



## Smart Tourism "Opportunities and Prospects for Development Due to Polarization of Exquisite Architecture and Decor, through the Innovative Sphere"

D. U. Sultanov

*Samarkand State University of Architecture and Civil Engineering*

**Annotation:** Countries with high tourism potential are investing more and more resources in «smart» systems initiatives. Today, information technology is the key factor in the competitiveness of the city. Moreover, cities implementing the «Smart Tourism City» concept and related strategies for environmental optimization are the most advantageous in the tourism sector. This paper presents a conceptual approach to the definition of a Smart Tourism City, identifies its opportunities and adaptation aspects due to the pandemic worldwide.

**Key words:** smart tourism, digitalization of the city, smart city, sustainable development.

Tourism and IT spheres are rightfully considered predominantly developing industries in the world and are one of the strongest engines of economic development in many countries.

Both areas have come a long, difficult path of development, and at the moment, having united, they contribute to the opening of new horizons, opportunities, the elimination of pre-existing limitations and the formation of innovative solutions, in the application of which all parties involved benefit. The gradual integration of IT into the travel industry has created the direction of "smart tourism", which is constantly changing all existing ideas about travel and recreation.

A number of studies have been devoted to the development of smart tourism, and various authors have attempted to define the term "smart tourism". The ideas and components of a smart city intersect and contrast with the main ideas of smart tourism. A "smart city" is defined as a high-tech, intensively connected city that uses improved high technology to create sustainable areas, innovative commerce and improve the quality of life of its citizens [1].

A smart city also focuses on social and cultural life, and this can help improve social interactions in cities [2]. Given that tourism is closely related to the field of culture, the concept of "smart" has been adapted to the context of tourism. "smart technologies" have significantly changed the way of travel planning and information gathering. Also smartphones and mobile applications are used to select routes, transport and other available tourism activities. Tourism activity based on smart technologies, intellectual tourism, is a social phenomenon arising from the integration of information computer technologies with tourism experience [3]. A smart travel experience is a technology-driven experience that combines personalization, contextual awareness and real-time monitoring [4]. The authors of the article provide a definition of "smart tourism" as a public, innovative space where all reliable information and accumulated experience of travelers is collected, transformed and summarized in a formatted form in a language understandable to all. This includes elements of a "smart city" with its innovative tourism destinations, an innovative tourism business environment with new products, high-tech services and services, and interactive technologies for tourism, such as booking services, travel guides, virtual and augmented reality gaming applications, and much more.



### **1. The image of the modern "smart tourist"**

Uzbekistan as a country with great tourism potential annually attracts a large flow of tourists from all over the world. Most of them come in groups, this includes an older category of visitors. As for young people, the growing majority strive for independence whenever possible, trying to plan their own travel independently. With the advent of accessible and understandable applications and technologies, tourists can easily find the best deals, from buying tickets, booking rooms to choosing excursions and entertainment. Thus, tourists, sharing on special platforms, social networks: comments, photo reports, experience, actively participate in the creation and development of the very information platform that we mentioned above.

The need to develop this area is obvious and associated with the rapidly changing market situation, the competitive environment, with the variability of consumer behavior of travelers, and, in principle, is fundamentally related to the fact that information technologies have firmly entered all spheres of human life.

If viewed from the side of the state, developing "smart tourism", it popularizes its direction, improving the tourism industry and creating the image of a modern, progressive state, while organizations in the field of tourism improve the quality of their services for guests, maximize income, thanks to the opportunity to offer innovative solutions. Tourists, in turn, get a pleasant, comfortable stay with the opportunity to save money and, if desired, easily plan their trip from A to Z, with their own hands, using their smartphone.

### **2. Impact of the pandemic on tourism and ways to restore it**

It should be noted that due to the outbreak of the COVID-19 pandemic, tourism was among the most affected sectors of the economy; according to recent UNWTO estimates, international tourism has lost over \$ 1 trillion [5].

