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Blockchain Art Activism: Examining Four Blockchain-Based Artworks for Social, Political, and Environmental Good

Master Thesis

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Abstract

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Blockchain Art Activism: Examining Four Blockchain-Based Artworks for Social, Political, and Environmental Good

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Through the examination of four case studies, this research has provided valuable insights into the potential of blockchain technology in driving social impact and activism art. The projects examined are blockchain-based initiatives that leverage the unique properties of this distributed ledger technology to address a diverse range of social and environmental issues.
These are contrasted to the fundraising copy-and-paste NFT collections that were popularised during the 2021 and 2022 NFT hype.
This research wished to showcase blockchain activist artworks that have aesthetic merit and actively engage with the underlying technology in an innovative way. Furthermore, the thesis aims to highlight the social and political implications of blockchain and NFTs to ensure that the technology is utilized to benefit society as a whole rather than further entrenching existing power structures and inequalities.

Keywords: blockchain, Web3, art activism, digital artivism, blockchain technology, philosophy of technology, NFTs, technological determinism, ethics, aesthetics, "Blockchain for Good", political imaginaries

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Introduction

An urgent headline appears on the screen: "'We don't have time' for traditional fundraising; crypto is most efficient" (CHADDAH, 2022). This sets the tone for an article about UkraineDAO, a decentralized autonomous organization[1] that arose in response to the urgent need for fundraising for the people of Ukraine. Led by Pussy Riot's Nadia Tolokonnikova, the organization accepted direct crypto donations and auctioned off NFTs of the Ukrainian flag. All funds were to be given directly to Ukrainian civilian organizations, the organizers pledged, aiding the people in the war against the Russian invasion and providing support during the ongoing humanitarian crisis. This initiative was one of the first wartime DAOs to utilize crypto platforms for fundraising, showcasing the potential of blockchain technology in bringing about positive change and addressing critical social issues (Oyebanji, 2022). Several articles at the time praised UkraineDAO and its innovative approach to fundraising through crypto donations and NFT[2] auctions (CHADDAH, 2022; Haig, 2022; Houser, 2022). However, over time, concerns and criticisms emerged regarding various issues related to the use of crypto donations and NFT auctions for activism from economic, environmental, ethical, and aesthetic perspectives. Because NFT art activism projects were relatively new and unexplored within the realm of activism, the significant issues came to the surface only after the initial excitement and success of initiatives such as UkraineDAO, AssangeDAO, COWGIRLDAO, and other art-activist NFT collections.

The objections against these initiatives mainly stem from a prevailing and widely recognized distrust of the Web3 movement, which is predominantly at the forefront of financialising web-based interactions and encompasses various blockchain technologies and ideas such as cryptocurrencies, NFTs, and DAOs[3]. Web3 has been castigated for prioritizing financial gain, contributing to adverse environmental

[1] A decentralized autonomous organization (DAO) is an innovative legal system that operates without a central governing body. Its members collaborate to pursue a shared goal and act in the organization's best interest. Popularized by cryptocurrency enthusiasts and blockchain technology, DAOs employ a bottom-up management approach to make decisions, meaning that the members are the ones responsible for voting and determining the direction of the organization (Reiff, 2023).
[2] Non-fungible tokens are digital assets that have been transformed into unique cryptographic tokens using blockchain technology. The tokens are stored on a blockchain, while the asset can be kept in a separate location. Unlike cryptocurrencies, NFTs are non-fungible, meaning that each individual token is unique and cannot be replaced with another NFT. (Sharma, 2023)
[3] These topics will be explored more in depth in the following sections of this thesis.

impacts, and perpetuating existing power dynamics and inequalities in the art world and beyond (Diehl, n.d.). Despite these glaring issues, art-activist projects like the UkraineDAO have incorporated NFTs into their initiatives despite the backlash and criticism that followed. While these projects are innovative in a fundraising sense, the emphasis is almost always on the financial aspect rather than the actual social and cultural impact on the communities they serve. For instance, in a 2022 Guardian article on the Censored NFT collection created to support Wikileaks founder Julian Assange, the focus was on the $52 million raised rather than the artistic merits or the impact on Assange's legal situation (Reuters, 2022). The project's economic value was once again emphasized in an article on Artnet (Cascone, 2022) and several other online magazines (Howcroft, 2022; Westall, 2022).

