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The digital circulation and forms of digital artworks appear to be immaterial. However, our analysis of their materiality discloses new dimensions of affinities between the art market and the financial market. These relations have been recognized in the social sciences in order to understand the transformation of standardized mass markets into markets in which the highest value is attached to the singularity and authenticity of a commodity. Financial markets are undergoing such a transformation. The art market is essentially associated with singularity and authenticity. New digital technologies transform the art market's working. Despite the hopes and visions of art being liberated from the present curatorship of gallery and museum representatives, curators, critics, collectors, and gallery owners, art's valuation perpetuated in blockchain infrastructure comes closer to the valuation and appreciation stemming from financial markets. We study three auctions of artworks that took place in Poland and were hailed as the first auctions of NFT tokens associated with art. Thus, we delve into the most common and propagating forms of digitalization based on blockchains that have been associated with art. The focus on materiality enables us to identify new dimensions of this process. We present two understandings of art's materiality. The first assumes that materiality is a transmitter of meaning. In the second, materiality refers to the interaction with – and usage of – not only physical, but also digital objects. From the first perspective, artworks' manifestations are anchored in physical objects or singularized data files whose value is assessed by current decision-makers, such as gallery and museum representatives, collectors, curators, art critics, and gallery owners. Physical objects are kept in galleries, museums, and among collectors. Such a vantage point hampers how digital circulation co-creates the valuation of artworks, their originality, and the logics of circulation. From the second perspective, the standards of smart contracts, the means of token collecting, and their pricing are used not only by humans, but are also submitted to data

processing.

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Taming Liquidity: The Relation between Materiality and the Value of Artworks on the Example of Polish NFT Auctions

In 2021, NFTs – non-fungible tokens – became all the rage in the art world. Some hailed the advent of this blockchain-based authentication technology as a revolution; others saw it as the ultimate proof of downfall.¹ Still others remain unmoved, and say with indifference that this is an ephemeral phenomenon which does not deserve special attention.

An NFT is a piece of unique and unmodifiable digital code, whose authenticity and non-fungibility is guaranteed by a decentralized authentication system – i.e. a blockchain. Such a token can represent a variety of objects: graphics, animations, domain names, a plot of land in a virtual world, but also things that exist in the material realm. NFT technology allows for achieving singularity in the digital sphere. It offers certainty that only one such thing exists – a jpg file may have many copies, but only one of them is assigned to the token. Notably, an NFT only represents an object, but is not the object itself. The buyer who spent \$69 million on Beeple's work *Everydays: the First 5000 Days* at Christie's had to accept "Conditions of Sale," of which point 5a, section E reads: "You acknowledge that ownership of an NFT carries no rights, express or implied, other than property rights for the lot (specifically, digital artwork tokenized by the NFT),"² followed by point 5d: "You acknowledge and represent that there is substantial uncertainty as to the characterization of NFTs and other digital assets under applicable law. You acknowledge that your purchase of an NFT complies with applicable laws and regulation in your jurisdiction."³

In this context, as Kelvin Low argues, possession of artworks in NFT form may be nothing but a delusion born of cryptomania.

“What then does the owner of an NFT own apart from the token [...] itself?” – he asks, and hastens to answer: “As presently transacted, the answer is quite simply nothing.”⁴ Akin to bitcoin, NFTs have value in themselves. But Low’s intention is not to ascribe to the NFT some intrinsic qualities from which its value stems. Quite the opposite – he shows that NFTs are not valuable in and of themselves, but because of the value ascribed to them by people, mostly because of belief in their potential to become more valuable in the future.

This observation reveals the arbitrariness of the processes of attributing value to NFTs, similar to the arbitrariness shown by analyses of how value is attributed to artworks in general.⁵ In theory, the NFT market should be even more arbitrary, given its detachment from traditional art institutions, the abolition of entry barriers, and the limited role of selection. We’re essentially faced with a market where tens of millions of tokens compete for attention – and most of them are not recognized as valuable commodities at all. Research has shown that the vast majority of NFTs are sold for less than \$15, and only one percent of them for more than \$1,594.⁶

The world of artworks is structured by meanings generated by those who control them: museums, galleries, auction houses, art historians, critics, collectors, etc. In this context, the materiality of the work appears above all as a carrier of meanings – one whose physicality hampers their circulation. For artworks to exist as commodities, it is necessary to authenticate them, prevent their degradation, ship and insure them, and value them. Dematerialization can therefore be seen as a factor responsible for an increase in the arbitrariness of how value is ascribed to art, and thereby one which strengthens uncertainty among market participants. At the same time, dematerialization supposedly implies the facilitated circulation of artworks. But will this circulation remain in the hands of those who have thus far

controlled their evaluation?

In this article, starting with materiality's role in reducing the arbitrariness and uncertainty inherent in the life of artworks as commodities, we examine the materiality of the NFT, understood as a new form in which artists' works exist and circulate. We further demonstrate that although art is dematerialized with NFTs, it does not happen solely through simple resignation from the physicality of works. To ensure that a dematerialized work continues to be recognized and valued as art, market participants engage in a range of material activities and invest considerable resources. We argue that these efforts are consistent with broader transformations of art's materiality – reducing the artwork to an ownership title, enabling it to function according to the logic of assets.

The art market tames the NFT

Although the beginnings of the NFT date back to 2014, the watershed that forged a bond between the technology and art came on March 11, 2021. It was then that Christie's auctioned the work *Everydays: the First 5000 Days* by Mike Winkelmann, aka Beeple. This news spread widely, as the winning bid was \$69 million, which shot it to the top of the most expensive works by living artists, beside those by Jeff Koons and David Hockney. It was all the more shocking as few had heard about Winkelmann prior to the auction, and his works had sold for much lower amounts.