Consequently, changes in the behavior of tourists are also obvious, in addition to a decrease in their number, there are other factors:

- The age of travelers will change, older categories will travel less than before. As a result, the bulk of travelers will be - the young generation, for whom the opportunity to use interactive technologies in planning and during tourist trips is very important;
- Tours with a minimum number of people will be even more popular and independent, individual trips will also gain momentum;
- Wishing to minimize personal contacts, tourists will increasingly tend to choose online services, ranging from online booking trips, online check-in at the hotel and ending with virtual guides - the ideal time for entities involved in the tourism industry to introduce innovative technologies into their work.

Thus, the pandemic will increase digitalization and uberization, countries and other organizations involved in tourism, taking into account the above factors, together with the development of "smart tourism" will be able to revive tourism faster and make tourism products more attractive.

### **3. Opportunities for smart innovation in tourism and culture**

The product of the company "Smart Chain" is being successfully implemented in the market of Uzbekistan, on the introduction of innovative technologies in the field of tourism and culture. Augmented and virtual reality technologies are one of the key components of the company presented to the market of the modern tourism industry. So, the NazzAR application was



developed, with a system built on the principle of cloud technologies, which allows you to apply augmented reality in various fields.

In 2019, the NazzAR application was presented to the head of the country, after which the head of state was instructed to introduce the system in all major historical monuments of the country. As a result, Bobur Rakhimov became the author of the first smart museum in Central Asia. At the moment, the augmented reality system has already been introduced in more than 20 museums and cultural heritage sites in 4 regions of the country.

#### 4. "Smart Museums"

Thanks to the integration of innovative technologies, "smart museums" meet the requirements of a modern person, adapt more quickly to new realities, remain relevant, warming up the audience's interest with innovations.

Smart museums are broadcast not only as repositories of valuable information connecting us with past generations, but also as an interesting, interactive space, where there is a lot of accessible and informative material with which to interact.

Briefly outlining the picture of a "smart museum", we can highlight a number of its advantages over traditional museums:

- Informational smart signs serving as a virtual guide.

The use of these guides in museums significantly increases the interest of visitors, as it allows an independent tourist, when pointing a smartphone camera at them, to receive a complex product that includes not only an inspection of the exhibits, but also a fascinating story. While the use of classic audio guides is fraught with problems such as changing rooms, keeping the audio content up-to-date, and maintaining the audio guide. However, modern technology makes it possible to organize an audio guide at no cost.

- Living portraits.

In addition, a visitor, for example, can "revive" a portrait of a great commander of past centuries, and he, in turn, will tell about his exploits and deeds, such a story will give new emotions, and the information presented in this way will be remembered better.

- 3D holograms.

Another interesting approach to museum displays is 3D holograms. This solution will allow the visitor to recreate objects of art that have lost their original appearance and see a complete picture. Unlike museum exhibits, a 3D hologram can be interacted with, viewed in detail and from any angle. The same is possible with the reconstruction of architectural monuments that have not survived to this day in their integrity. NazzAR will show you what these buildings looked like during their heyday.

- Virtual tour of museums and architectural monuments.

The option of viewing in virtual reality mode allows you to get closer to art, making it available to everyone and "delivering" it anywhere in the world. Regardless of where the user is, he has the opportunity to visit a museum or landmark in virtual reality. A convenient solution for those who want to plan their itinerary in advance or an alternative for those who do not have the opportunity to visit cultural sites. Undoubtedly, virtual travel heightens interest in culturally important places, giving rise to the desire to visit them in real life and get "live communication" with the exhibits.



