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**Agata Kępińska**[*]

iD https://orcid.org/0000-0003-3623-1815

**Rafał Wiśniewski**[**]

iD https://orcid.org/0000-0002-7952-8021

# METAVERSE AND ITS CREATIVE POTENTIAL FOR VISUAL ARTS

**Abstract.** The National Centre for Culture is conducting a foresight research project on the impact of emerging technologies on the arts. The article presents the first findings brought by the analysis of opportunities created by the development of virtual spaces accessible to artists and the public – which are expected to create the Metaverse and promote a new form of ownership, NFT. The text is dedicated to the potential of new tools and media – the positive side of the interface between modern technologies and art. The article offers definitions of the Metaverse, NFT and digital art. Apparently, these elements of social (and technological) reality not only overlap, but also complement each other. The text attempts to answer the question of what potential the next phase of digital transformation brings for visual artists.

**Keywords:** Metaverse, virtual reality, NFT, digital art, sociology of art.

# METAWERSUM I JEGO POTENCJAŁ TWÓRCZY DLA SZTUK WIZUALNYCH

**Abstrakt.** Narodowe Centrum Kultury prowadzi projekt badawczy typu *foresight*, dotyczący wpływu wschodzących technologii na sztukę. W artykule przedstawiono pierwsze wnioski z analizy możliwości stwarzanych przez rozwój wirtualnych przestrzeni, dostępnych dla artystów i publiczności – mających prowadzić do powstania Metawersum – oraz nowej formy własności, jaką jest NFT. Tekst poświęcony został potencjałowi nowych narzędzi i mediów, a więc pozytywnym aspek-

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[*] Dział Badań i Analiz, Narodowe Centrum Kultury, ul. Płocka 13, 01-231 Warszawa, e-mail: amkepinska@gmail.com

[**] Instytut Nauk Socjologicznych, Uniwersytet Kardynała Stefana Wyszyńskiego w Warszawie, ul. Wóycickiego 1/3, 01-938 Warszawa, e-mail: r.wisniewski@uksw.edu.pl

tom styku najnowszych technologii i sztuki. W artykule można znaleźć definicję Metawersum, NFT oraz sztuki cyfrowej. Te elementy rzeczywistości społecznej (oraz technologicznej) okazują się nie tylko zazębiać, ale i dopełniać. Tekst odpowiada na pytanie, jaki potencjał dla artystów sztuk wizualnych niesie ze sobą kolejna faza transformacji cyfrowej.

**Słowa kluczowe:** Metawersum, wirtualna rzeczywistość, NFT, sztuka cyfrowa, socjologia sztuki.

*New technologies alter the structure of our interests:*
*the things we think about. They alter the character of our*
*symbols: the things we think with. And they alter the nature of*
*community: the arena in which thoughts develop.*

Neil Postman (2004)

## 1. Introduction

Sociology as an academic discipline derives from the systematisation of society's self-reflection, which has intensified as a result of the social and technological revolutions, entailing further and deeper social changes. The manufacturing technologies brought to life by the innovators of the 18th century were the precondition for the emergence of modernity and sociology (see Toffler 2001). Today, in times of rapid technological development, being an observer of social reality also requires a focus on the consequences of scientific discoveries and new inventions. Interestingly, it is not only social scientists who try to predict the social consequences of the technologies being implemented today. An important part of the reflection on today's society comes from representatives of the natural and technical sciences (Bandoch 2021: 165).[1]

The National Centre for Culture is currently carrying out an international foresight research project on the impact of emerging technologies on the arts and their possible directions of development.[2] The multi-phase study is being carried out with the use of qualitative methods. It started with an in-depth analysis of existing data, but also situated new phenomena in a historical perspective, primarily by using the lens of digital art history. During the project, a total of forty individual in-depth, semi-structured interviews were conducted with Polish and foreign experts. The invited interviewees included people representing various fields of knowledge, as well as experts implementing new technological solutions. In order to develop reliable forecasts, the multidimensional research project involves representatives

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[1] Jakub Bandoch points out that non-sociological interpretations of the impact of technology on society are now widely read and discussed.

[2] The survey and its tools are designed and coordinated by the National Centre for Culture. In order to implement the idea well and oversee every stage of the project, the survey was not commissioned to an external company. Instead, two external, experienced researchers, whose involvement enables international cooperation and a high level of achievement of the project's objectives – Dr Marta Bierca and Łukasz Raciborski – were invited to carry out the study.

of leading technology companies, researchers from prestigious universities and representatives from the world of art, including those who specialise in digital art.

Technology is included in this project both as a tool, and as a dimension and space for the creation of art. The research is focused on developing technologies, i.e. technologies that have not yet been fully implemented into people's everyday lives, since "they are only just appearing to us".[3] As the social character of technological phenomena is emphasised, the theoretical framework adopted is the anthropology of technology (technoanthropology). The object of the study is thus the (human) virtual environment, which Sidey Myoo described, promoting the perspective of technoanthropology, as surrounding

> man with technology in the sense of expanding the electronic environment – the virtualisation of reality which involves transferring elements of human life and the human world that originally belonged to the physical world to the web – this is most often treated in terms of utility or communication. This involves millions of participants – humanity has never experienced such a massive, global phenomenon as participation in various online venues, often consuming human time to such an extent that certain activities in the physical world disappear (M y o o 2012: 365).

