

Veronika Hilsberg

Invisible Labor, Visible Value. Blockchain's Impact on the Economics and Recognition of Digital Art

2025

<https://doi.org/10.25969/mediarep/23994>

Veröffentlichungsversion / published version
Zeitschriftenartikel / journal article

Empfohlene Zitierung / Suggested Citation:

Hilsberg, Veronika: Invisible Labor, Visible Value. Blockchain's Impact on the Economics and Recognition of Digital Art. In: *Navigationen - Zeitschrift für Medien- und Kulturwissenschaften*, Jg. 25 (2025), Nr. 1, S. 103–116. DOI: <https://doi.org/10.25969/mediarep/23994>.

Nutzungsbedingungen:

Dieser Text wird unter einer Creative Commons - Namensnennung - Weitergabe unter gleichen Bedingungen 4.0 Lizenz zur Verfügung gestellt. Nähere Auskünfte zu dieser Lizenz finden Sie hier:

<https://creativecommons.org/licenses/by-sa/4.0>

Terms of use:

This document is made available under a creative commons - Attribution - Share Alike 4.0 License. For more information see:

<https://creativecommons.org/licenses/by-sa/4.0>

INVISIBLE LABOR, VISIBLE VALUE

Blockchain's Impact on the Economics and Recognition of Digital Art

VIKTORIA HILSBURG

I. INTRODUCTION

All branches of contemporary art infrastructure have strongly evolved since mid-20th century, and within this development, museums, art prizes, residences, art schools, and art magazines (Gauberti 2012, 50–51). Although it has been created since the 1950s by pioneers such as Vera Molnar and Herbert W. Franke, digital art has not been in the limelight of the art market, likely due to its overall poor market performance. In the ongoing conversation around artistic and monetary value, the digital age presents a unique conflict. Digital art can be infinitely reproduced and easily manipulated, raising questions of authenticity and ownership of art that has traditionally relied on physical scarcity. While it democratizes creation and accessibility, it also complicates established notions of provenance and distinction. This complex situation, with its potential for both disruption and innovation, has led to significant discussions within the art world about how to determine the value of works of art. It culminated with the peak of the NFT hype cycle in 2021, when an unprecedented high in digital art sales of US\$2.9 billion was reached, driven by the establishment of blockchain technology.

Despite a 51% decline in 2023 compared to the previous year, as noted in the Art Basel Market Report, art-related NFT sales in the art sector have still generated US\$1.2 billion within that year (McAndrew 2024, 34). This highlights a significant niche within the market that was effectively non-existent four years ago.

The intersection of digital art, blockchain technology, and the construction of value remains a topic of ongoing exploration. The development of market presence demonstrates that the establishment of blockchain technology has had a lasting impact on the perceived and realized value of digital artworks. In this article, I will engage in this evolving discourse by examining blockchain and related technologies based on distributed ledgers and cryptographic security. In order to show how these technologies allow for the development, distribution, and visualization of value in artworks, I will examine the factor of labor visibility and its manifestation in art-related practices.

The topic of digital art on the blockchain, particularly in relation to its valuation, remains only partially explored due to the relatively recent emergence of

the technology. An established analytical framework has yet to be developed. In addition, the impact of blockchain technology on labor has not yet been thoroughly addressed in academic discourse.

This article seeks to increase transparency regarding key aspects of value and artistic labor by employing an interdisciplinary approach that integrates media studies, art theory, and economics. By examining both non-digital and digital artworks, this analysis will investigate how the visibility of value is constructed within the context of contemporary art production and circulation. Drawing on theoretical literature from primarily neo-Marxist perspectives, this interdisciplinary framework will provide a deeper understanding of the complex factors that shape the perception and valuation of art in the current cultural landscape.

2. BLOCKCHAIN'S ROLE IN ART VALUE

Blockchain is a decentralized digital ledger that records transactions across multiple computers in a way that ensures the data cannot be altered retroactively. This decentralized nature makes the blockchain immutable, meaning that all data recorded on it is permanent and cannot be deleted. Key features relevant to digital art, such as non-fungible tokens (NFTs) and decentralized autonomous organizations (DAOs), rely on smart contracts. NFTs are unique digital assets that represent ownership of a specific object or piece of content, making them an ideal token for trading digital art. The term “smart” signifies their automated nature, as these contracts are self-executing programs that automatically enforce the terms of the agreement when specific conditions are met (Voshmgir 2019, 254–258). A DAO is a digital entity that operates on a blockchain network. DAOs take on the form of an organizational architecture, governed by protocols with their underlying smart contracts. They also represent a community or network of potentially anonymous individuals and/or institutions. With or without a connection to art, DAOs are used for various purposes. These include commercial and non-commercial purposes, such as the stabilization of digital currencies or the governing of decentralized communities. They can also function as artworks themselves, as exemplified by the *terra0* collective and their research regarding the *terra0* DAO (Salemy, 2024; Seidler, Kolling and Hampshire 2018, 63–72).

