ORGANIZATION AND MANAGEMENT OF MUSEUM INSTITUTIONS IN THE CONTEXT OF DIGITAL TRANSFORMATION

Khanna Utemuratova

Lecturer, Department of History, Karakalpak State University named after Berdakh,

Nukus city, 230100, Uzbekistan

E-mail: khannautemuratova@gmail.com, ORCID: 0009-0001-5998-8717

Rinat Kenzhebaev

Student, Department of History, Karakalpak State University named after Berdakh,

Nukus city, 230100, Uzbekistan

Abstract: This article examines the current transformation of museum organization and management systems under the influence of digital technologies in a global context. It analyzes key trends in the digitalization of the museum sector, the specifics of implementing digital transformation technologies (DTTs), and changes in organizational structures and personnel management at museums. Particular attention is paid to the systemic challenges museum institutions face during digital transformation: resource shortages, the need to develop staff digital competencies, the rapid obsolescence of technologies, and the ethical aspects of digitalizing cultural heritage. Based on an analysis of international practices—from Europe, the United States, and Asia—key areas are identified that can be adapted to the museum sector in Uzbekistan and Karakalpakstan.

Keywords: Museum studies, digital transformation, management, innovation, renovation, digitalization of museums, global practice, museum management, ICOM, sustainable development of museums.

The digital transformation of museums is one of the most significant processes shaping the development of the cultural sector in the 21st century. Museums have expanded beyond their original role as artifact preservers and memory institutions, playing educational roles and serving as tourist attractions. They have had to adapt and increasingly embrace digital technologies to remain relevant in today's environment.

The issue of digital transformation of museums has been actively studied since the late 2010s. According to research by N. Prues and M. Simmons, the digitalization of museums is not limited to the digitalization of collections but also involves restructuring the entire organizational structure and communication with visitors. Reports by the International Council of Museums (ICOM) emphasize that digital transformation is becoming a strategic priority for cultural institutions in the wake of the COVID-19 pandemic. In its report "Museums Around the World in the Face of COVID-19," UNESCO notes that more than 90% of museums worldwide temporarily closed in 2020, and only 15% had a sustainable digital infrastructure capable of supporting online operations [1]. Recent academic papers have emphasized the need for a systematic approach to managing digital projects, with strategic planning, staff training, and sustainable funding playing key roles. Researchers from Oxford University (Parry, 2022) identify three models of digital transformation for museums: informational, communicational, and experiential [2]. These approaches form the basis of contemporary museum policy in leading countries.

1008

Digital transformation is defined as a process aimed at improving an organization's operations by initiating significant changes in its properties through a combination of information, computing, and communications technologies. In the museum context, this process can be divided into two main concepts: digitalization refers to the use of technologies such as virtual reality, augmented reality, and artificial intelligence to promote visitor engagement and enhance the quality of museum experiences and knowledge, while digitization refers to the conversion of physical catalogs (such as artifacts and books) into digital formats for storage, access, or shared use.

Global experience shows that successful digital transformation of museums requires a comprehensive redesign of the organizational model. In the UK, the National Museum of Science and Industry is implementing a Digital Futures strategy, which involves creating a unified digital archive, implementing analytical tools, and upgrading staff digital competencies [3]. In France, the Musée du Louvre Numérique project has enabled the online transfer of over 480,000 exhibits and the implementation of an open data system. The Louvre's management emphasizes that digitalization has become not an addition to traditional activities, but the basis of a new development strategy [4].

In the United States, the Smithsonian Institution was one of the first to implement the "museum without walls" concept, creating the Smithsonian Open Access virtual ecosystem. Organizationally, this was accompanied by changes in the corporate structure and a redistribution of responsibilities among curators, IT specialists, and digital content managers [5]. In Asia, the experience of South Korea and Japan, where digital transformation has become part of national cultural policy, is noteworthy. The Korean National Museum in Seoul is developing the Smart Museum project, which combines augmented reality and artificial intelligence technologies [6]. Similar trends are observed in Japan, where the national platform Japan Cultural Heritage Digital Archive has been created. Furthermore, digitalization of management is becoming an important area. Museums are implementing electronic document management, CRM systems, and digital KPIs for performance evaluation. Such solutions are used, for example, at the Royal Ontario Museum and the National Museum of Australia [7].