The breakthrough ushered in by the auction record led to the sanctioning of a new form of asset: the NFT. We see this moment as a seminal point at which significant revaluations occur, since existing modes of justifying value are particularly sensitive to attempts to undermine them. As with all major interventions in the order of evaluations, this was also euphorically hailed as a revolution on the art market and in the world more broadly, challenged with skeptical questions about whether NFTs really

have any value, belittled by those who underscored the ephemerality of the phenomenon, and dismissed by others as simply worthless. As usually happens at times of revaluation, numerous market participants sought to squeeze profit out of the brief period of instability.⁸

Poland, as with many other places in the world, spent time last year implementing NFT technology in art institutions. NFTs appeared in the offer of more and more artists, galleries, and auction houses – the race for primacy began. There was news of the “first Polish NFT art collection,”⁹ the “first auction house in Poland that focuses its activities exclusively on NFT art,”¹⁰ and “the opening of the first exhibition by an NFT artist in Poland.”¹¹

The end of November and the beginning of December witnessed no less than three “first NFT auctions in Poland.” On November 28, “during the Warsaw Art Fair, the finale was held of the first auction in history of an NFT of a work of art,”¹² organized by Artinfo.pl; December 1 saw “the first hybrid NFT auction in Poland,”¹³ organized by the Polish Auction House; and the following day marked the third “first NFT auction on the Polish art market,”¹⁴ at Desa Unicum.

Auctioned at the Artinfo.pl event was an NFT by Tomasz Górnicki, a 3D scan of a material sculpture titled *Fortune*, which sold for 312,000 zlotys. After the auction, the physical source was to be donated to the collection of the Silesian Museum. The head of Artinfo.pl, Rafał Kamecki, later pointed out the considerable discrepancy between the valuation of the material work and its token – “the sculpture as a physical object is worth around 35,000 zlotys. Meanwhile, the lucky buyer was willing to pay much [...] more for its digital image.”¹⁵ Auctioned by the Polish Auction House for 174,000 zlotys was Zbigniew Libera’s work *Lego Concentration Camp – Die Cut Design of Packaging with Superintendents*. In this case, the NFT was sold in a hybrid form, combining a material edition of the work (no. 5/10) with its digital counterpart. In addition, the material work was

accompanied by an NFC (Near-Field Communication) tag, which allows for easy verification of its provenance and connection with the representing token. Sold for 552,000 zlotys at the Desa Unicum auction was Paweł Kowalewski's *Why There Is Something Rather Than Nothing?* The material source of the work had been destroyed in the 1990s, and the object of purchase was its preserved image. The head of Desa, Juliusz Windorbski, stated: "I think that this very painting, complete with its symbolic title: *Why There Is Something Rather Than Nothing?*, perfectly matched the whole idea of NFT. The work was transferred into the digital world in a situation in which the original no longer existed and could never be resurrected."¹⁶

In this article, we take these three auctions as a starting point for reflection on why their organizers sought to establish a relation between the NFTs on sale and their material sources. At the events held by Desa and Artinfo.pl, the sources of the NTFs were physically existing objects recognized as artworks, whose further circulation in their original forms was made impossible, whether accidentally or intentionally. The moment of dematerialization was emphasized by the organizers in order to clearly mark the continuity between the past and the current form of existence. They thus sought to reduce uncertainty about what the tokens sold at auction actually were. These were devised primarily as a new form for hitherto existing artworks, and this is how they should be evaluated. Dematerialization was tapped into as an additional asset, meant to increase their value. Placing Górnicki's work in a museum collection was a way to enlist the power of consecration held by such institutions. In turn, the destruction of Kowalewski's painting leaves no choice – the only possibility of viewing his work is in its new digital form. An NFT token ensures that only one digital record of a work has the value of the original, or a unique token code could be assigned to a specified carrier with the artwork.

Libera's work was not dematerialized, but a corresponding

token was created in order to accompany the circulation of the physical object. In this case, an NFT was employed as a technology authenticating its material source. If we assume that the work will circulate in the future, then the NFT representing it is supposed to enhance and confirm its uniqueness. A different character of circulation entails the risk that the physical object may “lose” its digital counterpart – for instance, when one of them is sold without the assistance of the other. Lending a helping hand is another technology, NFC, which may stabilize the relation. In this case, the NFC tag is a carrier of digital information, physically attached to the object, which enables location of the token assigned to the work.

In the light of the above, we can see that the emergence of the NFT as a factor in the process of evaluating the digitization of artworks and their digital circulations once again raises the question of the connection between the materiality of a work and its value. It seems that the process we are observing offers the ultimate solution to this problem: digital forms of art dematerialize art and render the bond with the work’s materiality more contingent, whereas what matters is uniqueness, digitally inscribed and determining the value of the work. However, analysis of the three auctions shows that making use of material sources of digital records allowed market participants to subordinate new circulations to the hitherto existing logic of bestowing value on artworks. And if not to subordinate, then at least to ensure that the authentication of objects remained the job of authorized actors in the artistic field: curators, gallery owners, collectors, critics. Reference to a different understanding of the materiality of new technologies shows that the circulation of digital artworks and their tokens transforms evaluation processes, bringing them even closer to processes characteristic of financial markets and those

that involve art as a form of asset.

The false promise of the dematerialization of art

The NFT's inclusion in the range of instruments used by market participants is motivated, on the one hand, by their obvious desire to gain first-mover advantage and, on the other hand, by the promise of benefits stemming from the unique properties of this form of the existence and circulation of artworks. In the following paragraphs, we reconstruct the promise repeated by champions of the NFT, since it is the driving force behind and justification for the actions of specific individuals and institutions. We understand the NFT here as a *device* – i.e. an orderly teleological arrangement that assembles and arranges the world in specific social and material patterns.¹⁷ Significant in this context is the understanding of what the NFT was created for. Yet, the flip side of this coin also exists: as John Law and Evelyn Ruppert argue, we should be suspicious when examining devices, since “what devices are doing isn't necessarily written on the package.”¹⁸ As we further show, what the NFT is and what it actually does as a device differs from how it is described by its co-creators.

