ISNN 3030-3907

2026/3
VOLUME 5

# DEVELOPMENT OF SCIENCE

## ILMIY JURNAL



# Development of science

## Ilmiy jurnal

*2026/3 VOLUME 5*

*ISSN 3030 -3907*

*Ilmiy jurnal OAK rayosatining 2024 yil 27 sentabrdagi 361-son qaroriga asosan 02.00.00 kimyo fanlari hamda 2025 yil 12 fevral 367- son qaroriga asosan 05.00.00 texnika fanlari bo'yicha falsafa doktori (PhD) va fan doktori (DSc) ilmiy darajasiga talabgorlarning dissertatsiya ishlari yuzasidan dissertatsiyalari asosiy ilmiy natijalarini chop etish tavsiya etilgan milliy ilmiy nashrlar ro'yxatiga kiritilgan.*

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ISSN 3030-3907

**Development of science** ilmiy jurnali 2024 yil 15 aprel kuni №256445 sonli guvohnoma bilan Davlat ro‘yxatidan o‘tgan.

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ISSN 3030-3907

# DIGITAL TECHNOLOGIES IN THE ART SPACE

**Zakirova Sayyora Abdulkhakovna**

*Head of the Department of "Social Sciences and Informatics" of the National Institute of Fine Art and Design named after K.Behzod Uzbekistan, Tashkent*

**Abstract**. This article examines the impact of digital technologies on the transformation of contemporary art space. The study analyzes major technological directions shaping modern artistic practices, including digital painting, virtual and augmented reality technologies, artificial intelligence, multimedia installations, and NFT and blockchain platforms. The research explores changes in the structure of artistic communication as well as the evolving roles of artists, audiences, and cultural institutions within the digital environment. Special attention is given to social, cultural, and economic aspects of digitalization in the arts, including issues of copyright protection, technological dependence, and preservation of digital artworks. The findings suggest that digital transformation is creating new models of artistic interaction and contributing to the formation of a global digital cultural ecosystem.

**Keywords:** digital technologies, digital art, art space, virtual reality, augmented reality, artificial intelligence, NFT, blockchain, multimedia, digital culture.

**Аннотация.** В статье рассматривается влияние цифровых технологий на трансформацию современного арт-пространства. Анализируются ключевые направления внедрения цифровых инструментов в художественную деятельность, включая цифровую живопись, технологии виртуальной и дополненной реальности, искусственный интеллект, мультимедийные формы искусства, а также NFT и блокчейн-платформы. Исследуется изменение структуры художественной коммуникации, роли художника, зрителя и культурных институций в условиях цифровой среды. Особое внимание уделяется социальным, культурным и экономическим аспектам цифровизации искусства, а также проблемам сохранности цифровых произведений, авторского права и технологической зависимости. Сделан вывод о том, что цифровая трансформация формирует новые модели художественного взаимодействия и способствует формированию глобального цифрового культурного пространства.

**Ключевые слова:** цифровые технологии, цифровое искусство, арт-пространство, виртуальная реальность, дополненная реальность, искусственный интеллект, NFT, блокчейн, мультимедиа, цифровая культура.

**Annotatsiya.** Mazkur maqolada zamonaviy san'at makonining raqamli texnologiyalar ta'sirida transformatsiyalanish jarayonlari tahlil qilinadi. Tadqiqotda raqamli rassomlik, virtual va kengaytirilgan reallik texnologiyalari,



ISSN 3030-3907

sun’iy intellekt, multimedia installyatsiyalari hamda NFT va blokcheyn texnologiyalarining san’at sohasida qo‘llanishi ko‘rib chiqiladi. Shuningdek, raqamli muhit sharoitida rassom, tomoshabin va madaniy institutlarning o‘rni hamda ularning o‘zaro munosabatlaridagi o‘zgarishlar ilmiy jihatdan tahlil qilinadi. Maqolada san’atning raqamli transformatsiyasi bilan bog‘liq ijtimoiy, madaniy va iqtisodiy jarayonlar, mualliflik huquqi, texnologik bog‘liqlik va raqamli asarlarni saqlash muammolari ham yoritilgan. Tadqiqot natijalariga ko‘ra, raqamli texnologiyalar san’at makonining kommunikativ tuzilmasini yangilab, global raqamli madaniy muhit shakllanishiga xizmat qilmoqda.