### 5. Digital innovation in tourism

Bobur Rakhimov has repeatedly participated in various national and international venues with the presentation of the innovative product NazzAR. “From experience I cansay that, undoubtedly, the innovative format of the exhibition attracts the attention of a wide audience more than the traditional event. As an example, we can cite the XXI International Festival "Intermuseum-2019", which was held in Moscow. Using complex solutions for mobile "smart expositions" from NazzAR, together with the Embassy of the Republic in the Russian Federation, the Ministry of Culture and domestic museums, we organized a national innovation stand, dedicated to the Ichan-Kala State Museum- Reserve. ”With the help of smartphones, visitors could see the recreated historical events,“ revive ”the prominent ancestors depicted in the paintings, and also had the opportunity to“ walk ”through virtual sights. Undoubtedly, thanks to such an unusual interaction, The impressions of the audience were the deepest, brightest and of the highest quality. And the stand of the company's expositions was definitely able to attract the attention of an already jaded viewer”



Figure 1. With the help of smartphones, you can see recreated historical events, "revive" architectural sights.





## 6. Virtual guides and assistants

Virtual guides are the next development of the company. Their implementation will help to increase the comfort of guests who can easily access the card, order food or a taxi on their own. In addition, it will help reduce the burden on hotel workers, who can focus on more important tasks and, more than ever, during the current pandemic, to reduce the number of social contacts. The second way to use virtual guide services is to get information, buy tickets and see the attraction at 360. Generally speaking, there are still

most other innovative solutions designed to expand the format of communication with a tourist, increase comfort with the speed of obtaining reference information, without a language barrier and add interactivity, diversifying the traveler's leisure time.



**Figure 2. 360° view of the attraction.**

- For example, "Uzbekistan" tourist souvenir postcards come to life with the main cities and sights of the country, supplemented with video and 3D effects. They can be positioned as a unique souvenir that, having traveled around Uzbekistan, can take with him in the form of an unusual present for loved ones, or keep for himself as a memory of the trip. At any time, you can point the camera of your smartphone with the NazzAR application installed at the postcard, and once again plunge into the memories of the wonderful days spent in Uzbekistan.
- "Smart posters" in a language convenient for tourists, which can also be animated. By pointing the smartphone camera at the "smart billboard", you can watch a video about the event, use the virtual button to go to the site for detailed information and buy a ticket. This interaction with print products is an interesting and memorable user experience that increases brand awareness and the likelihood of a purchase. This solution extends the work of printing materials in the field of tourism.
- Recently, we also had experience in implementing augmented reality on handmade carpets. It should be noted that with the use of this technology, a potential buyer vividly and visually demonstrates the product, with accompanying information about the process of its manufacture in a language convenient for the consumer, a virtual "buy" button and instructions for leaving.



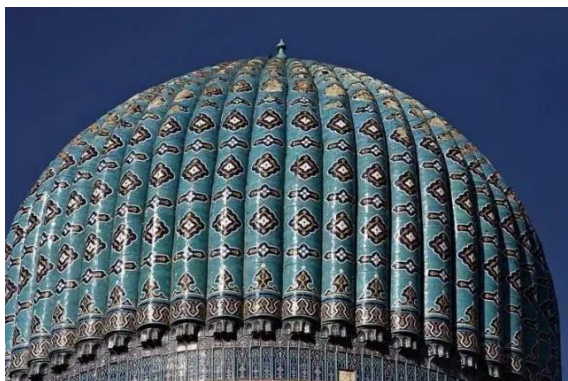
**Figure 2. The photo shows the process of creating a Kashin mosaic for facing buildings**

- The experience of introducing augmented reality into the sphere of decorative ornaments of ancient monuments, which are rich in especially the ancient cities of Uzbekistan, gives a tourist the opportunity to get complete information about such composite elements of building facades and interiors as mosaics and majolica-exquisite ceramics. By pressing a button, the viewer can find out everything about the subject where the monitor of his smartphone is pointing, starting with the compositional image and typology and this ceramic pattern, right up to the manufacturing technology of the object, which the guide-guide may not know about, even if it is difficult to remember it. This autumn is voluminous materials, starting with calligraphy on facades, floral and geometric ornaments.

