

## **INTERNATIONAL SCIENTIFIC AND PRACTICAL CONFERENCE**

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### **METHODS OF APPLYING DIGITAL TECHNOLOGIES UNDER DESIGN PROCESS**

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**Annotation.** The appearance of cities is formed not only by physical objects designed using digital technologies, but also by digital ones integrated into the architecture and space of the city. information resources, interfaces, services, virtual art objects.

The purpose of the study is to identify and assess the impact of innovative digital technologies on the existing and planned urban environment, including in the context of its spiritual and material integrity. As research methods, the authors used: system analysis and evaluation of digitalization processes in the urban planning of modern cities.

**Keywords.** digital technologies, planning and architecture, Digital Art, comfortable urban environment.

#### **Introduction**

The most notable changes in the world are taking place today through the widespread introduction of digital technologies into professional practice and private life. Digitalization affects not only material and technological, but also spiritual, aesthetic aspects, determines the trends of public consciousness, shapes their needs and ideas. Among other things, digital technologies are fundamentally changing the idea of the structure of the city as a comfortable living environment, adapting it to the constant growth of the information flow and other challenges of the 21st century. One of the most promising areas of application of digital design as a tool for changing the surrounding space and even the world is urban planning. Digital technologies make it possible to design bionic and parametric architectural forms from simple and environmentally friendly materials; develop and use innovative methods of surface treatment and the use of various materials [1], [2], [3]. Digital technologies and digital design and architecture are directly involved in the process of adapting the urban environment to innovation. Digitalization creates new qualities and properties in urban planning: previously non-existent types of spaces, everyday practices, material objects, symbolic environment [4], [5]. At the same time, today there is no consolidated understanding of the phenomena of digital design and architecture, as well as an opinion on how these phenomena affect the urban environment and society. One of the most common definitions says that digital design is a design that involves the development of a project in a digital environment with direct interaction with the user. In addition, there is a term-synonymous "interactive design".

#### **Main part**

The main functional purpose of the city is a comfortable and efficient space for the implementation of human life tasks. The issues of planning the development of urban areas, taking into account the requirements for creating a comfortable urban environment, are currently particularly acute, since centralized levers for managing the processes of city formation are not always effective, the implementation of many complex projects is difficult due to the lack of relevant legislation, resource base, legal nuances, without taking into account the objective interests, vital and aesthetic needs of citizens. A certain role in the practical activity of transforming

the existing situation in favor of a city-friendly environment is played by art objects designed to evoke a positive emotional reaction. Both traditional and innovative forms of art are used to create them, for example, DigitalArt. DigitalArt today refers to the creation of works of art in digital form using information technology. Urban planners, scientists and artists are experimenting with combining the material with the intangible. This became possible thanks to technological innovations and artistic interpretation of the digital language [6]. Architectural video projection is one of the most common types of Digital Art, and the popularity of 3-D projections is growing exponentially. In turn, this allows you to form new connections between familiar architectural objects and the surrounding urban environment, opens up new possibilities for perception and interaction between a person and an object, provides an opportunity to perceive the urban space as a multi-variant, living environment.

A number of new issues are currently being fixed:

- the problem of visual perception by young people, accustomed to screen information, of large architectural volumes and spaces and the need to specifically teach them the perception of classical architecture;
- problems of determining the ethical boundaries of theatricalization and the optimal duration of the existence of digital design objects in the urban environment, the problem of inevitable emotional exhaustion and discomfort from bright and constantly flickering images among permanent residents;
- problems of perception of three-dimensional objects in the urban environment. The creation of a virtual flat or 3D illusion leads to a change in the traditional status of the enclosing structure of the facade plane as an archetypal material boundary of an architectural object. Architecture becomes a screen, under the influence of projected images, the choice of which is largely determined by the applied computer technology, it loses its own artistic expression. Digital design, as the heir to all design methods and technologies, currently opens up the possibility of harmonizing various technological aspects of digitalization and spiritual, humanistic aspects of human existence in the urban space. In the contradictory situation of the aging of urban spaces and the renewal of the ways in which people perceive and use these spaces, the possibility of synthesizing information contained in digital design makes it possible to find a compromise between the need to preserve the historical architectural environment and its simultaneous renewal and actualization of spaces. This possibility lies: in the variability of digital objects; in the relative simplicity of technologies for creating a virtual environment; in the ability to adapt to short-term challenges, without making global changes to the physical basis of cities; in the ability to create local points of attraction without violating the historical environment and the integrity of monuments, which is especially important for ancient cities; in the ability to draw attention to the features of architecture and level its shortcomings, as well as to form scenarios for its perception with the help of color and light; in erasing the boundaries of the exterior and interior of buildings; in expanding the functionality of buildings by introducing interactivity technologies, and much more.

## Conclusion

Digital design is at the same time a way of being of the modern urban environment, an aesthetic value of society, a work of art that exists in a single time-space. At the same time, the study of all facets of the issue makes it possible to formulate an understanding of digital design as a universal and multifunctional tool that can not only influence the existing urban environment, but also comprehensively form a new reality of urban spaces through the prism of relationships with a person, taking into account innovative technologies. It is undeniable that even in the context of digitalization, architecture continues to fulfill its fundamental role - creating space to meet the social needs of a person [9], and the professional view of an architect predetermines the imagery, artistic value of the created object, its socially significant qualities, and the principles that will determine approaches to the use of digital tools in the design of urban environment objects. Digital tools, being in the experienced hands of a city planner, help create beauty, however, the value component of digital design, first of all, lies not in the power of technology and the breadth of their application as such, but in the boundlessness of the human mind, capable of creating and using modern tools for the benefit of society.

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