In the art discourse, the term value is predominantly understood in economic terms. According to Marxist theory, value is manifested in both use-value and exchange-value, shaped by labor, societal needs, and economic factors such as supply and demand (Weber 2012, 282–283). Adam Smith's diamond-water paradox illustrates this by showing how scarcity and demand affect market prices: diamonds, rare and desirable but of low utility, command high prices, while water, essential but abundant, is priced low. This paradox highlights that economic value extends beyond utility and is shaped by scarcity and social preferences (Beech 2019, 166).

Similarly, when comparing digital and physical art, the diamond-water paradox reveals differences in market valuation. Physical art, with its tangibility and cultural heritage, derives its value not only from scarcity, but from contextualization and provenance, which are both based on collective or expert approval and historical debate. Digital art, by contrast, is easily reproduced and accessible, challenging traditional scarcity-driven valuation processes but also established narratives and curatorial discourse by art historians. While physical art conveys status and prestige through ownership, digital art democratizes access and encourages new forms of expressions. Thus, digital art is reshaping how the value of artworks is perceived in the contemporary. In the digital era, both forms of artworks become commodities.

2.1 CREATING VALUE: IMMUTABILITY, OWNERSHIP, AUTHENTICITY, AND FURTHER CONSIDERATIONS

Regarding the immense impact on increasing the value of digital art in connection with blockchain technology, the following three aspects are cited as the main reasons: immutability, ownership, and authenticity of NFTs (Fairfield 2022, 1275–1282).

Immutability refers to the property of data that cannot be altered, deleted or tampered with once it has been added to the blockchain with its decentralized storage structure. The minting of an NFT associated with an artwork begins an immutable and transparent sales and transaction history of that individual work (Salemy, February 24, 2024). If it is argued that the minting process is equivalent to the creation of an art piece, then the act of minting itself can be considered the date of creation, marking the first step in establishing the NFT's individual provenance. Blockchain's immutability can also securely store and verify ownership of intellectual property, reducing the risk of piracy and ensuring that creators are adequately credited for their work.

The second aspect is ownership. Blockchain technology allows for digital scarcity, enabling the existence of unique versions of data that would otherwise be infinitely replicable. A wallet address can act as a representation of an individual, such as an artist. It belongs to them until they decide to send it to another owner. Similarly, when a collector acquires an artwork, they have proof of ownership, the work, or the corresponding digital token. While this represents the standard for physical works, the secure allocation and distribution of digital works is only made possible by blockchain technology. Having an encrypted proof of ownership for digital art acts as a driving factor for perceived market value among art collectors (Gold et al. 2022). Furthermore, the technology enables the inclusion of artist royalties, where an automated percentage of secondary market sales is automatically transferred to the artist's wallet, utilizing smart contracts. This percentage is set by the original minter of the NFT (Voshmgir 2019, 254–258). In terms of the secondary market, this underlying traceability resolves a long-standing conflict between resel-

lers and the original artist of an artwork, as the latter is rarely compensated after the secondary sale. Therefore the artists benefit from digitally created property. The enabling of digital scarcity thus increases the perceived market value from the creator's perspective.

Authenticity brings all these aspects together. From a cryptographic perspective, authenticity is related to notions such as confidentiality, integrity, and binding, as it requires that a unit is clearly distinguishable from other units (Schmeh 2016, 15). When using an NFT, the token of an artwork is by definition non-fungible, meaning that it is uniquely identifiable and cannot be exchanged for another token. As far as ownership is concerned, the original minting address can provide proof that the artist is the creator and original owner of the work. The aforementioned immutable history enables the creation of a traceable individual history, which in contemporary art constitutes the provenance of the artwork (Salemy, 2024). Provenance provides the historical context of an artwork and its creator, contributing to both its cultural and monetary value. By generating transparent, immutable transaction records, blockchain offers an objective basis for verifying the ownership and transaction history of digital artworks. This verification process is a fundamental step in establishing trust within the digital art market. To build trust, it is essential to enhance market stability and minimize opportunities for fraudulent activities. The technical features of blockchain technology ensure that the origin, ownership and transfer of artwork are traceable and secure, allowing for a reinforced confidence in the system.