One of the most notable advances in the museum world is the integration of artificial intelligence into the visitor experience. AI-powered tours are becoming increasingly popular, offering visitors a personalized journey through exhibitions. AI algorithms analyze visitor preferences and interests, creating a unique tour route tailored to their preferences. Immersive audiovisual projections are redefining how museums tell stories and engage with their audiences. Projection mapping, a technology that uses projectors to display images and videos on uneven surfaces, is being used to transform museum spaces into dynamic, constantly changing environments.

In response to the digital challenges facing museums and galleries, organizations and their staff must adapt to new ways of thinking and working in a digital-physical world. Digital technologies are powerful tools, but it's important to remember that digital is not the primary driver of digital transformation: museum staff are at the wheel, and digital technologies are the passengers. Organizations must redesign their structures and processes to meet the challenges of the digital age. Industry 4.0 has changed the relationship between employees and machines. Work once performed by employees can now be performed by machines, reducing costs and giving employees greater independence and authority over their duties.

Staff are forced to develop emotional and creative competencies and know-how based on technological expertise and data analysis. Future research is especially needed in this area to understand how successful digital strategies should be implemented. An important area is the creation of interdisciplinary teams, including curators, technology specialists, visitor services specialists, and other experts. This approach allows for the effective integration of technological solutions with traditional museum practices.

Since the independence of the Republic of Uzbekistan, the museum sector in Karakalpakstan has undergone significant transformations associated with the introduction of innovative approaches, structural reforms, and large-scale renovations. These changes were aimed at modernizing museum practices, increasing the museums' attractiveness to visitors, and integrating them into the global cultural space.

One of the key areas of innovative development has been the introduction of modern technologies into exhibition spaces. The I.V. Savitsky State Museum of Arts, a flagship museum institution in the region, was the first to transition to multimedia technologies for exhibit presentation. Since 2010, the museum has been gradually installing interactive screens, touchscreen information kiosks, and multilingual audio guides. By 2018, a QR code system was introduced, allowing visitors to obtain additional information about the exhibits via mobile devices.

In February 2019, the Foundation for the Development of Culture and Art under the Ministry of Culture of Uzbekistan announced an international competition for the position of director of the Savitsky Museum. This competition is part of the museum renovation program, which was first launched in Uzbekistan. Since 2019, the country has been implementing a public-private partnership system in the museum sector, which has enabled additional investment to be attracted for the modernization of museum infrastructure. These measures not only improved visitor comfort but also increased extra-budgetary revenue for museum institutions.

Global practice shows that the success of digital transformation depends on strategic leadership, human resources policies, and sustainable funding. Museums in Uzbekistan and Karakalpakstan can benefit from the experience of the I.V. Savitsky State Museum of Art, which is digitizing its collections and creating online catalogs. The implementation of similar practices in other museums in the region will ensure sustainable development and international recognition.

References:
1. UNESCO. Museums Around the World in the Face of COVID-19. Paris, 2020.
2. Parry R. The End of the Museum as We Know It? Oxford University Press, 2022.
3. Science Museum Group. Digital Futures Strategy 2023–2028. London, 2023.
4. Musée du Louvre. Rapport numérique 2022. Paris, 2022.
5. Smithsonian Institution. Open Access Initiative Report. Washington D.C., 2020.
6. Korean National Museum. Smart Museum Development Program. Seoul, 2022.
7. Royal Ontario Museum. Digital Strategy Report. Toronto, 2021.
8. Караманова Г., Утемуратова Х. Инновации в музеях Узбекистана. Scientific ideas of young scientists. International scientific and practical conferences. July, 2020. Warsaw, Poland. - P. 41-42.
9. Kh. Utemuratova, N. Koshekbaeva. Museum modernization in karakalpakstan: innovations, reforms, and international comparative perspectives in the independence era.

International conference on arts, society & humanities (Т. 1, Выпуск 1, cc. 4–7). Zenodo. https://doi.org/10.5281/zenodo.17286386