Another example is the Women Rise project, a collection of 10,000 NFTs showcasing female artists, entrepreneurs, scientists, and other important figures, for which the proceeds were donated to advance women's rights and education (Wolfson, 2021). While articles written about this project emphasize its empowerment of women through digital art, they often prioritize highlighting market success and financial gain over the artistic and social impact of the work (NATALEE, 2023; NFTEvening, 2024; Wolfson, 2021). The conversation surrounding these NFT activist projects frequently prioritizes the commercial and financial aspects over their artistic, social, or cultural value. What is most alarming is that giving precedence to fundraising over other aspects of art-activist NFTs increases the risk of exploitation and commodification of marginalized groups. One prominent investor shared with Cointelegraph that the more individuals gain an understanding of the economic aspects of NFTs, the more they will be inclined to make use of them (Wolfson, 2021). Meanwhile, NFTs and blockchain technology's artistic and activist potential are entirely left out of the discussion, overshadowed by the overwhelming focus on financial gains.

In short, the primary interest of new investors is money-making. For this reason, using NFTs in activist ventures raises concerns about the ethical implications of adopting blockchain technology for financial gain rather than prioritizing the empowerment and well-being of the communities involved. Due to the lack of regulation in this area, there is a considerable risk of fraudulent activities and

improper use of funds within the cryptocurrency donation sector. Charitable causes are particularly vulnerable to exploitation by scammers who take advantage of donors' good intentions in order to divert funds for their own benefit. In relation to UkraineDAO, despite initial intentions for the funds to directly benefit those in need in Ukraine, a detailed examination revealed that approximately $340,000 worth of ETH was transferred to anonymous wallets and later exchanged for cash (Kyiv Post, 2023). Additionally, $76,102.35 was moved to the Coinbase exchange, and $67,500 went towards UkraineDAO's leader, Alona Shevchenko, as a project fee (Kyiv Post, 2023). As documented in April 2023, it was discovered that there was still $212,000 worth of ETH remaining in the UkraineDAO's wallet, resulting in a total of $700,000 that needed to be properly donated to Ukraine (Kyiv Post, 2023) Nadia Tolokonnikova initially promoted the project but quickly bowed out once it was clear that the proceeds would not be fully donated to the intended cause. AssangeDAO has had similar issues with misallocation of funds and lack of transparency. The initiative has successfully collected approximately $53 million in cryptocurrency contributions. However, experts have discovered that the decentralized autonomous organization transferred a major portion of the funds to various addresses, including some linked to crypto platforms like Kraken and Coinbase (NWAOKOCHA, 2024). Additionally, 1000 ETH was distributed among anonymous smart contracts, making it difficult to determine the ultimate recipients of these funds (NWAOKOCHA, 2024).

Moreover, from an aesthetic standpoint, these projects use on-chain art as a "selling point" for donors. However, the tokenization of artworks in these projects does not enhance the intrinsic aesthetic value of the piece itself. Instead, it serves to validate ownership, and establish scarcity in the digital realm. The artworks in these fundraising initiatives do not rely on blockchain technology and could exist without it. Blockchain is not utilized as an artistic medium, nor is it creatively employed in a way that aligns with the nature of the artwork being created. Artists typically link existing digital files (such as JPEGs or GIFs) to a token and use the blockchain to distribute work, establish artificial scarcity, and enhance the value of digital art (Damiani et al., 2022). Simply linking a .jpeg with a blockchain transaction does not fully leverage the complexity and potential of using blockchain in the name of good. As pointed out by Patrici Calvo, the worth of an NFT in these initiatives has nothing to do with artistic merit or visual appeal. Their actual value lies in securing the person purchasing the

Keywords: blockchain, Web3, art activism, digital artivism, blockchain technology, philosophy of technology, NFTs, technological determinism, political imaginaries,

token with full ownership rights and giving them control over a one-of-a-kind, trackable, genuine, tamper-resistant product (Calvo, 2024, p. 4). Consider the Computer Cowgirls NFT collection, which was created to fundraise as a response to the US Supreme Court overturning the *Roe v. Wade* decision on abortion rights (see Fig. 1). The artworks embedded within the NFTs look like composites created from a database of existing elements, which are then combined to form "unique" pieces. What I mean is that there are variations in faces, eyes, hair, hats, torsos, and backgrounds, yet all the figures appear flattened and look like slightly altered versions of each other, i.e., remixes of a few core design elements. Googling for online tutorials to learn how to create NFT collections reveals a mechanized and automated creative process. One YouTube tutorial, which has garnered 2.6 million views, provides a step-by-step guide on how to generate and sell over 10,000 NFTs in under an hour without the need for coding knowledge (codeSTACKr, 2021). The trick is to create a certain number of interchangeable layers that can be combined with a few clicks of a mouse. Creating a collection is quick and scalable, but it also raises questions about the artistic value and originality of NFT art. This mass production of NFTs, coupled with the practice of promoting them through social media influencers and celebrity endorsements, is viewed by many as a worrisome trend that prioritizes financial gain over artistic value and meaningful engagement.

