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BARRIER-FREE SPACE OF SOCIO-CULTURAL ACTIVITIES OF DIGITAL ECOSYSTEMS

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Abstract: the convergence of socio-cultural activities with digital ecosystems of a new generation has been studied. These digital ecosystems are represented by metaverses. In the context of convergence, there has been a transformation of the main forms of sociocultural activity. Virtual and augmented reality and immersive space play a special role in this dynamic. As a result, practices of digital access to the semantics of museum expositions, exhibition presentations of fine arts, festivals, and theatrical productions have been formed. Digital transformation turned out to be associated with the transformation of the emotional sphere of modern man. The topics of digital and visual anthropology have been updated. The thesis is substantiated that a special space of digital cognitive artifacts and cultural environment has formed, which have become part of the life of a modern person. In this context, the dynamics of the evolution of various components of the digital environment into ecosystem structures and platforms for the transformation of the social sphere has been studied. The study of metauniverses is promising. Virtual and augmented reality technologies are

actively used in their space. The development of these technologies is promoted by transformations formed by sanitary and epidemiological reasons. The subjects of culture actively use an alternative to the physical practices of presence in the space of culture. This trend has no time limits, as it transforms into a permanent way of organizing free time and reflects the psychology of digital generations.

Keywords: sociocultural activity, barrier-free environment, digital ecosystem, metauniverse, virtual reality, augmented reality, immersive space.

Introduction

The relevance of the article is due to the growing role in the digital space without a barter environment [D'Andrade 1984]. It was created thanks to the efforts of the developers of the digital ecosystem [D'Andrade 1994]. One of the newest generations of these digital ecosystems is the metaverses [Horst & Miller 2012]. These digital ecosystems have transformed the business processes of leading corporations and banks. On their platform, there was an accumulation of a wide range of consumer requests, including socio-cultural activities. Metaverses require significant investments, which are attracted by the possibility of diversifying goods and services, organizing recreation, shopping, leisure and intellectual activity.

The investment attractiveness of the metaverses was facilitated by quarantine restrictions, which severely limited the physical mobility of the population and created the threat of loneliness in a closed internal space without the possibility of access to creative industry products. It is already obvious that the isolation did not take place, since the metaverses have become a convenient way to be present in the space of history (museums), fine arts (exhibitions, galleries), theater and cinema, quest forums. Against the background of dynamic transformations of technologies, the research task of studying a new social reality remains relevant. Therefore, the article will consider the

concepts of the digital ecosystem, metauniverse, digital socio-cultural activity, immersive space.

Digital technology barrier-free environment

The barrier environment created by quarantine restrictions in the physical space determined the accelerated development of digital technologies without a barrier environment. Convergence began with the creation of enterprise digital platforms by leading corporations and banks [Jacobides et al. 2018]. These integrated technologies created a barrier-free corporate environment not only in the production space, but also in marketing and logistics [Mystakidis 2022]. But digital platforms had limitations due to their corporate status. Therefore, a request arose for systems engineering to develop seamless hardware systems with a single login password through a mobile phone [Kapoor 2018].

This entry guarantees access to hundreds of applications containing a wide range of offers for the user. Not only users, consumers of information services, but also owners of digital ecosystems were in an advantageous position, since they began to have intermediary communication resources that they began to offer to companies that did not have their own digital ecosystems [Subramaniam 2020]. When analyzing the range of services, the owners of digital ecosystems did not limit themselves to shopping. Applications began to include access to various forms of recreation, leisure and the creative industry. The user has access to online stores and their after-sales service, as well as film industry services, quests,

and exhibitions. But these numerous proposals lacked the possibility of a virtual presence in various sociocultural projects.

The new generation of digital ecosystems in the modification of the metaverses has solved the problem of overcoming the physical barrier environment. The Metaverse includes a set of augmented and virtual reality technologies, within which interaction with functions and services takes place using the user's avatar profile.

The Metaverse represents a large 3D world. This world includes a huge number of possibilities for users, ranging from creating NFTs to influencing the in-game rules. Blockchain has completely changed the concept of the metaverse. He made it decentralized. As a result, innovative projects begin their development in the digital space from creating games to trading.