On 13 October 2022, the first presentation of the results, signalling the conclusions of the initial phase of the research project, took place at a conference entitled "Congress Sculpture Everywhere?" at the Centre for Polish Sculpture in Orońsko. In a paper entitled *Flight into the unknown, or not only about sculpture in the Metaverse space*, we presented the knowledge we had gathered about sculpture in digital space. This type of sculpture is often devoid of the material form and is produced with "intelligent tools". The virtual presence of digital sculpture blurs the boundaries between types of art, as well as between the tool and the creative subject, especially when artificial intelligence is involved in its creation.[4] The referenced paper sparked a lively discussion between the panellists and the audience, concerning not only the technology, but also the conceptual layer. When the topic of emerging technologies is raised, social fears often come to light, which can be compared to the anxieties that cinema – or, before that, photography – once aroused in the art world. In the title of the paper delivered in Orońsko, the notion of the Metaverse appears. The Metaverse is, from the perspective of the study described, one of the main themes of the interviews and also, in the area of results, one of the main technological aspects of the future. In this article, we present a definition of the Metaverse in order to underline its creative potential from the perspective of digital art, and draw attention to a new form of ownership (NFT) that is a key element of the Metaverse concept. At the same time, the validity of this text is independent of the degree to which the visions of the technology companies come true. The text

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[3] Quote from an expert, a Polish scientist, participating in the National Centre for Culture study in question.

[4] We have written that artificial intelligence is "involved in creation", rather than "creates", because it is not itself creative in the full sense of the word. This is explored in the text *Creative robots* by Sidey M y o o (2016).

is a kind of forecast, but the phenomena and potential it discusses are, for the most part, already present today, thanks to gaming platforms. If the plans for an expanded Metaverse fail, the mere existence of virtual worlds will be enough for artists to explore the possibilities described.

This article aims to answer the question of what potential the next phase of digital transformation holds for visual artists. There is no coincidence in focusing exclusively on the positive aspects of the interface between the latest technologies and art. In the text, we analyse the opportunities for artists and art that have emerged as a result of technological developments, i.e. the raising potential of new tools and media.

## 2. The Metaverse as space

The Metaverse is a concept created by combining the Greek prefix "meta", meaning above or beyond, and the Latin word "universum", meaning universe. The concept thus refers takes us to a place beyond our existing reality and is actually a promise of the existence of another world. The Metaverse concept was first used by the science-fiction writer Neal Stephenson in his dystopian novel *Snow Crash* which describes the desire to escape from life to an (apparently) "better place" (Stephenson 2020).

In the scholarly literature, at least fifty attempts have been made to define the concept of Metaverse since the publication of *Snow Crash*. Each definition that is consistent with Stephenson's original vision comes from some form of virtual space but, at the same time, each has made a different aspect of it a key element (Park, Kim 2022). The elements emphasised in these definitions included, for example, the existence of multisensory experience of stimuli from the virtual world, the reproduction of real-world elements in the virtual world, and being constantly connected to the virtual world.

Today, when the Metaverse is no longer an abstract entity stimulating the imagination of creators and scientists, and is becoming a key element in the strategy and expenses of technology companies, it has still not been given a clear description, despite the intensified work on its development. Depending on who defines it, its key features are described differently. This is because each technology company aiming to build a Metaverse defines it through the prism of its own profile and business objectives. As a result, it is clear that today the Metaverse is primarily an undefined commercial project (or rather, projects) of competing powerful technology companies, which has been "released" in the wake of, among other things, the pandemic, as well as Mark Zuckerberg's (virtual) "manifesto"[5] and the huge investments made in this branch of the digital economy.[6]

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[5] On 28 October 2021, Facebook creator and CEO Mark Zuckerberg announced the company's name change to Meta and outlined its growth strategy in an unconventional way, spinning a bold vision for the future. The presentation can be viewed at: https://youtu.be/Uvufun6xer8 (accessed: 28.11.2022).

[6] In 2021, the value of the Metaverse market was almost $39 billion. The estimated value of this market for 2022 is more than $47 billion. Data available at: https://headphonesaddict.com/metaverse-statistics/ (accessed: 30.11.2022).

It is worth emphasising that in this text, as well as in the project led by the National Centre for Culture, we treat the Metaverse as an object of study and define it not as a market activity focused on the creation of a new platform for commerce and entertainment, but as an emerging new space with partially defined characteristics that is likely to become an important field of social life in the future. Moreover, we view this space through the prism of its creative potential, thinking about the opportunities it presents for artists and art. However, before we turn to its "creative" aspect, we will try to describe it through the features that technological experts consider to be the most important.

The most catchy and intriguing feature of the emerging space is immersivity – the multisensory experience of total immersion in a virtual world, which is meant to ultimately allow the user to experience non-physical situations as real. This feature of the Metaverse is considered a landmark, as psychologists' and cognitive scientists' research already shows that being in a virtual world (VR) at cellular and cognitive levels provides users with the illusion of being in another place and body.

When interacting in a virtual world, the human brain behaves in exactly the same way as when interacting in the physical world. As a result, the virtual world evokes not only basic emotions such as joy or anger, but also complex ones, such as a sense of terror or gratitude (Riva, Wiederhold 2022: 355–359).