For those who have grown up with the internet, the events and discourses surrounding these initiatives (and blockchain technology in general) echo the promises made by previous technological disruptors. Headlines such as "How Blockchain Technology Is Changing the World" or "Blockchain Disruption is Coming: How Businesses Can Prepare" were standard during the height of the Web3 hype cycle. This is similar to the launch of the first web browser in 1994, which had tech enthusiasts raving about the future where information, expression, and opportunities would be freely accessible (Pitre, 2024). Unfortunately, these dreams were swiftly crushed as the internet became more privatized and exploitative. Now it seems that blockchain is turning into another "unwanted" utopia touted as a panacea for all our problems (Pitre, 2024). It is "a new form of changing the world that hasn't been tried before," "a kind of testing ground in that it offers new ways for thinking about the relationship between centralized and decentralized decision making," and "a new system for funding public good" (Stevens, 2019). In his recent publication, "The

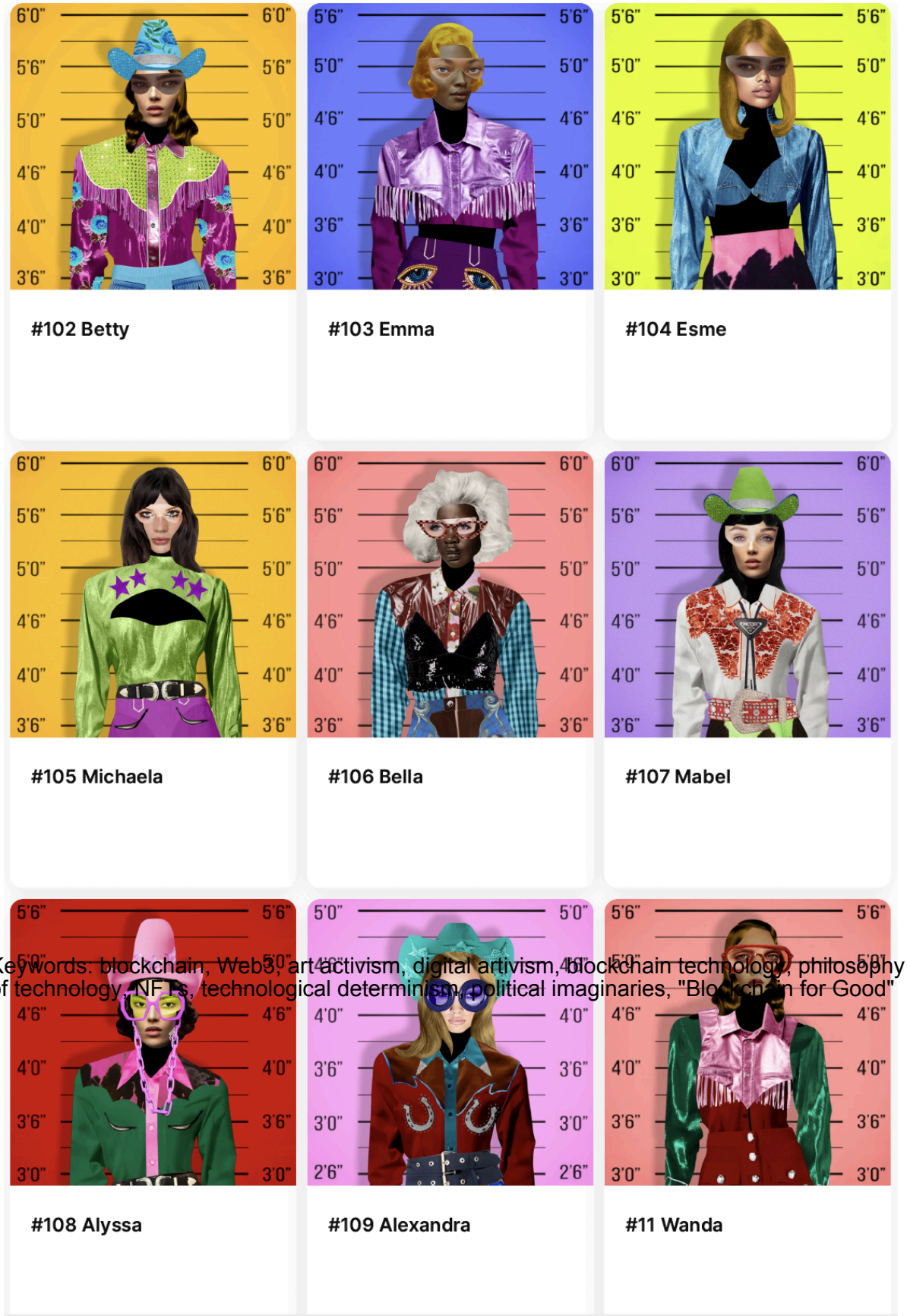
Road to Reinvention," venture capitalist Josh Linkner emphasizes the urgency of embracing change with his warning: "Disrupt or be disrupted" (Lepore, 2014). Forbes journalists Larry Downes and Paul Nunes expound on a new and alarming phenomenon they term "big bang disruption," cautioning that this era of new technologies is no longer just disruptive but rather devastating in scale (Lepore, 2014).