It is important to understand how the virtual world relates to the real physical world, to be aware of its aspects, problems and to have an idea of the impact on the average user. This is important for the development of technology, for innovation and project development. The opportunity to attract a huge audience has opened up. This is the basis for growth and development, as well as productive interaction with the target audience.

The Metaverse includes a combination of virtual and augmented reality technologies, as well as block chain. The basis is formed by distributed ledger technology. The decentralized base provides a large capacity, allowing the use of free space on the disks of users around the world to avoid running out of space for other users. Such a storage eliminates the shortcomings of centralized databases, where

the participation of third parties is necessary, eliminates the risk of data theft and manipulation.

Blockchain solves the problem of storage security. All data, keys, content and any payment information is hashed and stored in encrypted form. All nodes in the metaverse operate and synchronize independently of each other. This means solving the problem of query execution delays and scalability limitations. Thanks to self-executing contracts, the metaverse can implement various rules in the ecosystem, use ready-made smart contracts from other projects.

Projects in the metaverse are mostly based on games. Therefore, it is especially important to have a digital proof of ownership. The introduction of NFT into the metaverse will provide regulation of activities related to digital assets and user avatars. The Metaverse allows users to manage their funds, pay for services, and participate in trading activities. Any transaction in the metaverse can be made on the basis of crypto currency.

In the metaverse, every avatar user has an ID card. This is security information. They are stored in a distributed registry and exclude the commission of illegal actions from another user.

Augmented reality and virtual reality technologies are the main ones in the work of the metaverse. Virtual reality allows users to connect to the metaverse for meetings and other interactions [Cole 1997]. Augmented reality allows you to increase the possibilities of virtual reality.

The advantage of artificial intelligence for the metaverse lies in fast and high-quality analytics, work with calculations, identification

using face recognition, efficient scaling and elimination of the language barrier.

3D allows you to create realistic spaces within the metaverse, photorealistic 3D structures and a clear physical environment. This is an opportunity to explore the object with the help of a 3D tour and purchase real estate without the need for a personal meeting. Clothing stores can provide products for selection in the virtual showroom.

IoT technology allows you to connect the real world with the Internet, strengthen the connection between objects in the real world and the metaverse, and ensure the use of data. It not only allows you to create simulations in real time, but also combines with technology for efficient data management.

The brain-computer neural interface is a device and technology for the exchange of information between the human brain and an external device: a computer, a smartphone, an exoskeleton, household appliances, a wheelchair and artificial sense organs.

Virtual genres of sociocultural activity

Virtual art galleries are among the widespread industry trends in the metaverse. Virtual art galleries are a new kind of immersive space where artists and digital creators can showcase their NFT exhibitions to collectors. Art aficionados can experience a sensational virtual environment and trade their favorite pieces.

Cultural events have moved online. Many cultural institutions have excellent experience in communicating with their viewers and visitors in an interactive format. Virtual tours, recordings of

performances, concerts and lectures are in high demand. Cycles of video tours and video quests around the historical halls of museums have been created. The Hermitage updated the cycle of live broadcasts from the storage facility in Old Country. The topics for holding thematic webinars on the history of art, reading online lectures, and conducting consultations have been developed. Exhibitions, lectures, discussions and children's classes have become available online.

The Metaverse will collect a huge amount of data, which it will extract and use almost instantly. It is necessary to ensure that the data received in one part of the metaverse is reflected in the user's experience in another metaverse. Under these conditions, the study of the next generation of data engineering becomes a key direction in the evolution of the metaverse technology [Fasoli 2022].

It is an interdisciplinary approach that combines principles and methods from the fields of mathematics, statistics, artificial intelligence and computing to analyze large amounts of data. This analysis helps data scientists ask and answer questions such as what happened, why it happened, what will happen, and what can be done with the results.

Data science combines tools, methods, and technologies to extract meaning from data. Modern organizations are overloaded with data; there are many devices that can automatically collect and store information. Online systems and payment portals collect more data in the field of e-commerce, medicine, finance and any other aspect of human life.