As immersion "tricks" the human brain, we can consider the emergence of the Metaverse as the birth of a technology and medium significantly different from its precursors. Whereas, for example, television and social media are persuasive technologies and they influence people's attitudes and behaviour, the Metaverse is "revealed" to us as a transformative technology, capable of directly changing what people think about themselves and the world (Riva, Wiederhold 2022: 355–359).

The picture that emerges of this key feature of the Metaverse needs to be complemented by a holistic definition of this space. Such a definition has been proposed by Matthew Ball,[7] in the pages of the book *The Metaverse: And How It Will Revolutionize Everything* (Ball 2022). The publication, as its title shows, predicts profound transformations of social life as a result of the implementation of the Metaverse. The Metaverse, according to Ball, is

> a massive, interoperable network of 3D virtual worlds, rendered in real time, and experienced synchronously and permanently by an unlimited number of users, with a sense of presence [...] through a continuum of data, enabling them to maintain their identity, history, objects, [and] enabling communication and payments. (cf. Ball 2022: 29).[8]

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[7] Matthew Ball is a film and computer games producer. His book is an example of a reflection on society coming from a different field of study.

[8] The quoted definition was prepared for the research project by Łukasz Raciborski, thus summarising the knowledge from the first part of the book *The Metaverse: And How It Will Revolutionize Everything – What is the Metaverse?* Raciborski's quoted definition can be found in the unpublished working materials of the study.

This definition needs to be discussed because it consists of a hermetic conceptual grid. To paraphrase, according to Ball, the Metaverse will be an amalgamation of different virtual worlds using 3D technology. These will be technologically compatible worlds, thus allowing seamless movement between them – from the user's perspective – as well as moving and combining elements from different virtual spaces. This, in short, is what is meant by interoperability. Real-time rendering, on the other hand, refers to the possibility of interacting with the virtual world, which is significantly different to interacting with data previously stored, such as Google Maps. In the Metaverse, according to the literature and interviewees, it will be possible to interact with the environment continuously – following the ambitions of technology companies, the Metaverse will be a world that can respond to the user's actions. It means that, like in modern computer games, the user will not only be able to view the space, but also freely explore it by building, destroying or moving various objects.

While the Metaverse resembles a computer game project in many ways, the permanence of the virtual world indicated in the definition marks a key differentiator. Currently, a user of virtual worlds provided by computer game developers has very limited ability to leave any traces behind. In contrast, the Metaverse is intended to allow the user to make permanent changes to the virtual reality. A person in the Metaverse, as in the physical world, will be able to have a lasting impact on the surrounding (virtual) environment. The continuity of data, which is a key part of the definition, is linked to this feature, enabling long-term actions to be taken in the Metaverse.

## 3. The creative potential of the new space

The possibility of permanently influencing virtual reality within the Metaverse opens up enormous creative potential for users (cf. Doyle 2015). Experts observing the development of the Metaverse and those involved in its construction share the opinion that, even at its current stage of development, this is a world of extremely high potential for artists. There are at least four arguments for this, as with the Metaverse (even if not fully developed[9]) the following become available: new forms of artworks, including those that are experienced through "immersion" in them; new forms of receiving art and interacting with it (new ways of influencing the viewer's emotions); new technological tools for creation (from artificial intelligence to brushes that paint three-dimensionally); and new audiences, that is, audiences hitherto uninterested in art or in visiting cultural institutions (young people involved in gaming). What is more, new needs are emerging from the market: the need for a new kind of applied art (derived from gaming, e.g. avatar art) and the need to create engaging content. The needs of the market entail economic encouragement

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[9] One future scenario, created as part of the National Centre for Culture research project, forecasts only a partial realisation of the vision of technology companies – the limited implementation of virtual reality (VR). However, even in this vision, the arguments for Metaverse's creative potential, listed above, fit well.

for artists, and this is likely to be strengthened, thanks to the potential earnings guarantor – NFT, discussed in the next subsection.

> The Metaverse is very interesting for the art world, it's an expanded room, and we have NFT. There are new issues emerging, such as how to collect and how to exhibit NFT. We are building spaces (expanded rooms) where we can interact [...]. We can spend time in a virtual space, creating exhibitions; we can expand physical exhibitions in a virtual space, so they can be hybrid exhibitions. I feel that this is very interesting for the art world. It's also a potential for the fashion world, for gaming [...] also for architects. You can build things that you wouldn't be able to build in the real world because there are legal restrictions, because it costs a lot or because it's not physically possible to build it. You can build architecture that reacts to you, controlled by artificial intelligence. This is possible in a virtual space.[10]

As Metaverse stands for an alternative world, not restricted by the laws of physics, built virtually from scratch, there is space for experiential multisensory dreamworlds (cf. Shields 2003). Some artists already have the chance to realise their boldest visions in the newly emerging virtual spaces, such as virtual clothes created "out of glass"[11] or levitating sculptures. The world of the artists' extraordinary imagination turns out to be virtually visualisable (see Ornes 2022). The Metaverse brings to life new kinds of objects, behaviours and sensations that we can compare to the experiences of users of psychoactive substances. Whereas in the case of individual experiences after the use of potentially harmful substances there is no common space of exploration, in the Metaverse we are dealing with a kind of "unrealised" social world (one perceived at the level of consciousness as real). In this context, going beyond the limitations of the physical world can bring a sense of "omnipotence" to the creators.