Through NFTs and smart contracts, artists, buyers, and sellers can track this history, ensuring greater accountability and enhancing market confidence. This verification process allows for greater accountability and contributes to stabilizing the market for digital art, particularly during periods of volatility. The traceability and immutability associated with the authenticity of the token is relevant to the extent that other digital applications are still only seen as an additional technique for identifying the authenticity, for example when it comes to clarifying provenance (Elgammal, Kang and Den Leeuw 2018, 43).

Regardless of the medium used by the artists, many forged artworks are sold every year, as confirmed by the major international auction houses, whether by forgers or by the hand of the artists (Luck 2016; McClenaghan 2024). This is mainly due to the lack of binding regulations in the unique art market overall (Day 2014, 58). For this reason, additional authentication techniques, such as those enabled by blockchain technology, are particularly valuable.

2.2 LABOR, VALUE, AND NETWORK DYNAMICS

Historically, the commodification of art has been constructed by principles of immutability, ownership, and authenticity. This traditional framework, however, is increasingly challenged by contemporary realities, including globalization and multifaceted

crises, which have fundamentally altered the landscape of art production, consumption, and valuation. The rise of new and dynamic media platforms, including online journals, blogs as well as social media networks, have profoundly influenced how artists, audiences, and intermediaries engage, challenging long-standing notions of valuation (Iles and Vishmidt 2020, 18; Roberts 2019, 171).

The concept of valuing an object, particularly based on its originality and singularity, as theorized by Walter Benjamin (Benjamin 1996), has been significantly challenged by the emergence of modern storage and reproduction technologies. The ease with which both digital and physical artworks can be reproduced has rendered the notion of the unique, original artwork increasingly complex. This complexity has been further provoked by the rise of social and research-based art practices, which challenge traditional conceptions of what constitutes a work of art and the factors that determine its value. The artwork, as I argue, is not an isolated object but rather a process entangled in relations and references, and its scaled originality relies on the attributions and constructions associated with it. While painting continues to thrive in the market, the emphasis on producing singular, original artworks has diminished overall, particularly in light of the proliferation of collective practices, performance art, and other forms of artistic expression that defy traditional notions of originality (Von Gehlen 2012, 171).

Regarding the artistic practice, the spectrum ranges from artists who detach themselves from traditional art practices to achieve new modes of artistic production, to those who position their work as an immanent critique, where notions of value, object and labor become central to ongoing discourse. This shift has fundamentally moved the focus from the artwork as an isolated entity to the processes of artistic labor and the networks within which artworks are situated, increasingly extending into the realm of social action (Lütticken 2022, 15–17). A linear judgment of art through direct observation is becoming obsolete, replaced by a non-linear exploration of meaning through clusters of information that each spectator must navigate independently. Even artworks lacking this quality are often framed within a multilayered catalog of meanings, complicating the artwork-spectator relationship and making the determination of value inherently more complex.

These evolving relationships require significant time, effort, and education from both individuals and institutions, which often contradict the immediacy sought in capitalistic value exchanges. This development, however, does not negate the object's potential to enter commodified exchanges. It instead positions the artifact within an intricate system of institutional and collaborative practices, where value is determined through a complex interplay of artistic practice, market forces, and critical discourse.

Also in this scenario, early-stage value determination remains critical for market exchange. Art production, as John Roberts notes, exists within a framework where each action and object, including the artwork itself, is subject to commodification and monetary exchange. However, unlike industrial production, the aim of art is not to reduce the value of labor over time. Instead, the difficulty in determining artistic labor lies in its unique placement within the overlapping systems of

commodification and institutional critique. While this crisis of value challenges the speed and simplicity of market-driven exchanges, it opens pathways for a deeper and more nuanced engagement with art's multifaceted valuation processes. Art has traditionally fostered social connections between the viewer and the artwork, often overlooking collective and critical thinking about the potential use value of art. Today's expanded networks, however, create new ways of engaging with art, where looking, thinking, and evaluating extend beyond personal taste. Under these conditions, engaging with art no longer merely affirms its value, but encourages viewers to critically reflect on its social integration and broader implications. The aesthetic experience increasingly involves discussing and participating in the evolving life and impact of the artwork over time, rather than simply ranking it within a hierarchy of likes or preferences (Roberts 2019, 171–173; 181–183). This continues to push the boundaries of what is considered to be relevant to the value of a work of art. It also challenges what is considered artistic labor within the art sector. Because traditional notions of labor are becoming increasingly unstable and uncertain, artists, and art institutions are starting to pay more attention to the social and political implications of these changes. They are using art to examine, critique, and perhaps even propose solutions to the challenges posed by the evolving world of work (Lazzarato 2010, 132). This is particularly true to where art is increasingly expanding into the realm of social action (Iles and Vishmidt 2020, 18–19).