For example, such extensive and professional information:

The great ruler Amur Temur from all corners of his vast state gathered talented architects, artisans, artists and ordered them to build new buildings. To decorate the buildings, the craftsmen used ceramic tiles - majolica, created here, in the craft workshops.

Majolica is the general name for products made of fired colored clay. The tiles are molded from colored clay, covered with glaze, painted and only then fired in the oven. As a result, clay and paints merge into a single whole and a bright ceramic "picture" is obtained. As an art, majolica was known in ancient times in Egypt and other eastern countries, where colored tiles were often used for wall decoration.



**Picture 4. Dome of the Bibi Khanum mosque**



The composition of the tiles used for facing buildings in Samarkand, Bukhara, Khorezm is unique. Each of the ancient cities had their own art schools, their own majolica composition was developed, which modern restorers cannot completely reproduce - the tile samples made in modern times fade after a few years, while the ancient ones are more than 600 years old and they have retained bright and rich colors.

The color range of ceramic tiles of ancient buildings in Uzbekistan is gold and all kinds of shades of blue. Religious buildings were traditionally decorated with blue domes and facades, trying to bring them closer to the sky, and floral designs were the prototype of heaven on earth.

In the facing of the walls of buildings, ancient architects used inlaid kashin mosaic. The technology for creating such a mosaic from ceramic tiles is very complex. An unpainted clay slab was broken into pieces, each detail was manually given the desired shape and color, fired and assembled into a colored ornament. And sometimes they even sculpted the appropriate shape and, after glazing and firing, they were assembled like puzzles. Imagine, with such complex technologies, the construction took only a few years, for example, the Bibi Khanum mosque was built for 5 years.

Thus, traveling on their own, a tourist has ample opportunities to receive full-fledged information, in this case, the decoration of monuments, utensils and other items of traditional life associated with the history of the country and the popularization of its image, especially in the field of the versatility of ancient roots and the uniqueness of the grace of cultural heritage.

In conclusion, it should be noted that our country, being one of the centers of the Silk Road, a treasury of architectural monuments and ancient cities, with picturesque nature and oriental hospitality, is certainly an attractive route for tourists. At the same time, the development and integration of innovative technologies will ensure a high level of comfort for guests, attract a new generation of tourists and form a positive image of the country as a modern, innovative state.

### **Literature**

1. Bakıcı, T.; Almirall, E.; Wareham, J. A Smart City Initiative: The Case of Barcelona. *J. Knowl. Econ.* 2012, 2, 1–14.
2. Christopoulou, E.; Ringas, D.; Garofalakis, J. The vision of the sociable smart city. In *International Conference on Distributed, Ambient, and Pervasive Interactions*; Springer: Cham, Germany, 2014; pp. 545–554.
3. Hunter, W.C.; Chung, N.; Gretzel, U.; Koo, C. Constructivist research in smart tourism. *APJIS* 2015, 25, 105–120. [CrossRef]
4. Buhalis, D.; Amaranggana, A. Smart tourism destinations enhancing tourism experience through personalization of services. In *Information and Communication Technologies in Tourism*; Springer: Cham, Germany, 2015; pp. 377–389.
5. UNWTO. 2015. Available online: <http://media.unwto.org/en/content/understanding-tourism-basic-glossary> (accessed on 12 May 2020).
6. Sultanov, D. U. (2023). FORMATION OF THE EUROPEAN PART OF THE CITY OF SAMARKAND IN THE XIX-XX CENTURIES, AS WELL AS THEIR APPLICATION IN THE TOURISM INDUSTRY. *Academicia Globe: Inderscience Research*, 4(01), 51-56.
7. Rayimkulov, A. A. (2023). Khoja Abdi Berun Complex in Samarkand's Architectural Significance as a Cultural Heritage. *CENTRAL ASIAN JOURNAL OF ARTS AND DESIGN*, 4(2), 23-27.