> The moment one moves into the virtual world, art can be anything: it can be an installation, it can be some kind of happening – well, we have no limits. It can be some kind of mini-game that leads us to some kind of conclusion. [...] It can be everything it is in the real world, only it is not limited by anything.[12]

In the virtual world, which interpenetrates and is the digital twin of the physical world, unusual situations for the creation and reception of art may be expected.

> We will go to the Sigismund's Column, put on our glasses and look at the graffiti that someone has painted there digitally, and then the digital police will come and arrest him, because you cannot paint on the Sigismund's Column.[13]

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[10] Statement by a digital art curator specialising in NFT, working with cultural institutions from Western Europe – one of the participants in the National Centre for Culture study in question.

[11] The virtual garment objects in question reproduce the visual and physical characteristics of glass. They do not bend, ripple, reflect and refract light. One Polish company creating this type of clothing has been described at: https://wyborcza.pl/Jutronauci/7,165057,29174742,przyszlosc-to-ubrania-ktorych-nie-zawiesisz-w-szafie.html (accessed: 30.11.2022).

[12] Quote from an expert working for a technology company designing spaces within the Metaverse.

[13] Quote from a holography specialist who works scientifically and develops his company at the same time.

The emerging change in the forms of artworks not only affects the artists – it is a significant change for the audience as well. The viewer of an artwork can experience it in hitherto unknown ways, for example by being completely immersed in virtual content. Goggles, which are used to perceive virtual reality, already block out visual and acoustic stimuli from the physical world, focusing the user's attention exclusively on the creation. What's more, they allow the viewer to enter a hyper-interaction[14] with an artwork. For example, when an artist's creation is layered, the viewer can "immerse" themselves in it, layer by layer. Furthermore, according to the experts involved in the study, we are moving towards increased stimulation of the senses when receiving a work of art, due to the potential impact of more and more stimuli on humans.

> New technologies will allow art to be experienced in new ways. Now we are at the stage of performance, installation, but also there are more and more different kinds of VR experiences where we can live the emotions in some way, or we are stimulated to experience different kinds of emotions. Art will become much more immersive [in the sense of multi-sensory/absorptive aspects] than it is now, perhaps it will act on us with more stimuli.[15]

In the discussion on creative potential, it is noteworthy that just by using digital tools alone, the artist has the chance to develop his or her creativity by experimenting with new solutions and, in the case of artificial intelligence, also with prompts from technology. The creator has the chance to transcend his or her own thinking patterns, as well as the limitations of his or her skills. With help of the latest technology, it is possible to simulate classical tools ever better, as well as to go beyond them. Part of the work of craftsmanship is done for the artist by a machine.[16]

> Digital painting, in my opinion, is easier than traditional painting, because these programs allow you to change colours very quickly, transform a part of an image, remove a part of an image, copy something from a photo, throw it into a painting and repaint it a bit. It's much faster, much easier. Of course, you need knowledge [of the software], it's not like the software itself can do something for the artist. I know [digital] artists who can do something nicely digitally, but they can't paint it. It's like a different program [the interviewee laughs, referring to physical painting as a computer program] [...]. These new programs are getting better and better at simulating paints, oils, gouaches, watercolours.[17]

Note how much easier it can be to create a (digital) sculpture thanks to the smart tools available – that is, thanks to the development of gaming and, more specifically, thanks to the development of software tools for computer graphic designers creating three-dimensional objects. Tools such as ZBrush, Autodesk Mudbox or Oculus Medium allow for relatively simple modelling of three-dimensional objects and characters.

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[14] A hyper-interaction can be defined as an interaction that transcends the existing boundaries of interacting with art.

[15] Quote from an expert at a technology company.

[16] When we say "machine", we also mean the relevant computer software. We will return to this topic in the subsection entitled *The art of the new space*.

[17] Quote from a digital artist, a computer game developer who also paints physical images.

In this new space for digital art, potential debut art audiences are also important. The new audience group observed today consists of young people who are beginning to be interested in various digital art forms due to their living their lives in virtual worlds, primarily as gamers (cf. Hyun-Kyung et al. 2022: 79–95). According to experts in the field of art, so-called technological innovations (including NFTs) and gaming let audiences who previously had little to do with art enter the field of digital art. Although the recipients and buyers of digital art can also be people familiar with the "offline art world", this new group is more exciting because it is not present in stationary art galleries or cultural institutions, or at auctions of "traditional" art. It can (almost) only be encountered in the virtual world, and it is proving to be a significant group and purchasing power due to its numbers.[18]

> There's a group of geeks, in my opinion, who haven't got such limitations as me and some of my clients, it's a native world for them. I only have doubts whether they're into it for reasons related to culture and art, collecting, the discursive nature of culture, or whether it's to satisfy an itch [...]. They probably have the least limitations, they've never had anything material in their lives. I think that's the question of the medium. They wouldn't have had any needs of collecting art or interacting with art.[19]

> A much younger crowd, much more technological, commerce-oriented and community-building [...]. My images have an augmented reality component [...]. For everyone, augmented reality is something exciting. It's just that for Tech-people, without that element, the image itself wouldn't be interesting.[20]

Experts stress that the group of young "native" users of virtual spaces is growing and that their behaviour today is building the future. Their numbers provide an argument for arts and cultural institutions to take an interest in this phenomenon, as many brands are already doing.[21]

> Today, half of the kids in the world with access to the internet already spend their time basically every day in Roblox or whatever... Roblox is the most popular here, so they will grow up and they will already live there. They are, you could say, natives of the Metaverse. They hang out there, they don't just play, they meet, they live there.[22]

Regardless of the potential discussed, the emerging virtual world may be of interest to artists because of the profit-making aspect. Among other things, artists

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[18] For NFT sales at auction houses, some record sales are driven by first-time buyers. At the auction of Mike Winkelmann's work, *Everydays*, 91% of the bidders were first-time buyers at the auction house (McAndrew 2022: 54).