Data scientists can transform raw data into meaningful recommendations. They can detect and solve problems.

Organizations can use these recommendations to improve customer satisfaction, optimize their supply chain, or launch new products.

Innovations in artificial intelligence and machine learning have made data processing faster and more efficient. Industry demand has created an ecosystem of data science courses, degrees, and positions. Due to the required set of inter-functional skills and experience, data science is showing strong projected growth in the coming decades.

Descriptive analysis aims to explore the data in order to get an idea of what happened or what is happening in the data environment. It is characterized by data visualization such as pie charts, bar charts, line graphs, tables or generated descriptions. Diagnostic analysis involves a deep and detailed examination of the data to understand why something happened. It is characterized by techniques such as drill down, data discovery, data mining, and correlations. Several data operations and transformations can be performed on a given set of data to discover unique patterns in each of these methods.

Predictive analytics uses statistical data to make accurate predictions about data patterns that may occur in the future. It is characterized by techniques such as machine learning, prediction, pattern matching, and predictive modeling. In each of these methods, computer programs are trained to analyze causal relationships in data. Prescriptive analytics allows you not only to predict what might happen, but also to suggest the optimal response to the result. In this way, the potential consequences of various choices can be analyzed and the best course of action recommended. The method is based on

graph analysis, modeling, complex event processing, neural networks and machine learning recommendation engines.

Data science will help identify gaps and problems that would otherwise go unnoticed. A deep understanding of purchasing decisions, customer feedback drives innovation in internal operations and external solutions. The data may be pre-existing, newly acquired, or a data repository that can be downloaded from the Internet. Data scientists can extract data from internal or external databases, web server logs, social media, or acquire data from trusted third-party sources.

Preliminary data analysis is used to plan further data modeling strategies. Data scientists gain an initial understanding of the data using descriptive statistics and data visualization tools. They then explore the data to uncover interesting patterns that can be explored or applied.

Machine learning algorithms are used to get deeper insights, predict outcomes, and determine the best course of action. Machine learning methods such as association, classification, and clustering are applied to the training dataset. The model can be tested on predefined test data to evaluate the accuracy of the results. The data model can be tuned many times to improve results.

Data scientists work with analysts to turn data into action. They make charts and graphs to represent trends and forecasts. Summarizing data helps stakeholders understand and effectively implement the results. Data scientists use computing systems to track data processing progress. Computer programs are trained to identify and sort data. Known datasets are used to build decision-making

algorithms on a computer that quickly processes and classifies the data.

It is not usefulness, rational arguments, but his own subconscious motivations that make the consumer make a choice or decide to purchase a service. This irrational aspect of human behavior can be understood and used by marketers only as a result of attracting scientific knowledge.

With the help of neural marketing, specialists are able to identify the cognitive and emotional response to a commercial message or information. Experts reveal the degree of perception of information. With the help of high-tech procedures that allow recording the reaction of the human brain, it is possible to track with great accuracy the processes taking place in it without the participation of consciousness in response to a particular advertising video. First of all, these are the processes responsible for decision-making and emotional reactions, concentration of attention and style of behavior, aesthetic pleasure, short-term and long-term memory.

Neural marketing involves the use of brain imaging technologies to objectively assess the actual reactions of a potential consumer to various marketing material, whether it be visual or auditory advertising, brand or business style. The use of special technologies that allow you to see the processes of the brain is the fundamental difference between neural marketing and classical marketing.

Rational explanations, as a rule, have nothing to do with true motives. It is these problems of classical marketing that prompted marketers to turn to neuroscientists in search of a tool for an objective

assessment of brain reactions. For the first time, neuroscanning technology was applied in the late nineties of the twentieth century.

