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PROSPECTS FOR THE APPLICATION OF DIGITAL TECHNOLOGIES

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According to many researchers, the next phase of digital evolution is the formation of a metaverse, which can accelerate the adoption of digital technologies and expand the scope of online services. Thus, the digitalization of services has become the foundation for increased efficiency in various business sectors, gaming, education, and other aspects of the activities of individuals and legal entities using online access. Digitalization has grown exponentially, leading to improved service quality and the implementation of all business processes. This is driven by the emergence of new opportunities offered by improved digital systems and online storage in remote data centers and through the use of cloud platforms. Researchers believe the focus has shifted toward consumer experience, and the demand for improved service quality and greater interactivity is constantly growing, leading service providers to seek to elevate existing standards. Consumers are demanding tactile and immersive experiences, specifically in their digital interfaces. These characteristics can only be achieved with new technologies such as virtual reality (VR), augmented reality (AR), mixed reality (MR), and extended reality (XR) [1]. The metaverse thus enables the unification of all these technologies within a global context, creating a simulated digital environment that can be perceived as an immersive virtual world for its consumers. Interaction with this virtual ecosystem is possible through digital avatars, in accordance with the principle of duality [2].

Avatars thus become virtual embodiments of users and grant the same legal powers in the metaverse as legal rights in the real world. Therefore, an avatar provides a real means of guaranteeing the fulfillment of any transactions that can be conducted in the virtual domain, and does not allow for the revocation of any completed action.

Absolutely anyone with a device that supports virtual or augmented reality (VR), such as a headset or glasses with minimal capabilities, can access an avatar [3].

In practice, haptic suits are often used, allowing for maximum immersion in a virtual environment.

Thus, the metaverse is constantly evolving and is designed to expand the capabilities of social networks, leveraging their potential for various fields of activity by both individuals and businesses.

Previously, augmented and virtual reality technologies offered separate solutions for different areas, lacking a universal approach or a framework for integrating these technologies. The emergence of the metaverse offers a new digital ecosystem that offers virtually limitless possibilities for application.

One opportunity to improve quality of life is the application of the digital twin concept, which enables remote control and monitoring of various devices based on improved visualization and coordination, thereby elevating control quality to a fundamentally higher level. Three-dimensional visualization is used for this purpose, leading to increased accuracy and process understanding.

One promising new area is remote robotic control, based on the concept of augmented reality, which can be applied in various fields, such as remote surgical procedures.

Concepts such as cryptocurrency [4], digital biometrics [5], and explainable artificial intelligence [6] are also already being actively implemented. However, it should be noted that many legal and ethical issues remain unresolved.

Currently, there is a problem of compatibility and interaction between the virtual and physical worlds. Therefore, attention should be paid to the processes of standardization and legal support for the interaction of these worlds.

Thus, the successful integration of the Ukrainian economy into the international space is only possible through the active use of relevant digital technologies, the implementation of which should be gradual and for which appropriate legal frameworks must be established.

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