The concepts of innovation and disruption originated in the business sector, with disruptive innovation often likened to the theory of evolution (Lepore, 2014). Just as species must adapt to their changing environments to survive, businesses must continually innovate to remain competitive in the market. However, the impact of disruption can only be fully understood after it has occurred. A successful disruption occurs when new technology is effectively implemented, even if it results from unforeseen consequences. Conversely, if it fails to make a significant impact, it is due to limitations or failures in the implementation process (Lepore, 2014). In the context of disruptive innovation, the continuous forward momentum is more significant than unforeseen or unexpected outcomes. This is why it is a dangerous mindset to apply to areas of activism and humanitarianism, where the well-being and values of individuals or communities are at stake. When it comes to blockchain, there is a movement known as "blockchain for good" that seeks to leverage the technology for societal benefit and activism. However, the outcomes of projects stemming from this movement can vary significantly and may even lead to adverse consequences for the very causes they aim to support, as will be explored in subsequent chapters. For these reasons, it is crucial to thoroughly analyze whether these assertions of empowerment and improvement are being put into effect or if they are simply used as marketing tactics to encourage the use of blockchain technology.

Keywords: blockchain, Web3, art activism, digital artivism, blockchain technology, philosophy of technology, NFTs, empowerment and improvement

Despite their seemingly superficial nature and the myriad of issues plaguing blockchain, the fundraising NFT projects outlined in this introduction have demonstrated that this technology can provide new opportunities for "doing good." However, this thesis aims to present a more nuanced and thoughtful approach to utilizing this technology for activist means, as opposed to the prevailing get-rich-quick mentality that has characterized mainstream discussions about NFTs.

How can blockchain art activist projects transcend mere fundraising? Given the challenges facing this new technology, is there a legitimate rationale for employing blockchain for activism, particularly art activism? Or does it simply serve as another nifty tool for tech conglomerates (Brown, 2023)? This thesis will answer these questions using four art activist case studies that showcase the activist potential of blockchain technology. Unlike the NFT fundraising projects touched upon in this introductory chapter, the pieces extend beyond raising money using blockchain. It also aims to highlight blockchain-based projects that utilize the technology to its fullest extent or have a reason behind its use, unlike most humanitarian efforts widely publicized during the peak of the Web3 wave. Furthermore, I will be analyzing four projects that are often discussed/considered in the context of experimental digital art, but in this thesis, I will assess them within the framework of "blockchain for good" projects. The activist art projects discussed here were not themselves proposed as "blockchain for good" projects, but they share characteristics with this field, and it is these commonalities that form the focus of this thesis.



Keywords: blockchain, Web3, art activism, digital artivism, blockchain technology, philosophy of technology, NFTs, technological determinism, political imaginaries, "Blockchain for Good"

Fig. 1 Molly Dickson. (2022). *Computer Cowgirls*. Computer Cowgirls. Retrieved September 5, 2023, from https://opensea.io/collection/computer-cowgirls-lineup.

Research Design

The research design for this Master's thesis is qualitative in nature and involves conducting four case studies to explore blockchain's potential in art activist projects. This thesis utilizes a case study research method as the topic at hand meets all three criteria outlined in Robert K. Yin's book "Case Study Research: Design and Methods" (2018). Firstly, the main question or problem being investigated must be a "how" or "why" question (Yin, 2018, p. 32). Secondly, the researcher must not have any influence on the behavior of the participants or events under study (Yin, 2018, p. 32). Lastly, the focus should be on contemporary phenomena within a real-life context (Yin, 2018, p. 32). Since this thesis examines real-life, innovative instances of blockchain-based activism art, the case study research method is appropriate as it allows for an in-depth investigation of "how" these projects were implemented and "why" they use blockchain technology in particular.