According to the narrative of artists, employees of galleries and auction houses, journalists, and market analysts, NFT technology will liberate artworks from the supervision of intermediaries, who have thus far defined what is and isn't art. It will reduce the role of selectors, who may for various reasons block artists' access to audiences: viewers and collectors. As a result, the value of artworks will be determined to a greater extent by the “objective” market – the price will be shaped primarily by buyers. Artists' popularity and recognition will now be decided by digital networks of users, and not by the hierarchical realms of curators, gallery owners and

representatives, art critics, and collectors.

The tokenization of the artwork is supposed to obviate the need for hiring experts in order to confirm whether the object of interest is authentic or just a fine copy. Authenticity recorded in the code can be easily verified by preserving it in a dispersed authentication system – the blockchain. This technology digitizes circulation itself, since every change of owner is noted and recorded. Thanks to this, it is easier to value works by their provenance – in traditional art circulation, the knowledge of who previously owned a given work serves as one of the justifications for its higher value. Digital artworks will freely circulate in the network, regardless of whether they were previously in a gallery, museum, or exhibition. The availability of works will rise because the NFT world is transparent and open. Artworks are easier to reach via the interfaces of individual NFT marketplaces, using a search engine or a direct Internet address. The works are not hidden in the confines of galleries, museums, or collectors' homes. Works represented as NFTs can be copied and distributed without detriment to their uniqueness.

This somewhat abstract narrative can be set in a specific context: exhibitions, museums, and collections – although possible to be copied as a whole and as each individual part – do not, thanks to NFT coding, have to be stripped of uniqueness. We can therefore imagine collections and museums that deliver faithful digital copies of artworks, thus offering users the full experience of interaction with the original. Not only will copying the originals no longer infringe their unique status, but copies will essentially popularize the originals. The circulation of artworks in such a world – even through the most intensive sharing of files, apps, and software that enable contact with virtual artworks – does not pose a threat to the status and uniqueness of the original file, copy, or the object itself with its token. The NFT opens the possibility for a single digital copy or single digital artwork to exist that is entitled to the status of the original. Moreover,

various transpositions of material works into their digital counterparts (such as holograms) can be imagined. These will become available to all who previously had to travel to a museum or gallery building, and above all to those who did not manage to reach them. At the same time, there will be no doubt that what remains in museums, collections, and galleries are originals. According to such a scenario, material (or rather physical) objects could gradually be withdrawn and replaced by digital ones. The advancement of visualization technology, augmented reality, and virtual reality will reduce the need for contact with objects, but this does not imply that the world will be filled with millions of copies and the originals will lose their value.

Similar reflections highlighting the potential of technology's entry into the art world was conveyed decades ago in the famous essay "The Work of Art in the Age of Mechanical Reproduction."¹⁹ Walter Benjamin argued that artworks are liberated from the aura created by the arcane circles of the establishment, which holds sway over the production of meanings of artworks and the definition of what art is and who its lovers are; they finally reach everyone who wants to commune with them, but "piously avoids" the art world, as Małgorzata Jacyno put it.²⁰ The physical availability of artworks simultaneously entails their social and cultural accessibility. Art therefore acquires a universal value, and access to it – both for creators and audiences – undergoes radical democratization. At the same time, the nightmare of gallerists, collectors, and critics becomes true: these circles lose control over the distribution of art, and thereby the distribution of recognition. In the above context, the emergence and popularization of digital circulations founded on blockchain technologies appears as something more than the simple transposition of works into their digital counterparts. Dematerialization, which would be entailed by digitization, could transform the social logic behind the distribution of works. Trading in digital artworks and their digital counterparts is open

to everyone willing to purchase an NFT.

The promise of change supposedly introduced by the propagation of the NFT in the arts, as described above, is false for at least two reasons. Firstly, it wrongly assumes that digital and physical objects recorded as NFTs lose their materiality. This means that, by virtue of digital circuits, only the socially generated meanings of works and their evaluation included in these meanings circulate around the world. Secondly, as with Benjamin's predictions, reproduction does not invalidate the rules of circulation, but rather changes them. The propagation of digital artworks and the NFT as a technology that allows for their digital circulation changes the rules of evaluating art, and seemingly invalidates the materiality of works, by leading to a situation in which the communication of meanings becomes the sole factor that determines value. Further in the text, we point out that the evaluation of art in digital circulations is closely linked to the materiality not of the works themselves, but of these circulations; in turn, the materiality of artworks does not disappear at all, but becomes the subject of activities meant to secure control over their digital counterparts or elements.

The materiality of art

In order to explain the transformations of evaluation and its ties with the materiality of the artwork, it is worth clarifying the question of this materiality. This will demonstrate that the belief in the dematerialization of art in digital circulations is founded on an approach to relations between the subject and objects that sustains the primacy of the cognitive process and the production of meanings on the basis of communication between people. Essentially, the goal is yet another restitution of the relation between subjectivity and objects as a relation in which control over the material world is held by a subject or society which generates sign systems and, above all, manages matter. We will propose a perspective on materiality that opens

up a different view on the supposed dematerialization of art in digital circulations and, more broadly, on the domination of the cognizant subject over matter in general. This latter assumption has long been challenged in art theory and the social sciences, but an alternative to the Cartesian perspective may become particularly vital in attempts to understand how art and its evaluation change as a result of digitization.

The phenomenon referred to in the title of this section surely entangles us in analyses whose complexity and extent go beyond the scope of this text, since it is not our ambition to deliver a comprehensive theory of the materiality of the artwork. We only seek to point out potential tropes that could be followed in analyzing the materiality of digital forms related to the artwork. Materiality therefore refers here both to modes of authentication, such as the NFT, and to the artwork itself.