[19] Quote from an art market expert.

[20] Quote from an artist who paints her paintings with a dedicated digital app that allows them to be perceived differently, through a digital component she adds – an augmented reality element.

[21] Brands such as Nike and Gucci are already venturing into digital platforms to promote their products and build their image.

[22] Quote from an expert who professionally tokenises works of art.

are indispensable in virtual space because of the relatively new form of applied art which is virtual applied art. Engineers building virtual worlds expect artists to fill them with objects such as furniture, clothing and various kinds of objects – and are prepared to reward artists for such creations, as well as to provide conditions in which artists can put them up for sale (to users). At this point, above all, digital fashion is becoming a profitable branch of the virtual design market because its usability is not only dependent on VR. It is proving functional in gaming, as well as in the form of filters, as a form of clothing to try on – virtual fitting rooms are emerging – or as an "overlay" on photographs. This last function resonates with the needs of the youngest generations – Generation Z and Generation Alpha, whose representatives are particularly interested in clothes as a form of image creation in the online world. The youngest generations are enthusiastic buyers of virtual clothes, with no physical counterparts, as they need new clothes primarily to take photos or clothe their avatars.[23]

The technology industry invites artists to collaborate, offering attractive salaries, because it needs engaging content to attract users. Technology companies also provide creation tools to the latter in order to gain as many co-creators as possible[24] – to fill voids.[25] Thus, some observers of the technology development suggest that we are on the threshold of Renaissance 2.0, a great explosion of social creativity, the teaser of which we can observe on the TikTok platform. On TikTok, it is, for the most part, the youngest generations playing the role of artists, generating millions of videos created using a variety of tools provided by the platform itself and based on AR3 technology, for instance.[26]

## 4. Ownership in the new space

Discussing the topic of financial motivations to be present in the virtual world, in the context of creative work and the opportunities offered to artists, it is worthwhile to focus on the topic of property rights, which in the Metaverse will be based on another new technology, with a different source to the Metaverse itself, a technology given the enigmatic acronym NFT (Non-Fungible Tokens), which originated in the world of *blockchain* technology.[27] This is a technology that responds not only to

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[23] Cf. https://artlabs.ai/blog/How-Gen-Z-is-Shaping-The-Digital-Fashion-Industry (accessed: 30.11.2022).

[24] Mark Zuckerberg, among others, in the strategy-manifesto referred to earlier, emphasises the joint building of the Metaverse.

[25] Certainly, creativity generated by artificial intelligence will also act as such a "filler".

[26] https://techcrunch.com/2021/08/23/tiktok-is-building-its-own-ar-development-platform-tiktok-effect-studio/ (accessed: 30.11.2022).

[27] Blockchain is a distributed ledger technology, consisting of shared databases, that stores and verifies information in a cryptographically secure manner (see Bashir 2023). Its features include decentralisation, open source and transparency, and the inability to delete information.

the needs of the engineers building the Metaverse (Khan et al. 2022), but also to the needs of the artists themselves, due to the suitability of the tool for securing digital art.

NFT technology, according to the interviewees dealing with it, can be seen as a manifestation of opening the digital world to the needs of artists, and as an opportunity for them, as well as a harbinger of a new version of the internet (called web 3.0), which will concern digital goods rather than digital objects. The ownership of digitally produced objects is set to play a key role in the transformation of the web and, as experts point out, results in income opportunities for creators.

Meanwhile, there is a lot of confusion about the NFT technology. The acronym NFT is sometimes equated with what is called "crypto art", also referred to as "NFT art". Crypto art is a phenomenon of the online environment and has its own distinctive iconography, which is shunned by the institutional art community due to its low artistic value. NFT is also sometimes reduced to a type of market that emerged with a new financial tool that led to the creation of a speculative bubble, and is thus associated with "fraud" (or, in more common parlance, scams). However, NFTs can be defined in isolation from these cultural phenomena. Indeed, NFTs are first and foremost a new form of property right, based on blockchain technology. An NFT functions as an attestation of ownership and authenticity of the work, and thus protects artists' works from uncontrolled copying.

> For me, NFTs are simply a medium. There's obviously something like NFT art, which I'm not a big fan of, art where you add a lot of some animated elements, references to Elon Musk's work, Ethereum and other things like that, let's say, from the cryptocurrency world. It's not something I'm particularly interested in, whereas I can see that artists – particularly in the last year I've been observing this – artists who have tried to make NFTs, haven't quite figured out what it's about. Is it just about flipping their work, or that it necessarily has to be in a square and refer to cryptocurrency pop culture? It's that NFT art or crypto art is often confused with NFTs and that's what I wanted to separate out.[28]

From a technological perspective, an NFT is a digital unit of data in a blockchain database, with unique properties. To explain further what an NFT is, reference should be made to the concept of a smart contract. NFTs are created using smart contracts, usually a form of autonomous software that runs automatically when certain conditions are met (these conditions are written into the algorithms). NFTs created with smart contracts automatically assign ownership, making the appropriate change to the blockchain protocol each time they are resold or transferred. NFT smart contracts act as a tool for executing the sales contract: they verify that the buyer has paid the right amount and ensure that the digital assets are unique.