**Kalit so‘zlar:** raqamli texnologiyalar, raqamli san’at, art-makon, virtual reallik, kengaytirilgan reallik, sun’iy intellekt, NFT, blokcheyn, multimedia, raqamli madaniyat.

**INTRODUCTION.**

The development of digital technologies has become one of the defining characteristics of the cultural landscape of the twenty-first century. The rapid expansion of information technologies, global communication networks, and digital media platforms has significantly influenced the ways in which culture is produced, disseminated, and perceived. Artistic practices, which traditionally relied on physical materials and spatially limited exhibition environments, are now increasingly integrated with digital tools and virtual environments.

Historically, art spaces were primarily associated with physical institutions such as museums, galleries, exhibition halls, and cultural centers. These institutions functioned as the main platforms for the presentation and interpretation of artworks. However, the emergence of digital technologies has gradually transformed this traditional model. Today, the concept of art space extends beyond physical boundaries and includes online platforms, virtual galleries, digital archives, and interactive multimedia environments.

Digital transformation has expanded the possibilities of artistic creativity and communication. Artists can now employ advanced software tools, immersive technologies, and algorithmic systems to create works that would have been impossible within traditional artistic frameworks. At the same time, digital technologies have significantly altered the relationship between artists and audiences. Viewers are no longer passive observers; instead, they can interact with artworks, influence their structure, and even participate in the creative process.

The increasing integration of technology into artistic practice has also led to the emergence of new forms of art, including digital painting, generative art, multimedia installations, and interactive virtual environments. These developments require new theoretical approaches for understanding the nature of artistic



ISSN 3030-3907

creativity in the digital era. The relevance of this research is determined by the growing influence of digital technologies on contemporary artistic practices and the need for a comprehensive scientific analysis of these processes. The digital transformation of art space raises important questions regarding cultural communication, technological innovation, and the future of artistic expression.

The purpose of this study is to analyze the role of digital technologies in shaping contemporary art space and to examine how these technologies influence artistic creation, communication, and institutional structures within the cultural sphere.

## MATERIALS AND METHODS

The research is based on an interdisciplinary methodological approach that combines cultural studies, art theory, and media analysis. In order to investigate the transformation of contemporary art space under the influence of digital technologies, several research methods were employed.

First, a comparative analytical method was used to examine different forms of digital art practices and technological tools applied in artistic production. This approach allowed the identification of similarities and differences between traditional artistic methods and digitally mediated creative processes.

Second, a systemic approach was applied to analyze the complex structure of the digital art ecosystem. Digital art space was examined as a dynamic system that includes technological infrastructure, creative practices, communication platforms, and cultural institutions. This method made it possible to understand how various components interact within the digital cultural environment.

Third, a cultural-philosophical analysis was conducted to explore the broader cultural implications of digitalization in art. This method allowed the study to consider digital art not only as a technological phenomenon but also as a reflection of contemporary social and cultural transformations.

Additionally, case analysis was used to investigate specific examples of digital artistic projects, including virtual exhibitions, AI-generated artworks, and blockchain-based digital art markets. These examples helped illustrate how digital technologies are applied in real artistic contexts. The use of these combined research methods provided a comprehensive framework for examining the impact of digital technologies on the structure and functioning of contemporary art space.

## RESULTS.

The results of the study indicate that digital technologies are transforming contemporary art space in several significant directions. One of the most visible developments in contemporary art is the growing use of digital tools for visual creation. Modern software platforms such as Adobe Photoshop, Procreate, Blender,



ISSN 3030-3907

and Cinema 4D enable artists to produce highly complex visual compositions within digital environments. Unlike traditional painting techniques, digital painting offers an extensive range of tools that allow artists to experiment with colors, textures, and visual effects without the physical limitations of traditional materials.

Digital technologies also allow artists to revise and modify their work continuously, which significantly changes the creative process. The ability to store multiple versions of a project, experiment with various stylistic approaches, and collaborate remotely with other artists has expanded the possibilities of artistic experimentation. Three-dimensional modeling has also become an essential component of contemporary visual culture. It is widely used in fields such as digital animation, film production, game design, architecture, and interactive art installations. Through the use of 3D modeling software, artists can create immersive virtual environments that simulate physical space while also introducing entirely new visual structures that do not exist in the real world.