It has been known since Marcel Duchamp's *Fountain* that situating any object, even a urinal, in a context or environment that determines a specific convention turns that object into a work of art. It was obviously not only Duchamp, but many other artists in the twentieth century who powerfully demonstrated that art has a contextual character and relies on meanings – or rather codes – produced in culture. Some wanted to see in this the structure of meanings, others – a world of phenomena, and disputes between these theoretical perspectives engaged not only art theorists and philosophers. These were games with form, which were supposed to demonstrate mastery over matter. However, even within the phenomenological and semiological traditions, conclusions have been drawn concerning contingency – the randomness and complexity of configurations in which the artist's activity takes place, even if it consists in description alone (such as painting a picture), and not in physical intervention in space. This shifted the understanding of and debate about art from the dimension of visibility and locality toward processuality, and introduced

a new perspective related to what we expect and what we bring into the art world as makers or participants. As a result of the transformations of the art world itself and reflection on it, the dimensions of practices and experiences, and not merely meanings and codes, appeared both in practice and in theory.

Previously, the relation between the subject or subjects (society) and the object (matter) was founded on the Cartesian notion of the intelligible world. The subject, whose cognition is based on categories appropriate to its cognitive apparatus, forms objects: it confers character and meaning on their shapes, use, production, and destruction. A vital modification of the Cartesian perspective came with ways of understanding the relation between matter and cognition that introduced a dialectic of the processes of objectivization and externalization as well as subjectivization. As pointed out by Daniel Miller, this pertains to the process in which subjects, on the one hand, arrange objects in describable and measurable relations (primarily physical), and then model relations between objects through abstract concepts, equations, and models.²¹ This is how engineering works, but also art theory. At the same time, such objectivized descriptions and activities have a distancing, or – as defined in Hegelian and Marxist tradition – alienating effect. The world thus appears as an objectivized externality, which compels people to seek subjective experience of what is externalized or distanced. Seen from this perspective, the relation between objects and subjects is already dynamic, but in principle subjects dominate over matter.

Yet, it would be unfair to suggest that Marxism was simply a different version of idealism and phenomenological dialectics. Highlighting the significance of Marxism, Daniel Miller emphasizes the importance of transforming matter as something on which subjects are founded: "Humanity is viewed as the product of its capacity to transform the material world in production, in the mirror of which we create ourselves."²² Marx formulated one

such theory of subject–object relations that underlies the critique of capitalism: commodity fetishism. Seen from this perspective, materiality is related to use, or in other words – practice. Bourdieu followed Marx in demonstrating that practice is not something specific to each individual, but rather a set of embodied, habitual forms of action.²³ Embodiment in Bourdieu’s theory also adopts the form of a resource – capital – and the entire relation between the subjective and the objective is described in a way that shifts the focus from meanings and their uses onto activities and the communication environment. The idea of the embodiment of capital directs us to a redefinition of the relation between subjects and objects: sometimes it is the objects that control the habits, surrendering the subject to them. Seen from this perspective, the relation between the subject and matter requires discerning the dimension of practice or pragmatics. This became particularly manifest in American and French pragmatism and anthropology, which was directly related to art.²⁴ Those tendencies “converged” in a certain way in studies on technology and science, and in analyses of artistic practices. Alfred Gell demonstrates how people searching for the intentionality of experiences anthropomorphize artworks and ascribe intentions to them. He does not consider it an act that takes place at the level of individual cognition, but rather as a collective bestowal of sense on relations not only with people demonstrating their intentions, but also with material objects.²⁵ A similar perspective on the observation of materiality is put forward by analyses relying on actor–network theory.²⁶ In such a view, no essential difference exists between subjects and objects, both at the level of the production of meanings and of influence – practice, i.e. the use of objects by people. Wendy Griswold shows how specific spatial configurations elicit the emotional states intended by the artist. Such states are varied, and this is manifested through different reactions to that materiality. Individualized experiences of art begin in

confrontation with the shape, layout, dimensions, and properties of matter. Only a few viewers pass through the narrow corridor in Bruce Naumann's installation. Some can only look at the work from outside due to the shape of their bodies; others resign due to the emotions triggered by walking through it.²⁷ The layout of the walls, lighting, height, and width of objects arouse various emotions in viewers, and yet all of them share the same point of reference: the materiality of the artwork. For others, in turn, the narrow corridor may become the source of a significant and inspiring experience. Visitors are thus confronted with their own habits of sightseeing, passing through corridors, the sense of walls pressing or falling upon them, etc. Materiality in art may pertain not so much to artworks, but to the spatial configurations in which they are exhibited. Lynn Meskell suggests that generating dematerialized meanings, especially those that are supposed to manifest the quality of durability, requires the special engagement of materiality – the construction of permanent structures.²⁸ This is especially true of monumental objects that have a symbolic or even cult dimension.

Therefore, when considering the relation between materiality and art, we need to bear in mind the relativity of the division between the subject and society on the one hand, as well as objects and materiality on the other. Not only does this division imply a distance and subordination of one to the other, but above all the reduction of materiality to the dimension of physical traits, which in the case of art, in turn, result from meanings given by artists, or – alternatively – are co-created in relations between works and their audiences. The artist defines what an object is, and the symbolic meaning that introduces the object into the art world is determined by the artist in interaction with the audience. According to a competing view, materiality is rather connected with practice, which co-determines the activity and relations between objects that are, in turn, given meanings.

These configurations are not always controlled by meanings generated by people. In this sense, materiality as a practice becomes an element that co-creates meaning, not only its carrier. What matters for our further considerations is that both perspectives on materiality can be employed to explain the ties between digital forms of art and their authentication with evaluation. However, only a perspective that does not reduce materiality to a carrier of meanings allows for discerning closer links between the digital circulation of artworks and the functioning of financial markets.