> Non-fungible tokens describe reality perfectly, because if you look around you, everything is unique [...]. The NFT world describes reality much better and that's what fascinated me about this world. So NFTs are a medium that is used to describe a slice of reality. It could be

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[28] Quote from an expert from a technology company.

an object, it could be art, in art it could be sculpture, even performance. I even think we could describe dance in some way only we would have to agree on some language, whether it would be a language described by some algorithm, that this is how you dance the cha-cha-cha, or rather that this is a film recording – I have no idea, it's something you have to think about. But NFTs also describe things that are less fascinating from an artistic point of view, i.e. it can describe a certificate of ownership of a certain property or part of a property, so it's just a digital way of harnessing value. This is also one of the definitions I like: a digital way of understanding value.[29]

The story of the use of non-fungible tokens in art does not begin in 2021, when NFT became a buzzword, but goes back to 2014. In May 2014, a New York-based artist Kevin McCoy was invited to collaborate with a technologist Anil Dash on the "Seven on Seven" event organised by the New Museum for Contemporary Art in New York (see McAndrew 2022). The project paired artists and technologists to create bespoke works. Dash and McCoy planned to present a digital art recording system, under the name "Monegraph". In preparation, McCoy demonstrated how to register, as a unique object on the blockchain, a piece of digital art that can be copied over and over again. The work "Quantum" (2014) prepared for the event, which is a digital animation depicting a multicoloured pulsating circle, became the first artwork converted to an NFT.

NFT technology makes it possible to regulate ownership, especially in relation to ephemeral art, and to put into practice a demand that has been present in the art world for at least half a century – the artist's right to profit from the resale of the work.[30] New technology allows artists to programme their intellectual property rights and revenues into smart contracts that quickly and transparently allocate revenues to collaborators as well. As a result, many well-known contemporary artists have looked favourably at the development of NFTs in the arts and are keen to participate in the creation of this market. A spectacular example is the agreement of Frank Stella – one of the renowned contemporary painters – to release 22 works in NFT form with the right to print them on a 3D printer.[31] Stella had been involved since the 1980s in defending artists' rights to profits from the resale of their works.[32]

However, it is difficult to predict definitively in which direction NFT technology will develop in the arts. The blockchain has the potential to change the role of art towards democratic accessibility through collective ownership structures or towards the further commodification of cultural goods (see Whitaker 2019: 21–46).

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[29]  Quote from an expert on the tokenisation of art.

[30]  In 1971, an American art dealer, curator and publisher announced the manifesto *The Artist's Reserved Rights Transfer and Sale Agreement*, a model contract designed to protect an artist's rights by guaranteeing him or her the profits from any resale of his or her work and giving him or her the right to veto opportunities to exhibit his or her work.

[31]  https://arsnl.art/ (accessed: 30.11.2022).

[32]  https://arsny.com/about/history/ (accessed: 30.11.2022).

## 5. Art of the new space

Once we accept that the emerging new immersive space has significant creative potential due to its distinctive qualities and the complementary technological form of ownership – which potentially encourages creativity – it is worth considering what direction the development of art in the Metaverse might take. In an attempt to answer the question of what kind of art we can expect in the Metaverse space, we turn to the history of digital art.[33]

It is noteworthy that digital art, initially operating on the periphery of the art world (closer to science), had already gained institutional legitimacy by the end of the last century (see Walewska-Choptiany 2021). The moment when cultural institutions around the world began to collect digital art products and organise exhibitions dedicated to them should be considered a landmark. For instance, you can read about the first digital art exhibitions in this subsection. At this point, digital art should be defined by reference to its key characteristics, the emanation of which we can also expect in the Metaverse space. In addition to the first and most intuitive feature, related to the implementation of technological tools for creative work, the following can be mentioned: the central role of the concept; controlled randomness (see Barrière 2019: 569–574); potentially high interactivity; the ability to redefine the role of the artist; and a blurring of the boundaries between art forms and between art and science. The centrality of the concept and the controlled randomness are two important features of digital art that are linked to earlier and parallel artistic movements in the history of "analogue" art. The Dada, Fluxus and conceptual art movements emphasise concept and formal instruction, as well as event and audience participation. According to the assumptions accompanying these trends, the material object in an artwork is not the most important aspect – if it appears at all, but rather it is primarily a materialisation of the concept or a field of interaction with the viewer. Let us turn our attention to Marcel Duchamp's symbolic urinal, which is a classic example of using a ready-made object and turning it into a work of art (ready-made category). This, initially extremely controversial, but historically ground-breaking creative action can be considered an undeniable inspiration for digital artists. The usurpation and manipulation of "found" (copied) objects, especially virtual images, is one of the creative techniques of digital art.