This evolving discourse finds historical resonance in the *Art Workers Coalition* (AWC), established in New York City in 1969. It served as a platform for the representation of all art workers, demanding their equal treatment and participation. This marked a convergence of participatory art and activism. As an important platform, it never became an institution with the broad support system that a labor union would provide. However, the limited documentation was one reason for the lack of recognition of its importance. It is the role model for contemporary projects such as *W.A.G.E. (Working Artists and the Greater Economy)* or *Las Agencias* (Sholette 2010, 56; Vishmidt 2018, 136). The Berlin-based group *Black Swan DAO* is taking a similar approach. It developed different methods of establishing participation in contemporary art. One of these practices was a public, democratic decision-making process, in which any member of the DAO could vote on art projects to receive funding, which was previously distributed to the DAO. Through this practice, *Black Swan DAO* aimed to undermine the structural disadvantage of minorities and the power positions of individual authorities in the cultural sector, replacing them with horizontal decision-making power.

In DAOs, the decision-making processes and outcomes are automatically stored on the blockchain, which produces a register of collective action. Through its connection to established contemporary art institutions, such as the KW Institute, *Black Swan DAO* acted as a platform that provided selected projects with an institutional framework that allowed for the recognition and the reception of cultural value. At the same time, the group *Black Swan* was also being recognized for its contributions (KW Institute for Contemporary Art 2022). In adopting this

practice, *Black Swan DAO* reflected the principles of contemporary art utilizing the advantages of blockchain. It also repositioned the network, which is not an object but an organizational structure, within the concept of art, following a lasting tradition of participatory artworks. Here, the artistic production was reimagined as a form of collaborative labor itself, while the concept of labor displayed here went beyond being the subject or image of artistic production (Vishmidt 2018, 135). It is important to note that blockchain technology does not automatically record all engagements with an artwork. Nor does it count the time required for individual tasks. With the exception of ownership, transfers, and prices, most actions such as discussions, participation in exhibitions and mentions in academic discourse are not recorded because there is currently no technological implementation to streamline these exchanges. However, the voting process, as stored on the blockchain, allowed the institution and the audience to understand and visibly perceive the engagement with the artwork through the code in the encrypted chain and to continue to do so, thus allowing it to gain cultural value beyond its irregular physical presence. It thus allowed a certain spectacle and fetishism to be realized, with or without physical presence.

Another example of DAO-based works that visualize individual participation is the *Jonas Lund DAO (JLD)*, where the Jonas Lund's career and the related decision-making processes are controlled by the members of a DAO founded by the artist himself. Tokens that allow participation have been distributed to several individuals. This ties the artist's decision-making to the actions of the active voting members. This fractionalization of decision-making through tokenization makes the process labor-intensive, as each participant's involvement becomes part of the artwork itself. It also raises questions of accountability, both for the token holders who make decisions and for the artist who embraces this practice. By involving individuals in the process for both the short and long term, *JLD* allows for a form of self-reflection as members question the value of their actions within and beyond the DAO. *JLD*'s success rests on the shared ideals of transparency and participation that bind the community together. Without these shared values, the artwork risks becoming unintelligible or even fragmented. Participants receive no financial compensation, but instead contribute unpaid labor, which they contribute to Jonas Lund's artistic practice. In this way, *JLD* embodies not only a decentralized art practice, but also a set of ideals that provide cohesion and meaning for participants, reinforcing its social and artistic significance (Hutter and Shustermann 2006, 198). Through blockchain, Jonas Lund introduces new relationships and expands traditional structures of engagement, making the artwork a practice of collective labor rather than the product of a single artist. The decentralized and transparent practice, along with detailed documentation, increases the digital presence of the network, giving it a symbolic value that can go beyond the narrative of an individual artist (Yin 2023, 22–23). Unlike earlier socially engaged artworks with limited documentation, the DAO structure provides a sustained, transparent record of the network's activities, which is critical for provenance (Hilsberg 2024). However, while the DAO structure fosters

engagement, it also exposes the practice to market-driven dynamics. This can have a contaminating effect on the social and cultural dimensions of art. As art historian and curator Sotirios Bahtsetzis argued, even before the emergence of DAOs, new models of engagement can lead to a public commodification of social life within art (Bahtsetzis 2012). When the market infiltrates artistic processes, it risks alienating artists from their work and communities, reducing the value of art to mere commodities through pricing mechanisms (Velthuis 2005, 3).