The materiality of art in NFT digital circulations

As we move to digital circulations, it becomes crucial to examine the importance of materiality for the circulation of artworks and the process of generating value and meaning. But in order to explain the materiality of the circulation of art and digital works, we adopt a perspective that clearly questions the division between the dominant world of meanings and the world of materiality subordinated to it. What appears immaterial contains much more materiality than is portrayed. Firstly, there is the materiality of the record itself and the material properties of the digital record. Secondly, digital networks founded on data transfer and the nature of these connections (their morphology) determine the logic of the circulation of objects – artworks. Such networks have their material structure, which cannot be reduced to the dimension of a carrier of meanings. On the one hand, these are physical objects fueled by energy, on the other hand – a specific record that sets the frames of data transfer processes and, above all, the logic of its processing. Thirdly, of key importance for the rules of authenticating the originality, singularity, and ownership of artworks is the character of digital networking: who is allowed to distribute artworks via NFTs, to co-

determine the availability of such works (their visibility, quality, and the security of the NFT itself) and to bestow meanings.

As for the first question, the NFT serves as a form of authentication of an artwork's singularity. A unique code is attached to an object, which can be digital, but can also have a physical counterpart. This warrants an obvious correction: the digital record has its materiality too. One of its aspects concerns data transfer, the other – the record itself. The first pertains to the already recognized aspects of digital production related to blockchain; just as in bitcoin mining, data transfer relies on energy, obtained primarily from hydrocarbons, which fuels the computing machines that process data. This materiality has its own rules, which are increasingly identified with the capitalist economy. Secondly, the digital record, akin to writing, has its own form, logic, and properties that co-determine what will be written – in what way meaning will be produced. In this sense, materiality is something more than a substrate or carrier of meaning generated between subjects; it is also the practice of recording the codes and protocols that authenticate operations, setting the rules of authenticity and the principles of the distribution of information. Changes in the standards and rules of using tokens and developing blockchain technology are related not only to the knowledge of how technologies work, but also to operations conducted by computing machines: recording, processing, and algorithmization.

Commenting on the second issue, we have already mentioned that although an NFT is a fragment of code with a unique and singular status, it in fact refers to something that is not invariable, since it circulates in digital circuits. As Kelvin Low argues, the digital is not so different from the analog in the sense that it is also a form of indexing – something that is supposed to express certain characteristics is the counterpart of something that undergoes evaluation in terms of art.²⁹ These characteristics are not invariable. Data transfer entails a change

in the characteristics of what is being transferred. The digital record does not have properties that would somehow unknowingly do away with the question of the carrier's or record's quality, and above all – of the mode of recording by digital software that allows for receiving soundwaves or transferring images. This can be illustrated, for example, by the fact that the digital conversion of music entails a change in the properties of sound. Therefore, a digital artwork is also subject to specific technological processes that transform the way in which it is perceived. Currently, the digital record allows for its faithful reproduction using a device that transforms it into analog-like notation, owing to a DAC (digital-to-analog) converter. The listener's ear receives a sound that has the properties of sound emitted by an analog device – a turntable. An audiophile declares that they can discern a difference between sound played by a digital device and analog sound (or sound converted into analog). It could be argued that technology will gradually erase these differences in order to render the form of digital emission indistinguishable to the human ear from the so-called analog one. The problem is that changes will appear in every form of transfer – including transfer of the original: something that was recorded in the memory of the creator's computer. Digitality allows for the quicker transfer of a greater amount of data, but it does not mean that it invalidates the properties of the record and its transfer. A digital artwork is therefore not as invariable and singular as it might seem. This can also be illustrated in a slightly different way: the digital record is not subject to the same changes as the canvas of a painting or a vinyl record, but a change nevertheless occurs that makes the question of the original arbitrary, subject to convention; in the context of digitality, it would likely be more apt to refer not to conventions, but to programs and programmability.³⁰

Low also points out the arbitrariness and lack of regulations for ensuring that an object assigned to an NFT, which is a digital

record – an artwork or its digital equivalent (when subject to NFT circulation it is not only a digital, but also a physical form of an artwork) – remains in the hands of the NFT's owner. The regulation of the relation between the digital code and the assigned work does not embrace the question of copyright and its protection. Digital code is neither a set of formal rules framed as provisions of a contract, nor the signature of parties to the contract; it is a specific application of the properties of the blockchain digital environment for the sake of determining relations between objects (code and the object assigned to it), as well as between objects and their creators or owners. It functions as an agreement between two parties of a relation authenticated using an NFT, which ensures its visibility and material presence on the computers of all users of a given digital infrastructure – in this case, blockchain and the NFT marketplace. These two aspects of the NFT as a mechanism intended to ensure the authenticity and uniqueness of an artwork demonstrate that, at the level of the technology of recording, the relation between the NFT and materiality is at least not invalidated. Art is not as dematerialized as it may seem.

Finally, the NFT is a form that allows for the circulation of the artwork in whatever way we understand it: in its physical or digital form. Circulation takes place in decentralized digital circuits. This certainly enables its incredible "acceleration." Works do not need to be shipped in special crates with the use of special security measures; there is no need to insure the shipment against damage – they can be sent instead with just a few clicks. But does this imply a lack of hierarchy and control over the circulations of art? Here we return to the previously mentioned artwork auctions and the instances of NFT's presence on the Polish market. As we have indicated, in each case they involved some form of materiality. This is what allows artworks with their own NFTs to simultaneously remain, by virtue of their physicality, in circulation proper for the "analog" art world. We therefore still

have the owner of a work, who stores it, ships it, and exhibits it (or not) for others to see. Its exhibition value and the possibility of display are therefore still related to the physical presence of an object, to which the (artist's) authorship, uniqueness, and authenticity are ascribed. It may also be linked with copyright and its confirmation.