The centrality of concept and controlled randomness are also features of Dadaist poetry, which emphasised certain rules of creation. It was not so much the poem itself, but the "recipe for the poem" that was placed at the centre. Following strict rules led to the creation of poems from random words and lines. Using such formal instructions, poets created artworks that were a collision between randomness and an element of control (cf. Richter 1997: 118). The idea of the rule as a central

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[33] In this area, the authors' main sources of information are desk research and their own experiences with digital art.

element of the creative process recalls the use of an algorithm, and thus the basis of programming and any computer operation. Although the Dadaist poets did not use computers to create their poems, the analogy in the creative process is evident. In both cases, the procedure of using formal instructions leads to a result in a specific sequence of operations. The basis of any form of digital art, like that of Dadaist poetry, is therefore instruction, which is a conceptual element.

Thanks to the frame-rules, digital art is not created in complete chaos, but it often benefits from an element of randomness and is not afraid of controlled randomness (see Barrière 2019). The element of randomness can be introduced into digital art in various ways, one of which is to invite the viewer to co-create the artwork. And here we come to another feature of digital art, which is potentially high interactivity. Mark Zuckerberg, in advertising the Metaverse concept, used this feature of digital art to convince viewers of the attractiveness of the space. Indeed, he showed how Henri Roussseau's 1908 canvas painting titled *Fight between a Tiger and a Buffalo*, in response to the "curious eyes" of visitors, moves out of its frame and becomes "alive" (moving) and spatial. In the video clip in question, the young people visiting the gallery, thanks to the Metaverse, called the new dimension of imagination, suddenly find themselves in the painting, which is a fairy-tale wilderness, full of cartoon animated animals.[34] The barrier between the image and the gallery space disappears and the young people dance together with the animals, as if at a "rave".[35] However, this type of interaction with the work does not bring in any changes; in a more advanced version, using the potential of interactivity means, for example, giving the viewer the possibility to combine two (or more) visually different digital artworks to create another unique "work".[36] Thus, it would be more interesting and aligned with today's technological possibilities to give the young people in the video the possibility to combine two or more images. In this way, viewers could bring something new to life and feel like artists.[37]

Another key feature of digital art, from the point of view of the entire field of art, is its redefining potential. This time, we are talking about a meta-feature. Digital art can re-characterise many hitherto clearly defined elements and roles in

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[34] The clip can be found at: https://www.youtube.com/watch?v=G2W9YVkkn9U&t=2s (accessed: 7.03.2023).

[35] We are talking about a dance party with electronic music called a rave.

[36] An example of this is the provision of smart tools to enable morphing techniques.

[37] When discussing this attribute, it is also worth referring to the history of "analogue" art. In the 1960s, the Fluxus group of artists, musicians and performers introduced a strong feature of co-creation into art – inviting the viewer to interact. For example, one of the classic interactive works by the Fluxus group representative Nam June Paik – an American artist of Korean origin – is Random Access. The material dimension of this work consists of fragments of cassette tape attached to the gallery wall. Viewers, or rather "participants", can interact with the work by touching the extended player head of the presented magnetic tape. Each contact between the head and the tape is unique; as a result, each encounter with the work is different. Depending on the direction, pressure and speed of the viewer-participant's gesture, different sounds are produced and a unique "composition" is created.

the creative process (see Wiśniewski, Bukalska 2020). One of these is the role of the artist, and his or her skill set. The moment we reduce the production of art itself to an act of craftsmanship and attribute the key role to the concept, the artist has the right to withdraw from the production process[38] while remaining the creator of the work – created as a result of his or her idea but not his actions. This explains why an artist today uses as a tool artificial intelligence or the work of an engineer or programmer in the creative process.[39]

The ability to redefine is directly related to another meta-attribute of digital art, that is, the blurring of the boundaries between art forms and between art and science. In order to identify the source of the redefinition of roles and the blurring of boundaries in digital art, let us go back to its origins. The first representatives of this field of art, called computer art in its early days, were not artists but engineers and scientists, mathematicians (cf. Walewska-Choptiany 2021). In the early 1960s, they were the first to have access to the computational resources available in university laboratories. Consequently, they experimented with the possibilities of mathematical functions also in what can be called "digital drawing". In 1965, the first exhibition of this primary form of digital art, appropriately named "Computer Generated Pictures", took place at the Howard Wise Gallery in New York.[40]

In the 1970s and 1980s, painters, graphic artists, sculptors, photographers, architects, performers and video artists increasingly experimented with computer imaging techniques. Implementing, reinforcing and extending the thought of movements such as Fluxus and conceptual art, artists working with digital technologies challenged traditional notions such as artwork, artist and viewer with their actions. Above all, the process-oriented creative activity within digital art has transformed the artwork into an open structure, based on a continuous flow of information and involving the viewer, like a performance. The viewer has become a participant (of the event), reconstructing the work by assembling the visual, audio

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[38] This feature of digital art is debated in the art community and is controversial, as some artists consider craft and conceptual proficiency as two inseparable attributes of an artist.

[39] We refer to situations such as Jason Allen's win in a local art competition organised by the Colorado State Fair. The video game designer used the Midjourney image generator, artificial intelligence, to create his work *Théâtre D'opéra Spatial*.