The source of information about the user is video or eye tracking. With its help, experts understand what the consumer pays attention to and where he looks the longest [Grimshaw & Pavetz 2005]. This method is widely used in studies of advertising effectiveness, text perception, use of programs and websites. This is an indispensable tool for analyzing advertising images, directing attention when watching video clips, and various design elements. With an eye tracker, you can create a heat map that uses color to show where and for how long a person has looked. Some companies use eye trackers to track involuntary facial expressions. An effective method of marketing research is the combination of eye tracking with a demonstration of a virtual 3D environment. A study was conducted that included polygraphic registration of autonomic reactions, video recording of behavior, eye-tracking and a special type of detailed interview to assess emotional reactions and associations.

Eye tracking confirmed that a person's face is always the focus of attention. Users subconsciously perceive even a schematic image of a face. It is human nature to track the direction of the gaze of the one he is looking at. In interpersonal communication, the direction of the gaze of the interlocutor indicates where to look. Human behavior is determined by higher cognitive functions, which are realized through the activation or deactivation and complex interaction of many systems and areas of the brain.

In addition to viewing clothes and equipment, you can try them on and purchase them without leaving the online space [Norman 2013].

People buy virtual outfits for their avatar, as well as goods that will be delivered by courier to their homes. It is possible to shop with friends and consult with the seller directly in the game or offline. In an immersive 3D world, this is possible.

The metaverse contains a way to go beyond the usual store, and turn any user scenario into a process of buying a product or service [Kim 2021]. There are already huge free-to-play open worlds with economies. In them, people spend a lot of time and spend a lot of money on avatars. Buy them skins – elements of improvement [Norman 2010].

Computer games have become one of the forms of education, creativity and self-expression. Thanks to the introduction of metaverses into the educational process, expensive overhead costs will disappear, and the comfort and quality of online learning will improve [Stokel-Walker 2022]. This can be seen on the example of a virtual campus.

A special role belongs to end-to-end digital technologies. These technologies are not associated with any particular product or area of activity, but can be applied in many industries, branches and sectors of the economy, for example, in education, medicine, energy, construction and socio-cultural activities.

Conclusions

Thus, the evolution of digital ecosystems in the modification of metaverses has become a new phenomenon in a smart society. This phenomenon transforms various forms of sociocultural activity. The cognitive components of new technologies have made it possible to

create neural interfaces and make immersive space available to users based on virtual and augmented reality. Many genres of culture have acquired a new design and unique opportunities for constant dialogue with the audience. These new social practices are not temporary. They will become part of the common space of culture.

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БЕЗБАРЬЕРНОЕ ПРОСТРАНСТВО СОЦИОКУЛЬТУРНОЙ ДЕЯТЕЛЬНОСТИ ЦИФРОВЫХ ЭКОСИСТЕМ

Александр Лойко

Аннотация: исследована конвергенция социокультурной деятельности с цифровыми экосистемами нового поколения. Эти цифровые экосистемы представлены метавселенными. В контексте конвергенции произошла трансформация основных форм социокультурной деятельности. Особую роль в этой динамике играют виртуальная и дополненная реальность и иммерсивное пространство. В результате сформировались практики цифрового доступа к семантике музейных экспозиций, выставочных презентаций изобразительного искусства, фестивалей, театральных постановок. Цифровая трансформация оказалась сопряженной с трансформацией эмоциональной сферы современного человека. Актуализирована тематика цифровой и визуальной антропологии. Обоснован тезис о том, что сформировалось особое пространство цифровых когнитивных артефактов и культурной среды, которые стали частью жизни современного человека. В данном контексте исследована динамика эволюции различных компонентов цифровой среды в экосистемные структуры и платформы трансформации социальной сферы. Перспективным является исследование метавселенных. В их пространстве активно используются технологии виртуальной и дополненной реальности. Развитию этих технологий способствуют трансформации, формируемые санитарно-эпидемиологическими причинами. Субъекты культуры активно используют альтернативу физическим практикам присутствия в пространстве культуры. Подобная тенденция не имеет временных ограничений, поскольку трансформируется в постоянный образ организации свободного времени и отражает особенности психологии цифровых поколений.

Ключевые слова: социокультурная деятельность, без барьерная среда, цифровая экосистема, метавселенная, виртуальная реальность, дополненная реальность, иммерсивное пространство.

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