In the light of the above arguments, we could safely state that the art world and art market in Poland have, for the most part, acted very rationally and prudently: they introduced a new digital form into art circulation which changed the rules of authentication, attracted new buyers, but at the same time ensured their control over that circulation. What's more, they effectively identified the trend, as the prices of artworks at auction were (potentially) higher than those for analogue versions. The destination of artworks as NFTs is still influenced by galleries, exhibition spaces, and, from a more abstract perspective – with materiality subject to evaluation by the same circles as before. It will certainly still be possible to copy the digital forms of works, to distribute them, and even to circulate NFTs with works in the digital form assigned to them. However, separating the material from the digital form is already an intervention into the object of circulation at auction, and therefore the object of valuation and evaluation. The NFT owner risks that, if they separate the digital form of an artwork from its materiality and thus treat the work as its NFT equivalent, they will deprive it of the essential properties that determine its value.

NFT materiality and evaluation

In the above sections devoted to the materiality of art, we have demonstrated that the materiality of artworks should not be reduced to the physical properties of the object. We also put forward a proposal for a different understanding of the materiality of the NFT and the digital artwork. In the following, concentrating on the three previously mentioned auctions on the

Polish market, we will examine how the materiality of NFT technology influences the evaluation of artworks. We will seek to draw an even starker contrast between the two ways of understanding the relation between the materiality of artworks and their evaluation with reference to our case studies. Other ways would certainly be possible, but we believe that these two most aptly describe the observed processes.

According to the first of these perspectives, the recognition of the material form of an artwork by market intermediaries and representatives of institutions that participate in valuation confirmed the hierarchy of statuses and the logic behind the circulation of the works in question. It is worth taking a closer look at each of the analyzed auctions. In the case of Górnicki's *Fortune*, the physical object, i.e. a sculpture, will be donated to the Silesian Museum – it is therefore subject to evaluation, whose key aspect is comparison following the logic of the collection, which means judging the significance of a given work by the meaning of its potential lack for specific wholes. The more a real or imagined entirety cannot function without a concrete object, the greater the value of the object.³¹ The digital counterpart of the sculpture is "anchored" in its physical form. While the token can change hands, its physical equivalent is an element of the collection. The digital object – the 3D scan – increased the valuation of the sculpture. The physical form of the work leaves it in the circulation in which evaluation is conducted by curators, critics, and representatives of museums and institutions that organize exhibitions.

As for Zbigniew Libera's work, its materiality has both a directly physical and a technologically mediated form. On sale is a specific die-cut design of Lego packaging, signed by Libera with his own signature, whose identification and authentication is made significantly easier by the NFC tag. NFC technology resembles Bluetooth functionality. Scanning a specific tag with a reader allows for reading an NFT code. NFC therefore

functions as a tool for the identification and verification of the authenticity of a work, facilitating the link between the physical and digital worlds. An NFT is devised as something that follows the physical die-cut design. This link is not integral, however – one can exist without the other, and such a lack is not visible. Yet, further in the text, we will argue that this lack would in a certain way be palpable; the identification of a work and its authentication occur via scanning with an NFC reader. As in the case of Górnicki's work, sale of the NFT and its corresponding sculpture's scan will not be independent of the physical form of the work. The potential transfer of the file between owners will contain information, inscribed in the NFT code, about the lack of the die-cut design.

In the case of Kowalewski's work, materiality seemingly does not matter. The work is entirely digital, and the NFT serves to authenticate the originality of the file for auction. As stated by Juliusz Windorbski, head of the Desa auction house, the fact that only a photograph of the painting exists make the NFT the best form of preserving it. The photograph of the painting thereby becomes not so much its record, an archival representation of the past, but rather the artwork itself, which is well illustrated by Windorbski's previously quoted statement. In this case, the NFT serves individuation – bestowing the character of an original on a specific photograph, or rather a scan of a photograph of Kowalewski's painting. The digital code ensures the uniqueness of a specific file in the holdings of the auction house. We can therefore say that technology was harnessed in a system of translation, owing to which a photograph – scanned and complemented with an NFT code – became a work of art. It is an operation on codes of signification that simply lends legitimacy to the act of transforming the image of an art object into a work of art. This is due to the power of consecration held by institutions such as the auction house.

The common denominator in the analysis of these three case

studies is the fact that the key to determining the value of artworks remains the judgement and valuation made by actors on the art market and in the art world. Relations between them are also becoming increasingly complex due to digitization; however, this opens existing circulations of recognized artworks to an influx of capital. The case studies offer the grounds to claim that, without inclusion into a circulation proper for the art market, the valuation, but also the artistic value of digital objects, remains at junk level, to use a rating agency term.

Without recognition in the art world, digital objects bearing the tag "art" or "artwork" seem to be nothing but digital representations on a par with a funny GIF, an image that unwittingly brings to mind an amateur work done in Paint for fun, or digital tools from computer games. Speculation is of course possible: these can be bought at a higher price than usual in anticipation of their value increasing in the near future, but the predictability and stability of all evaluations remains in this case at the level of any other amateur speculation. This is shown very well by interactions between members of social media groups for those interested in NFTs. Questions are often asked there about what a GIF is, how to make one, and who to hire as the creator of an artistic design. The value of these objects in this world is entirely contingent. Meanwhile, the inclusion of digital circuits into the circulation of artworks following the rules set by gallerists, art dealers, curators, and auction house owners allows for directing the stream of expectations and hopes for an increase in value onto the right track – that of circulation in the world of auctions and sales via the existing actors in charge of evaluation and valuation in the art world.

However, this perspective still fails to reveal the links between the valuation and evaluation of new, digitized art circulations and the evaluation characteristic of financial markets. As we will demonstrate, this very "blind spot" in the observation of digital circulations by key actors on the art market

and in the art world renders their perspective anachronous, mainly due to the ties between the materiality of NFTs and their evaluation.