Virtual reality (VR) and augmented reality (AR) technologies represent another important direction in the development of digital art space. These technologies create immersive environments in which viewers can experience artworks as spatial and interactive phenomena. Virtual reality allows users to enter entirely digital worlds where artistic objects can be explored from multiple perspectives. In VR-based art installations, viewers can move through virtual environments, interact with digital objects, and influence the narrative structure of the artwork.

Augmented reality, on the other hand, integrates digital elements into the physical environment. Through mobile devices or specialized AR equipment, viewers can observe digital images, animations, or interactive objects superimposed onto real-world spaces. Museums and galleries increasingly employ VR and AR technologies to create virtual exhibitions, interactive educational programs, and digital reconstructions of historical artworks. These innovations expand access to cultural heritage and provide new possibilities for artistic storytelling.

Artificial intelligence has emerged as one of the most innovative tools in contemporary artistic production. Machine learning algorithms can analyze large datasets of visual information and generate new artistic images based on learned patterns. AI-based systems are capable of producing paintings, music, poetry, and digital designs that resemble human creativity. Generative adversarial networks (GANs), for example, are widely used to create visual artworks that combine elements from different artistic traditions. Despite the creative potential of artificial intelligence, its use in art raises several philosophical and ethical questions. One of



ISSN 3030-3907

the central issues concerns authorship: if an artwork is generated by an algorithm, it becomes difficult to determine who should be recognized as the creator. These questions continue to stimulate debates among artists, scholars, and cultural theorists.

The emergence of blockchain technology has introduced new mechanisms for the distribution and commercialization of digital artworks. Non-fungible tokens (NFTs) provide a way to verify the ownership and authenticity of digital objects through decentralized digital ledgers. NFT technology has transformed the digital art market by allowing artists to sell unique digital works directly to collectors without the need for traditional intermediaries such as galleries or auction houses. This development has created new economic opportunities for digital artists while also redefining the structure of the art market. However, the NFT phenomenon has also generated controversy due to concerns about market speculation, environmental impacts of blockchain technologies, and the long-term stability of digital ownership systems.

**DISCUSSION**

The integration of digital technologies into artistic practice has significantly altered the structure of cultural communication. In traditional art forms, communication between the artist and the audience was often mediated by institutional frameworks such as galleries, museums, and publishing platforms. Digital technologies have introduced new communication channels that enable direct interaction between creators and audiences. Social media platforms, digital galleries, and online art communities allow artists to present their work to global audiences without geographical limitations. These platforms also facilitate collaboration among artists from different cultural backgrounds, encouraging the exchange of ideas and the emergence of new hybrid artistic styles.

At the same time, the digitalization of art introduces several complex challenges. The rapid evolution of technological formats creates difficulties for the long-term preservation of digital artworks. Unlike traditional paintings or sculptures, digital works depend on software environments and hardware systems that may become obsolete over time. Another significant issue concerns intellectual property protection. The ease with which digital files can be copied and distributed makes it difficult to ensure the legal protection of artists' rights. Although blockchain technology offers potential solutions, the legal frameworks governing digital ownership are still evolving.

Furthermore, the growing role of artificial intelligence in artistic production raises questions about creativity and authenticity. Scholars continue to debate whether algorithmically generated works can be considered genuine artistic



ISSN 3030-3907

expressions or whether they represent a fundamentally different form of cultural production.

## CONCLUSION

The study demonstrates that digital technologies are fundamentally transforming the structure and functioning of contemporary art space. Technological innovations have expanded the possibilities of artistic expression, introduced new forms of audience interaction, and reshaped the institutional frameworks through which art is produced and distributed. Digital painting, immersive virtual environments, artificial intelligence, and blockchain technologies represent key elements of this transformation. These technologies enable artists to experiment with new visual languages, interactive narratives, and hybrid artistic forms that combine physical and digital experiences.

At the same time, the digitalization of art requires the development of new theoretical frameworks and institutional strategies. Issues related to copyright protection, digital preservation, and ethical use of technology must be addressed in order to ensure the sustainable development of digital culture. In the future, the integration of advanced technologies such as artificial intelligence, immersive virtual environments, and global digital networks will likely continue to reshape artistic practice. As a result, contemporary art space will increasingly function as a hybrid cultural environment that connects creative communities across the world and fosters new forms of artistic innovation.

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ISSN 3030-3907

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ISSN 3030-3907