This tension is visible in *JLD*: the artist, Jonas Lund, benefits from the signalling effect of a functioning network, where a growing number of participants increases his social capital (Hutter and Shustermann 2006, 195). As his status increases, Lund often presents commodified physical works that represent the *Jonas Lund Tokens* and promote his established status. In emerging markets, social status is particularly valuable (Lee et al. 2024), so the *JLD* allows Lund to leverage his network for speculative success while promoting community engagement. The success of DAOs such as *JLD* therefore depends on a delicate balance between community-driven values and market pressures, ensuring that the social and artistic integrity of the artwork remains crucial.

As in any medium, the work put into an artwork is not solely the artist's creative effort. Maurizio Lazzarato, in his seminal work *Immaterial Labor* (1996), explores what "[...] is defined as the labor that produces the informational and cultural content of the commodity" (Lazzarato 2010, 132), making it particularly relevant to the art world. It includes both the physical creation of artworks and digital production, independent of the creator, as well as the management of symbolic content. This includes essential activities such as digital implementation, curation, promotion, contextualization, and cultural interpretation, all of which are necessary to give meaning and value to these works. Lazzarato argues that immaterial labor is a crucial but often overlooked aspect of contemporary production (Lazzarato 2010, 132–133). The sociologist Howard Becker describes the art world as a network of non-artistic actors in the art market, such as gallerists, critics, educators and calls them "support personnel" who perform the labor relevant to the artwork. This includes the workers in the artist's studio, if there is one. From Becker's point of view, the artist is only part of the process from the beginning. The artist does not need the so-called "support personnel" to produce the artwork. But the collective approach to its realization potentially allows for a diverse set of skills to realize and distribute an artwork to a higher quality than an individual could achieve (Becker 1997, 25–27). Gregory Sholette argues that this 'dark matter', as he terms it, is crucial to the art market's functioning, yet remains largely invisible to most actors beyond the support personnel (Sholette 2010, 184–202). However, their work is essential in bridging the gap between the artwork and the audience, as it enables the latter to make meaningful connections with the art. Not euphemising their motives is important: Cultural economists who analyze the art market often emphasize that participants, whether buyers, sellers or distributors, act as rational individuals who continually seek to maximize their profits, much like agents in other markets

(see, e.g., Osterloh and Frey 2000, 543). Economic value increases when multiple forms of artistic value are integrated into a single work (Hutter and Shustermann 2006, 200). Following this argument, participants in networks such as *JLD* could in fact be positioned as a network of agents, rather than merely providing an artistic and social practice, once again pointing to the speculative nature of networks. Lazzarato suggests that the informational content will increasingly be defined by the diversification of communication streams and technological practices that we are currently experiencing within and outside of digital art (Lazzarato 2010, 132).

According to Lazzarato, recognizing and valuing immaterial labor is essential, as it enriches the cultural and economic capital of art and fosters deeper social connections within the art community (Lazzarato 2010). New technologies, in a kind of technological mediation, can lead to a restructuring of the visibility of production relations and thus of society, as a DAO can visualize collective efforts (Röhl 2018, 5). This can be the case in the context of artworks such as Sarah Friend's *Lifeforms*, *BeeDAO* or the aforementioned *Jonas Lund DAO*, which each have a conceptual approach. As Lütticken points out, the notion of immaterial labor can be used as "the leftist counterpart to neo-liberal buzzwords such as 'the creative industries'" (Lütticken 2022, 242), while ultimately glorifying precarious work in the art industry. And this may well be the case. The argument of immaterial labor removes art from being perceived as a primarily commodified object, which is essential to the recognition of artistic practice to this day (Lütticken 2022, 242). As the art economy is increasingly driven by freelance work, it becomes difficult to distinguish between self-directed artistic labor and socially necessary labor, as Anthony Iles and Marina Vishmidt point out. It must be said that Lazzarato has also criticized the term immaterial labor for being used in an exploitative way (Vishmidt 2018, 119–136).

Metcalfe's Law suggests that the economic value or impact of a network increases in proportion to the square of the number of users connected to it, demonstrating the potential increase in the value of an artwork through increased interaction. However, the first version of the theory was not about actual users, but about the devices connected to a telecommunications network (Hendler and Golbeck 2008, 14). In both cases, it is applicable to the use of blockchain technology, where the immutability of the distributed network is extended by an increasing number of connected devices. There is a remarkable shift in the way we think about attention in today's connected world. These changes are not only due to our networked culture and its constant push for participation. Engagement can now lead to market speculation or be a calculated market strategy (Frost 2021). It shows why many individuals, especially in the blockchain community, may perceive their engagement with the artwork as labor, as quantifiably documented on social media or through actions on the blockchain and thus themselves as part of the artwork, whether paid or unpaid. Despite these efforts, the undervaluation of immaterial labor persists. As with Metcalfe's Law, the framework only suggests a potential increase in the value of the work. It is not a certain success factor, nor is it proof that the perception of value is sustainable. The network then functions as a speculative method to promote commodifiable works of art.