As we have mentioned, the second outlook on the materiality of digitized content is founded on the abolition of marked difference between subjects and objects, or more precisely: between subjects' cognition and cognitive categories, as well as objects' properties and their effect on subjects. In this light, how do NFT objects influence the processes of valuation and evaluation in the context of the analyzed auctions?

In the case of digital configurations between the materiality and significance of works by Libera and Górnicki, the physical object serves as the guarantor of stable value. We have suggested that an increase in the value of an artwork or even its stabilization at a certain level cannot ignore its material forms. Without a physical equivalent in the Silesian Museum, *Fortune* would be nothing but an incomplete object. In line with what we have emphasized above, the attachment of a work to a unique digital code does not offer any copyright protection and does not guarantee, for example, the material (or any other) integrity of the object itself, subject to circulation owing to an NFT (and the fees for its transfer). Therefore, we can imagine that the owner of Libera's or Górnicki's work concludes a contract concerning the sale solely of its digital form. He or she resigns from the material equivalents of Libera's work, takes no interest in the artistic value of Górnicki's work deposited at the Silesian Museum, but cares only about the price and valuation in digital circulations, in marketplaces where other objects attached to NFTs circulate. What matters for users who invest on these platforms is above all the prediction of the future, because the value of tokens is strictly linked to the promise of growth, formulated and substantiated by experts, members, and market dispositives.³² As shown by Laura Lotti, the chief factor on markets for cryptocurrencies and blockchain technologies such

as NFT is the valuation of the future value of the traded object. Valuation, as in financial markets, has little to do with the characteristics of what is sold. What matters are just the mechanisms of extrapolating the future price, conducted by individual investors either independently or using solutions that are supposed to determine the greatest probability of an increase in the price and its amount (such as in rankings and ratings). The projection of the future relies primarily on the observation of how others act, what they predict, and what they indicate as worthy of investment. Elena Esposito and David Stark demonstrate that second-order observation is involved in such situations.³³ It does not take in-depth knowledge in the fields of aesthetics or art history to predict what will happen to the value of artists' works. The point is rather to acquire information about the most probable behavior of others. An investor therefore looks for tools that lend consistency to or suggest the future value of an NFT of interest. These tools do not originate from the traditionally understood art world (from catalogs, exhibition reviews, or statements by curators and collectors), but contain information that arranges predictions in a certain order. One of them is Limna – a digital platform that values artworks in circulation on the basis of their valuations to date and the circulation of similar artworks.³⁴ The potential separation of a physical object from its digital counterpart is visible in a token's history, but in principle does not change its status as an artwork. The scan of Górnicki's sculpture or the digital form of Libera's object will still be defined as works of art. Therefore, a relation exists between meaning and its carrier. We can easily imagine a situation in which – as in previous speculative manias – someone buys the NFTs of the works by Górnicki, Libera, and Kowalewski just because these works have been highly valued in the circulation of NFTs labelled as "artworks." The classification of the object may be different because the material environment in which the work appears is different. In this case, it is

a marketplace in which artworks are relatively seldom listed for their artistic value.

An NFT only seemingly functions as a token that individuates a work; its material characteristics co-determine its circulation. The mode of recording, i.e. the standard according to which its functions and possible links with other digital codes have been classified, will set the framework for decisions made by current and future token owners. An artwork may therefore be subject to evaluation both with reference to other works circulating in museums, galleries, exhibitions, and collections, as well as to valuation and evaluation proper for the circulation of NFTs as objects definitely more (if not primarily) subject to speculation.

The case study of Kowalewski's work offers a deeper insight into the characteristics of NFT materiality. Assigned to the photo of the work is a token originating from the Ethereum platform, conforming to the ERC-1155 standard. The standards of this platform specify, among other things, the rules of concluding so-called smart contracts, i.e. bilateral agreements on the basis of which an exchange occurs (transfer of an object assigned to an NFT between parties).³⁵ They also form the infrastructure for transferring and collecting both NFT tokens and cryptocurrencies. Kowalewski's work has therefore been placed in a technological and (since it is based on a specific record of codes) material environment which is conducive to building collections of tokens with varied characteristics. Although we cannot predict what will happen in the future with the token assigned to the object, which has become an artwork, we can say that, firstly, the status of Kowalewski's work will depend on the functioning of the material NFT infrastructure: systems that authenticate circulation, secure users and objects, and facilitate such circulation or render it more difficult. If this material infrastructure radically changes or disappears, the artwork will once again become a file with data – a scan of

a photograph of a painting. Secondly, the characteristics of the infrastructure in which the work has been placed will co-determine the practices of NFT transfer and probably also whether tokens of artworks will neighbor those attached to art or to something completely different. Considering both of these issues, we can assume that the circulation of artworks will depend to a lower degree on evaluation appropriate for the art market, and on the intermediaries who set the criteria for their valuation.

Conclusions

Our analysis has demonstrated the significance of the materiality of digital technologies in which artworks circulate both as digital and physical objects, along with the NFTs attached to them. In this configuration, the arbitrariness and uncertainty of evaluation in art is subject to new processes, which elicit reactions from current intermediaries and market actors as well as key actors of the art world and those who invest in, exchange, and create tokens. We discern two competing approaches to interpreting the observed changes in production. The first shows relatively strong control of the new circulation of art held by existing market players, who tap into the materiality of artworks for the sake of keeping the circulation of their digital forms within the limits of the system that values and evaluates such works. Our goal was not to indicate the extent to which the introduction of ties between the materiality of works and their valuation was effective or profitable, but above all to demonstrate that this perspective is founded on a specific attitude of actors toward materiality. This materiality is subject to procedures that determine its meaning, and determining meanings has its own logic, which is tied to the hierarchy in the art world and symbolic or calculated indexes of value. Simply put: in this perspective, it is the art world that determines what is art, and the market values it. In this sense, the market has been

enriched with new forms of artworks' circulation and with a marked inflow of capital. The material forms of artworks attached to NFTs are anchors that sustain the proximity between the circulation of artworks in NFT-related circuits and the circulation of their material forms, the latter dominated by institutions such as museums, galleries, and collectors. In this arrangement, materiality pertains primarily to physical objects with their meaning as art bestowed on them. It is a perspective in which materiality is a carrier of meaning, which, in turn, is defined by subjects authorized to evaluate objects.

