the associated emissions. They can also protect historical monuments from vandalism and destruction	VR and AR equipment is expensive and not always available.
Virtual tourism allows people with disabilities, financial constraints or those who cannot travel physically to experience the atmosphere of different countries and cities.	Excessive use of VR tours can distort the real perception of the journey.
Historical objects lost to the passage of time or destruction can be preserved and restored.	Demand for traditional tourism services may decrease, which may adversely affect the economy of tourism-dependent regions.
Virtual tours are much cheaper than real trips	They cannot completely replace a real trip and do not allow visitors to experience all the nuances and features of the places they visit.
Virtual tours are completely safe as users are not exposed to any risks	Virtual tours do not involve interacting with other travelers or locals, which is an important element of real travel.
Modern technologies allow creating high-quality virtual models with interactive elements, which makes virtual tourism more interesting and exciting	The quality of the virtual tour depends on the quality of the created content.
Virtual tours are an effective tool for marketing and promoting tourist destinations,	Creating virtual models of real places may infringe copyright.

Source: based on research (Bernardino, 2024)

Based on the analysis of the table, we can conclude that virtual tourism has significant advantages, including the reduction of emissions and environmental impact, accessibility for people with disabilities, the possibility of preserving historical objects and economic benefits. However, there are also challenges: high cost of equipment, potential distortion of the real perception of travel, reduced demand for traditional travel services, limited experience, social isolation, dependence on content quality and possible legal issues with copyright.

Virtual tourism is becoming increasingly popular as a tool for exploring the world, offering users the opportunity to travel virtually regardless of physical or geographic limitations. This innovative type of tourism offers many advantages, including accessibility, comfort and the opportunity to immerse yourself in different cultures and natural landscapes from anywhere in the world. At the same time, virtual tourism also faces challenges such as technological limitations, image quality, and immersion

To analyze the possibilities of virtualization of tourism in Ukraine.

Comparison of tourism virtualization in Ukraine and Lithuania.

The authors of the article Novak O.A., Krapivina G.A analyzed information from available sources and created a comparison table regarding the concept of virtualization of tourism in Ukraine and Lithuania, according to certain factors: the number of platforms for carrying out this process, the use of technology, the availability of use for different layers population, focus on objects and popularity of use.

The purpose of our research is to compare the virtualization of tourism in Ukraine and Lithuania for a better understanding of the differences and similarities of these two countries in the context of digital transformation of the tourism and recreation industry. To compare the virtualization of tourism in Ukraine and Lithuania, a number of indicators have been developed and assessments of the development, features and level of implementation of digital technologies in these countries have been given.

Table 4. Comparison of tourism virtualization in Ukraine and Lithuania

Indicators of comparison	**Virtualization of tourism in Ukraine**	**Virtualization of tourism in Lithuania**
Number of platforms and services	5	3
Technologies	Virtual tours, 360-degree videos, 3D modeling and animations, audio guides, interactive maps, VR tours	Virtual tours, interactive maps, routes, audio guides, 3D tours
Accessibility	Accessibility for people with disabilities in some services. Support for multiple languages, including English, Ukrainian, and Russian.	Accessibility for people with disabilities is limited. Support for Lithuanian and English languages.
Focus on objects	Historic city centers, museums, cathedrals and churches, natural parks and nature reserves	Cultural events, medieval castles, historic city centers, museums and national parks
Popularity and usage	Popular with domestic tourists, increasing interest among foreigners due to COVID-19 and war	Popular with locals and foreign tourists, growing in popularity after the COVID-19 pandemic

Source: based on research by the authors of the article (Novak, Krapivina, 2024)

The first indicator allows to investigate the number and variety of platforms and services on which virtual tourist services are available in each of the countries of the study. These can be mobile applications, websites, VR platforms, social networks and other digital channels. For example, in Lithuania there are more specialized mobile applications for virtual tours, while in Ukraine web services for virtual trips are more popular.

The next factor for comparison is the technologies used to virtualize tourism. These include VR (virtual reality), AR (augmented reality), 3D modeling, interactive maps and other digital tools. This indicator allows you to investigate what technologies are used in Ukraine and Lithuania to create virtual tourism products, their technical characteristics, quality and level of innovation.

The availability of virtualization in tourism determines the possibility for a wide audience to use virtual tourism services. It includes the following indicators:

- Geographical availability: availability of services for users from different regions of the country.

- Linguistic accessibility: supporting different languages to attract tourists from abroad.
- Inclusiveness: accessibility for people with disabilities (for example, the ability to use services without the need for additional devices).

The aspect of focus on the object is important in understanding which cultural and natural tourism objects of the country are promoted with the help of virtual technologies.

Focusing on the object determines which objects and their characteristics the virtual tourist product focuses on. In Ukraine, examples are natural reserves and historical monuments, and in Lithuania - cultural events and architecture. and in Lithuania - cultural events and architecture.

The most popular objects for promoting Ukrainian culture and customs in virtual tours are the following cities:

- Kyiv is the capital of Ukraine, which leads in the number of virtual tours. These are historical centers, modern architectural monuments, and museums;
- the charming city of Leva - Lviv, its medieval architecture, numerous temples and atmospheric streets attract both Ukrainians and foreigners;
- Odesa - the sea coast of which is loved by everyone from children to adults; catacombs of Odessa are one of the most interesting objects for virtual tours; and the opera theater (Odesa) will not leave anyone without pleasant impressions;
- the city of Kamianets-Podilskyi is famous for its ancient castles and fortresses, city fortifications and picturesque landscapes attract tourists not only in real life, but also in virtual reality.