3. LEGAL REGULATIONS

After years of almost no regulation and uncertainty in the market, with increasing political and legal regulation of cryptocurrencies and trading, an overall sustainable practice seems possible. In 2023, MiCAR was introduced, a regulatory framework that establishes rules for the issuance, trading, and management of cryptocurrencies and digital assets in Europe (Auffenberg 2023).

This is not yet the case for DAO structures. Digital artists such as Rhea Myers point out that there is a practical potential for DAOs to become the architecture of institutions, such as trade unions. But the adaptability of DAOs is still limited by the lack of legal regulation (Myers [2017] 2023, 180–181).

In a few US states, legal registration of DAOs as legal entities is possible since 2021, allowing them to operate under the corporate structure of an LLC. One example is the state of Utah, where it was incorporated in 2023 (Boucher 2021). Outside of these states, in many cases a DAO cannot serve as a framework for business practices at this early stage of regulation. It is not possible under European law either (Mienert 2021). This still needs to be coordinated, especially in Europe, through different forms of business ownership models (World Economic Forum 2023, 17–18). However, with increasing political and legal regulation, a comprehensible legal framework that can lead to a truly sustainable practice seems possible (Auffenberg 2023).

4. CONCLUSION

The transformative potential of blockchain technology in the art world goes beyond providing digital artists with enhanced tools to establish authenticity, ownership, and provenance through NFTs and smart contracts. Blockchain technology has emerged as a transformative force in the digital art world, reshaping how value, labor, and community participation are understood and integrated into artistic practices. By providing transparent and immutable records of ownership, provenance, and transactions, blockchain addresses long-standing challenges faced by digital artists, such as reproducibility and undervaluation. Mechanisms like NFTs and smart contracts ensure that artists gain rightful recognition and financial benefits from their work, fostering a more equitable art market. Providing proof of ownership allows for a sustainable model for distributing and collecting art works.

Decentralized models like DAOs are also redefining artistic production and valuation by empowering community-driven, egalitarian frameworks that challenge traditional hierarchies. Projects such as *Black Swan DAO* and *Jonas Lund DAO* illustrate how collective participation in artistic creation, funding, and distribution shifts the focus of control from institutions to communities. However, this democratization

introduces challenges, such as the commodification of social interactions and the reduction of cultural and social values to economic metrics.

The growing importance of networks and social interactions in art valuation signals a shift from static object-based valuations to a more dynamic understanding of artistic value. Blockchain technology, by providing transparent and verifiable records of artistic processes, can contribute to this shift. By making visible the labor-intensive nature of art production and the role of community engagement, blockchain can help to elevate the status of artists and their work. The ability of a blockchain to make visible the labor and collective processes behind artworks offers a means to acknowledge the social and cultural contributions of both individual artists and communities.

Yet, the increasing reliance on quantifiable metrics raises concerns about overcommodification, particularly when engagement metrics are used to determine artistic worth. The tension between viewing artistic labor as an autonomous creative process and as a commodified market asset is increasingly evident, particularly in projects like *JLD*, where participation enhances both the social value of the artwork and the market position of the artist. This delicate balance between promoting transparency and encouraging engagement highlights the need for ongoing critical reflection on how blockchain technology affects artistic labor and valuation. Balancing these tensions, transparency versus commodification, equity versus autonomy and innovation versus cultural preservation, will be critical as blockchain integration progresses further.

Meanwhile, its applications in digital art must be critically assessed to ensure it aligns with the goals and values of the artworks. By fostering a more inclusive and resilient digital art ecosystem, blockchain has the potential to redefine how we create, share and value art in the digital age. Future research should explore how blockchain can further integrate and balance the diverse forms of value represented in digital art. While blockchain technology enables new ways to define and trace artistic, social, cultural and economic value, it is crucial to acknowledge both its potential benefits and its potential drawbacks, rather than solely focusing on market-driven metrics.

REFERENCES

- Auffenberg, Lutz. 2023. "BaFin Und NFTs: Welche Aktivitäten Reguliert MiCA?" Accessed May 31, 2024. <https://www.btc-echo.de/news/bafin-und-nfts-welche-aktivitaeten-reguliert-mica-172899/>.
- Bahtsetzis, Sotirios. 2012. "Eikonomia: Notes on Economy and the Labor of Art." Accessed May 31, 2024. <https://www.e-flux.com/journal/35/68397/eikonomia-notes-on-economy-and-the-labor-of-art/>.
- Becker, Howard S. 1997. "Kunst Als Kollektives Handeln." In *Soziologie Der Kunst*, edited by Jürgen Gerhards, 23–40. Wiesbaden: VS Verlag für Sozialwissenschaften.