We argue that the above understanding of materiality does not allow us to see a deeper change in the processes of evaluation in art, related to the emergence of digital circulations, primarily blockchain technologies such as NFT. Our analysis of Polish NFT auctions has shown that physical objects anchor the artistic value of artworks in the art world and art market, which function independently from digital circulations. However, with regard to the materiality of digital circulations, physical properties of artworks are on a par with others that generate this materiality. These are the material properties of the recording and operation of blockchains, as well as the standards according to which contracts are concluded. The physicality of artworks may be secondary to the dispositives constructed on this market and the anticipation of future profit. The materiality of the record co-shapes the very circulation of artworks, their configuration with other objects – not necessarily related to the art world – and exerts an influence on their evaluation. This evaluation becomes dependent on the digital environment in which the work circulates, and takes the form of quantification that determines the valuation of objects attached to NFTs. The existence of a token – a unique digital record in the blockchain infrastructure – guarantees singularity, but does not determine the way in which the physical object attached to it will be treated by those who purchase or exchange it for cryptocurrencies,

for other NFTs, or those who collect objects, as well as by processes that generate databases of transactions and objects in a given network. Determining the value of NFTs is more dispersed, and involves a range of new institutions (such as marketplaces). This shows that further expansion of digital circulations of art linked with NFTs will imply a change of operations conducted by those entities on the art market which have thus far occupied high positions in its hierarchy, and their influence on the evaluation of works has been significant owing to their statuses and rules of recognition. Seen from this perspective, linking digital records and art objects with the physicality of works in order for market participants to gain greater control over digital circulation is a temporary solution. It seems to postpone the moment of confluence of the art market and digital objects related to art, but – as we argue – not for long.

Throughout the past several decades, ties between the art market and financial markets have been growing ever closer. Scholars have long seen the art market as one of the areas of expansion of financial capital, which seeks to squeeze profit out of a growing cash surplus.³⁶ It was an attractive market due to the hoarding value of artworks and the arbitrariness of their valuation. A single artwork may be valued highly, and its status on the art market and the status of its creator can determine its hoarding value and, above all, treat it as an asset. The globalization of economies led to an increase in the scale of investment in art, especially after the financial crisis of 2008–2010.³⁷ At the same time, it was mainly sociologists who identified the proximity between the two markets, no longer related solely to the attractiveness of artworks as assets; they also noticed similarities in valuation processes,³⁸ and this, in turn, is completely counterintuitive. In order to achieve large-scale profits, financial markets require liquidity, and this favors standardization. However, with the advancement of globalization, and thereby of growing competition on financial

markets, profits from standard forms of capitalization have been declining. This became an impulse for financial engineering to develop, in which an ever greater role began to be played by transactions related to complex financial products, such as derivatives and currency options.³⁹ It turned out that valuation required different processes that would cope better with the arbitrariness of less and less standardized financial products. This, in turn, made advanced financial markets similar to the art market.⁴⁰ However, whereas valuation on financial markets was founded on ever-more abstract and complex statistical and mathematical models, the art market was seeking ways to embrace the multivalence of works. Akin to financial markets, a valuation method was found in various dispositives that serve the evaluation of objects in the category of probability and on the basis of various syntheses of second-order observations.⁴¹ Quantification technologies and art market modeling have not yet replaced evaluation conducted by the art world, but they are becoming at least a competitive process, because it is through financial markets that the exorbitant sums (from the point of view of the gallery market) flow for which artworks are purchased. In the light of the above, ties between digital circulations of art and the financial market are becoming increasingly prominent. Digitization is a step toward further quantification of the art market and the expansion of dispositives that allow investment decisions to be made.

It can be assumed that the distance between non-digital circulations of works, primarily on the gallery market, and circulations of NFTs related to art will be maintained. However, the proximity between the two no longer consists solely in the behavior of representatives of hitherto dominant institutions, such as galleries and auction houses, but is rather related to forms of evaluation characteristic of the art market and the circulation of objects linked to NFTs. The digitized circulations of NFTs related to art are different, however, since the processes of

investing, valuation, and, above all, speculation, involve not only financial market specialists, but also anonymous users of blockchain networks. Digital circulations render art more fluid, they demonstrate great potential for accelerating its circulation, and, above all, situate artworks in a new material environment.

If we look from this perspective at the art market in Poland (but not only there) as a kind of field in which various institutional representatives conduct evaluations in the categories of art and valuation concerning objects defined as art, we can discern a certain paradox. On the one hand, by opening up to new forms of circulation and, above all, distribution and evaluation of objects defined as art, they include in existing circulations not only new meaning, but above all new mechanisms and material forms of the circulation of the value and valuation of art. They thus undermine their relative control over what is evaluated in this field and how. On the other hand, isolation from these new forms would mean not only cutting off streams of funding, users' attention, and the activity of people who define what they make or distribute as art, but above all would pose the threat of ossification similar to that which occurred in aristocratic salons when the field of art ceased to be organized by them at the turn of the twentieth century.⁴² This situation does not result from the impossibility of exerting influence on the meanings of what art is or what it is supposed to be; the point is rather about what art becomes due to material circulations, including digital circulations, which bring the "mechanics" of the art market closer to the operations of the financial market.

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