Regarding the most popular objects in Lithuania. the most common city to visit physically and virtually is the capital city of Vilnius. It offers virtual tours of the historical center, churches, palaces and other attractions.

The second largest city, but no less important, is the city of Kaunas, which has many interesting places for virtual tours: museums, cathedrals and temples that attract with their architecture and interior. Magnificent views from the highest points of the city provide inspiration for artists' paintings.

As for the city of Klaipeda, which is a port on the coast of the Baltic Sea, it attracts tourists with its beaches, forts and historical center. On the beaches you can see wonderful scenery, which provides a new breath of air for those who miss the sea.

Trakai is a city with a medieval castle on an island, which is one of the most popular tourist destinations in Lithuania and, accordingly, has many virtual tours.

Virtual tours are popular among different age groups, but the most active users are young people aged 18-35. This age group is characterized by openness to new technologies and a desire for new experiences.

The average age of users who also actively use virtual tours is 35-50 years. They are often motivated by time constraints and travel opportunities to use such tours.

By gender, men and women use virtual tours about equally, but their preferences can be categorized by content.

Urban residents use virtual tours more often due to better access to the Internet and technology. At the same time, rural residents also find virtual tours useful, especially in situations where access to cultural or natural attractions is limited.

Convenience and accessibility are the main reasons for the widespread use of virtual tours. Virtual tours allow people to "travel" from anywhere without having to physically visit the facility. They are also more cost-effective than actual travel, making them attractive to those on a tight budget.

Virtual tours are also widely used for educational purposes to study history, architecture, art and natural sciences. They are a convenient way to gain new knowledge and expand your horizons, and the hype around COVID-19 has greatly increased the popularity of virtual tours. This is due to the fact that travel restrictions have forced people to look for alternative ways to travel.

In addition, many people use virtual tours to plan future trips because they allow them to preview a place before visiting it in person. This allows them to better plan their trips and choose the most interesting places to visit. Interest in new technologies such as virtual and augmented reality is also encouraging people, especially young people, to try virtual tours.

Conclusions: From the analysis of the table, it can be seen that the virtualization of tourism in Ukraine and Lithuania has its advantages, but also differs in a number of key parameters. Ukraine has more platforms and services providing virtual tourism services and uses a wider range of technologies, including VR tours, 360-degree videos, 3D modeling and interactive maps. This makes Ukrainian virtual tourism accessible to different segments of the population and foreigners, especially thanks to the support of several languages, including UN languages.

Lithuania, on the other hand, focuses on cultural events, medieval castles and national parks, but offers fewer platforms and technologies. Her virtual tours also have less accessibility for people with disabilities, although they support Lithuanian and English languages.

In general, virtual tourism is gaining popularity in both countries, especially due to the COVID-19 pandemic, but Ukraine demonstrates a higher level of technological integration and accessibility for a wide range of users.

Conclusions

Thanks to our research and analysis of available scientific sources, we considered the main concepts and consequences of the virtualization of tourism, determined which technologies are used for the development of this phenomenon in the world. We analyzed the advantages and disadvantages of the concept of virtualization, found platforms and services that provide an opportunity for people who for various reasons cannot travel physically - they can be people with disabilities, the elderly, or those who face financial or geographical restrictions. They also summarized the world and Ukrainian virtualization experience and compared them. The virtualization of tourism is a prime example of how modern technologies can transform traditional industries, making them more accessible and inclusive.

With the help of search works on the Internet, opportunities for using innovative technologies were found, in particular, virtualization as a technology for creating virtual representations of servers, storage, networks and other physical devices in the tourism sector. The use of such technologies as VR - virtual reality and AR - augmented reality made it possible to create virtual tours, 360-degree videos, 3D models, animations and interactive maps, which added modernity and accessibility to the field of tourism. In the conditions of rapid development of technologies, there are new opportunities for creating exciting virtual tours, interactive excursions and immersion in cultural and natural landscapes. Virtualization of tourism involves the use of virtual reality (VR) and augmented reality (AR) technologies to create digital tours and trips. For example, thanks to VR technologies, users can visit museums, historical sites or even walk the streets of famous cities without leaving home. This not only allows people to explore the world without limitations, but also opens up new opportunities for those who are physically unable to travel for various reasons.

One important aspect of tourism virtualization is that it makes cultural heritage more accessible to a wider audience. For example, imagine the opportunity to view the details of the Sistine Chapel frescoes in VR format with comments from professional guides, or immerse yourself in the atmosphere of ancient Greek theaters with the help of 3D simulation.

We consider that the virtualization of tourism is a phenomenon of our time, which significantly affects all spheres of life. This phenomenon became especially relevant during the COVID-19 pandemic, when physical travel was limited and the need to discover new places remained. This approach also opens new horizons for the tourism industry, allowing to develop innovative products and services that can interest millions of people around the world. Virtual tours, digital souvenirs, interactive courses on the study of cultures and customs of other peoples are only some of the possibilities created by the virtualization of tourism.

In addition, virtualization makes cultural heritage more accessible, allowing anyone, regardless of place of residence or social status, to study the world's masterpieces and historical monuments. It promotes inclusiveness by providing equal opportunities for all who wish to participate in world culture and knowledge.

Thus, the virtualization of tourism not only expands the boundaries of traditional travel, but also promotes social equality by providing access to new experiences and knowledge to those who may previously have been deprived of such an opportunity. This is a direction that has great potential for further development, taking into account both technological innovations and the needs of modern society for inclusion and accessibility.

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