- Beech, Dave. 2019. "Value." In *Keywords for Marxist Art History Today*, edited by Larne A. Gogarty and Andrew Hemingway, 165–72. Göttingen: V & R Unipress.
- Benjamin, Walter. 1996. *Das Kunstwerk Im Zeitalter Seiner Technischen Reproduzierbarkeit: Drei Studien Zur Kunstsoziologie*. 22nd ed. Edition Suhrkamp 28. Frankfurt am Main: Suhrkamp.
- Boucher, Brian. 2021. "The NFT Revolution Isn't Just a Fad: These Galleries and Artists Were Ahead of the Curve." Accessed June 2, 2024. <https://www.artbasel.com/stories/nft-revolution-koenig-mennour-pace-ora-ora?lang=de>.
- Day, Gregory. 2014. "Explaining the Art Market's Thefts, Frauds, and Forgeries (And Why the Art Market Does Not Seem to Care)." *Vanderbilt Journal of Entertainment & Technology Law* 16. (3).
- Elgammal, Ahmed, Yan Kang, and Milko Den Leeuw. 2018. "Picasso, Matisse, or a Fake? Automated Analysis of Drawings at the Stroke Level for Attribution and Authentication." *AAAI* 32 (1): 42–50. <https://doi.org/10.1609/aaai.v32i1.11313>.
- Fairfield, Joshua A.T. 2022. "Tokenized: The Law of Non-Fungible Tokens and Unique Digital Property," *Indiana Law Journal* 97 (4): 1261–1313.
- Frost, Halle. 2021. "Trust, Tokens, Tyranny: A Conversation with Sarah Friend." Accessed May 31, 2024. <https://weirdeconomies.com/contributions/conversation-with-sarah-friend>.
- Gauberti, Annabelle. "How the Art Market Became a Luxury-Goods Business: Revisited." *Info* 2012 (4): 50–51. <https://crefovi.com/How%20the%20art%20market.pdf>.
- Gehlen, Dirk von. 2012. *Mashup: Lob der Kopie*. 2nd ed. Edition Suhrkamp 2621. Berlin: Suhrkamp.
- Gold, Kerstin, Kristina Leipold, Johanna Neuschäffer, and Anne Schwanz. 2022. "ART+TECH Report." Report, last modified November 7, 2022. https://mcusercontent.com/5c26fe086a57792372901c09f/files/ebaeae83-842e-05fd-5079-c3bf71dced6e/ART_TECH_Report_ArtNFTCollecting_2022_May22.pdf.
- Hendler, James, and Jennifer Golbeck. 2008. "Metcalf's Law, Web 2.0, and the Semantic Web." *Journal of Web Semantics* 6 (1): 14–20. <https://doi.org/10.1016/j.websem.2007.11.008>.
- Hilsberg, Victoria. 2024. "DAOs: A Blockchain-Based Application Not Intervening, but Strengthening the Agility of Contemporary Arts." In *ISEA2023 PROCEEDINGS*. Paris: Ecole des arts decoratifs–PSL.
- Hutter, Michael, and Richard Shusterman. 2006. "Value and the Valuation of Art in Economic and Aesthetic Theory." *Handbook of the Economics of Art and Culture* 1: 169–208. Elsevier. [https://doi.org/10.1016/S1574-0676\(06\)01006-4](https://doi.org/10.1016/S1574-0676(06)01006-4).