[40] Only a few years later – which shows how quickly computer-assisted art was developing – in 1968, the Institute of Contemporary Arts in London hosted a digital art exhibition "Cybernetic Serendipity", much more momentous from the perspective of the art world and the development, curated by Jasia Reichardt, a British art historian of Polish descent. This was the first exhibition to present different types of computer-assisted art. In addition to visual arts (including sculpture and animation), music, dance and poetry were also presented. Among other things, the exhibition included robots, painting and music machines, and various kinds of works in which chance was an important part of the creative process (Klütsch 2005: 109–117). Importantly, the aim of the exhibition was not only to highlight the diversity and richness of computer-based creativity, but above all to explore the role of cybernetics in contemporary art. In this exhibition, it was no longer only engineers and scientists who played the role of creators, but also classically understood artists.

or textual elements themselves. Instead of being the sole creator of the artwork, the artist has taken on the role of mediator of the interaction, enabling the participating audience to interact with and contribute to the work. The effect of this interaction cannot always be attributed to a particular field of art. Instead, the creative process has evolved into a complex collaboration between the artist (often a person with technical training) and a team of engineers, programmers, designers and scientists.

The blurring of the boundaries between artistic creations can be seen today in the development of gaming, which, by improving the quality of graphics and creating more and more fictionalised games, is closer to a film. However, it is a fundamentally different kind of a film – it is an interactive film that invites the viewer not to watch, but to participate.

> First of all, computer games are starting to catch up with films. They are constructed in such a way that we spend much of the time watching cutscenes where the plot develops, and we possibly play, but also in such a way that the graphics are already at such a level that for the layman it is sometimes difficult to distinguish between the computer game and the film. If there is some kind of immersion involved, i.e. the viewer is settled in this world, then it will no longer matter how we actually define this creation, of which the viewer becomes a part. He or she will simply be inside and experience these emotions together with the characters.

## 6. Conclusions

The third decade of the 21st century comes with a harbinger of the next phase of digital transformation. The developed technological instrumentation is building significant creative potential for visual artists. At this point, it is worth summarising the discussed positive aspects of the intersection of emerging technologies and art by answering the question of what opportunities the new digital space creates for artists. The new virtual space is a hitherto uninhabited land where artists can build a presence on their own terms, influence, expand and shape its framework. The Metaverse gives them the opportunity to transcend their own limitations, as it offers intelligent tools – brushes that paint three-dimensionally, generators based on artificial intelligence – that do some of the craft work as well as being able to inspire the artist. If the creator has a problem with technological competence, he or she can reach out to engineers and programmers. This is because the central role is reserved for the concept, and this concept can be very bold, as the immersive virtual space allows the artist to defy the laws of physics. It is an opportunity to create objects that could never be created in the physical world. The artist can visualise the world of his or her imagination and invite the audience to come in.

The new forms of artworks enabled by the emerging new space result in new possibilities for receiving and interacting with art. It is possible to immerse oneself in the art present at the Metaverse, to enter into a hyper-interaction with it, a contact that was not previously possible. The viewer can enter the sculpture, slice

it up and put it back together again. In addition, this will not be a disconnected, insignificant activity for him or her. VR tricks the human brain as to where it is and who it is, and cuts off stimuli from the physical world to create an experience of interacting with the work that is unique to the viewer. Art at the Metaverse can provide "illusions" that change the viewer's thinking about the world, because we are dealing with transformative technology.

Creating and exhibiting art at the Metaverse is also an opportunity to reach new audiences, young people who do not visit art and cultural institutions. Attracting young audiences who are interested in technological innovations and who – because of such developments and gaming – spend time in the virtual space, is possible if artists and institutions decide to enter the new space with confidence (creatively), which means exploiting the possibilities of the digital space, placing engaging works in it, giving audiences unusual experiences, and inviting audiences to step into new roles – to creatively explore and transform works.

In this vast space waiting to be creatively filled, there is also a financial incentive for artists. The market needs a new kind of wearable art to fill the Metaverse with different kinds of objects, such as digital clothing (gaining in popularity) or furniture. What is important in this context is that the new network, the Metaverse, is set to become a place where every such object is a digital good, and therefore an item to which ownership is assigned. Artists can secure their digital works with a new technology, the NFT, or a digital certificate of ownership, based on a smart contract, which means automating and authenticating the transaction. NFTs allow artists not only to profit from direct sales, but also from resale. The dissemination of this technology means a financial incentive for creative intervention in a new space.

At this point, it should be noted that, regardless of the future of the commercial project that is the immersive, massive, interoperable Metaverse network, the creative possibilities discussed are already becoming available to artists, as a result of the emergence of fragments of the forthcoming space, as well as the proliferation of virtual platforms created for the purpose of gaming.[41] Leaving aside whether engineers succeed in expanding, connecting and attracting enough users to these various spaces, artists have the opportunity to use digital tools and spaces through which digital art can develop and grow, significantly influencing the entire field of art – especially as digital art in relation to the wider field of art has a redefining potential, also discussed in this article. As a result of activities in the digital world, some recurring questions are waiting for answers: Who is the artist? What is an artwork? What does it mean to receive art? We are seeing changes within roles and competences, and we can discuss the new role of the artist or curator, as well as the institutions of culture and art.

The question of the direction in which digital art will develop in relation to the entire field of art is one we are trying to answer in our research project. Indeed, within

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[41] Platforms like Fortnite, Roblox, Axie Infinity.

the framework of the study, we are not only portraying the current state, starting from the history of digital art, but also outlining and discussing possible future scenarios concerning the field of art. This article can be seen as an introduction to subsequent publications on the impact of the latest technologies on art and its future.

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