- Iles, Anthony, and Marina Vishmidt. 2020. "Arte Futile: The Gift That Is No-One's to Give and Which No-One Wants to Receive." In *The Trouble with Value: Art and Its Modes of Valuation*, edited by Kris Dittel, 18–31. Onomatopoe 151. Eindhoven: Onomatopoe.
- KW Institute for Contemporary Art. 2021. "Hackathon, Black Swan." News release, February 25, 2021. Accessed November 18, 2024. <https://www.kw-berlin.de/hackathon-black-swan-the-communes/>.
- Lazzarato, Maurizio. 2010. "Immaterial Labor." In *Radical Thought in Italy: A Potential Politics*, edited by Paolo Virno and Michael Hardt, 133–48. *Theory out of Bounds* 7. Minneapolis: University of Minnesota Press.
- Lee, Kangsan, Jaehyuk Park, Sam Goree, David Crandall, and Yong-Yeol Ahn. 2024. "Social signals predict contemporary art prices better than visual features, particularly in emerging markets." *Scientific Reports* 14 (1): 11615. <https://doi.org/10.1038/s41598-024-60957-z>.
- Luck, Adam. 2016. "Market in Crisis as Experts Warn £200m of Paintings Could Be Fakes." Accessed June 21, 2024. <https://www.dailymail.co.uk/news/article-3817580/Moriarty-Old-Master-pulls-art-crime-century-Market-crisis-experts-warn-200m-paintings-fakes.html>.
- Lütticken, Sven. 2022. *Art and Autonomy: A Critical Reader*. Köln: Verlag der Buchhandlung Walther König.
- McAndrew, Clare. 2024. *The Art Basel and UBS Global Art Market Report 2024*. The Art Basel and UBS. Accessed June 21, 2024. <https://www.ubs.com/global/en/our-firm/art/art-market-insights/download-survey-report-2024.html>
- McClenaghan, Maeve. 2024. "Damien Hirst Formaldehyde Animal Works Dated to 1990s Were Made in 2017." Accessed June 21, 2024. <https://www.theguardian.com/artanddesign/2024/mar/19/damien-hirst-formaldehyde-animal-works-dated-to-1990s-were-made-in-2017>.
- Mienert, 2021. "How Can a Decentralized Autonomous Organization (DAO) Be Legally Structured?" Accessed September 21, 2024. <https://lrz.legal/en/the-lrz/how-can-a-decentralized-autonomous-organization-dao-be-legally-structured>.
- Myers, Rhea. (2017) 2023. "Artists Re:Thinking the Blockchain: Initial Book Offering Slides." In *Proof of Work: Blockchain Provocations 2011–2021*, edited by Rhea Myers, 180–81. Falmouth: Urbanomic.
- Osterloh, Margit, and Bruno S. Frey. 2000. "Motivation, Knowledge Transfer, and Organizational Forms." *Organization Science* 11 (5): 538–50. <https://doi.org/10.1287/orsc.11.5.538.15204>.

- Roberts, John. 2019. "Art, Value, and Value-Form Theory." In *The Value of Critique: Exploring the Interrelations of Value, Critique, and Artistic Labour*, edited by Isabelle Graw and Christoph Menke, 171–84. Frankfurt am Main: Campus.
- Röhl, Boris. 2018. *Marxistische Philosophie Und Kunstgeschichte: Einführung, Entwicklung, Terminologie*. Einführungen: [...], Philosophie Band 23. Berlin, Münster: LIT.
- Salemy, Mohammad. 2024. "Beating a Dead Horse: What's Wrong with DAOs?" *Arts of the Working Class*, February 24, 2024. Accessed May 9, 2024. <https://artsoftheworkingclass.org/text/beating-a-dead-horse-1>.
- Schmeh, Klaus. 2016. *Kryptografie: Verfahren, Protokolle, Infrastrukturen*. 6th ed., iX-Edition. Heidelberg: dpunkt Verlag.
- Seidler, Paul, Paul Kolling, and Max Hampshire. 2018. "Terra0: Can an Augmented Forest Own and Utilize Itself?" In *Artists Re:Thinking the Blockchain*, edited by Ruth Catlow, Marc Garrett, Nathan Jones, and Sam Skinner, 63–72. London, Liverpool: Torque Editions; Furtherfield; Distributed by Liverpool University Press.
- Sholette, Gregory. 2010. *Dark Matter: Art and Politics in the Age of Enterprise Culture*. London: Pluto Press.
- Velthuis, Olav. 2013. *Talking Prices*. Princeton, Oxford: Princeton University Press. <https://doi.org/10.2307/j.ctt4cgdl4>.
- Vishmidt, Marina. 2018. *Speculation as a Mode of Production*. Historical Materialism Book Ser. Boston: BRILL.
- Voshmgir, Shermin. 2019. *Token Economy: How Blockchains and Smart Contracts Revolutionize the Economy*. Berlin: BlockchainHub.
- Weber, Thomas A. 2012. "Price Theory in Economics." In *The Oxford Handbook of Pricing Management*, edited by Özalp Özer and Robert Phillips, 281–339. Oxford: Oxford University Press.
- World Economic Forum. 2023. *Decentralized Autonomous Organization Toolkit: Insight Report*. Geneva. Accessed June 24, 2024. <https://www.weforum.org/publications/decentralized-autonomous-organization-toolkit/>.
- Yin, Aiwen. 2023. "Can Web3 Technology Help Socially Engaged Art Become Organizationally Sustainable, or What the Heck Is a Community?" Accessed May 9, 2024. https://creativeimpact.eu/wp-content/uploads/yin_aiwen_public_version.pdf.