Furthermore, there is no direct involvement or manipulation by the researcher; therefore, this method is the most suitable approach for this study. Yin also distinguishes between exploratory, explanatory, and descriptive case study approaches. The exploratory method involves conducting case studies to gather initial insights into a relatively unexplored topic or phenomenon, while an explanatory one aims to determine causal relationships and explain why specific outcomes occur (Yin, 2018, p. 35). Finally, the descriptive method is used to provide a detailed description of particular cases or events, and the researcher is tasked with sequentially describing the analyzed data (Yin, 2018, p. 35). Considering the investigative nature of this research subject and its objective to acquire an extensive comprehension of the diverse ways in which blockchain technology is being employed to rethink or modify societal, political, and ecological circumstances using an artistic approach, conducting an exploratory case study approach seems to be the most suitable. This methodology offers a means to completely capture the abundance and intricacies of these initiatives while also enabling further investigation into the use of blockchain for humanitarian and activist purposes.

To reiterate, this thesis' primary aim is to examine how blockchain technology can be used in an innovative and conceptual way to drive social, environmental, and political change. These projects are contrasted to the fundraising model popularised in the

media during the Covid pandemic. It is not the intention of this thesis to denigrate or dismiss the importance or success of the NFT fundraising initiatives but rather to emphasize the need for a broader understanding and exploration of blockchain's possibilities beyond mere financial transactions and proof of ownership models. Since this thesis revolves around art activism and blockchain technology, there will be two chapters dedicated to exploring and elucidating these two concepts in depth from a historical and conceptual perspective. The concept of art activism is multifaceted and complex, encompassing a diverse range of artistic practices that engage with social and political issues. Therefore, it is essential to provide a thorough overview of its historical context, its various forms, and its impact on inspiring and effecting change. Blockchain technology will also be explored in a separate chapter to provide a thorough understanding of its history, its fundamental principles, and potential applications beyond the financial sector. Specifically, this investigation aims to focus on blockchain’s inherent immutability, decentralization, and cryptographic security, which offers an opportunity to leverage these features for transparency, accountability, and trust in their initiatives. With these qualities, this technology has the potential to create new models of governance and ownership, disrupting traditional power structures and redistributing control to the involved participants. The case studies explored in this thesis utilize these very characteristics while also leveraging the power of art to raise awareness or provoke social change.

Furthermore, since the thesis has recognized the use of discourses of disruption and revolution in the business sector as a marketing strategy for innovations, such as those used for NFT fundraising projects, it is imperative to critically analyze new technologies, such as blockchain, in this context of art activism and beyond, i.e., their potential benefits and drawbacks. This is compounded by the trend of adopting technological innovations without fully comprehending their implications or considering potential unintended consequences. Artificial Intelligence, for instance, is currently experiencing the hype and excitement phase, with discussions about its potential to revolutionize various industries, including the creative arts (Jordan, 2019; SULEYMAN, 2023). Unfortunately, a significant number of AI blunders have already been implemented without sufficient consideration for the ethical and societal implications, so much so that there is an entire database detailing each and every

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one[4]. Therefore, I will dedicate a chapter to the philosophy of technology, particularly on technological determinism, value neutrality, and the value-laden nature of technology, to provide a critical framework for analyzing the potential impact of new technologies like blockchain in the context of activism and humanitarianism. By looking at blockchain from these perspectives, we can gain essential insights into the ethical and social implications of using it in the name of *good*. This is relevant not only for artistic practices that seek to challenge traditional power structures and promote social change but also for understanding the broader impact of technology on society.

Methodology

To identify the state of the art of blockchain technology in academia, an extensive database was created in Notion to collect relevant sources from academic journals, conference proceedings, magazine articles, forums, and other related sources. These sources were selected based on their relevance to the research topic and their potential to provide insights into innovative uses of blockchain technology and activism art. The first step was to perform a comprehensive literature review using the Notion database and conduct a bibliometric study to explore the impact and relevance of research areas related to blockchain. The bibliometric study involved the use of websites such as Elicit.org, Connected Papers, and CiteSpace to analyze the selected data and identify key trends, research clusters, and influential researchers in the field. The second step was to gather and analyze relevant blockchain projects that had a clear focus on activism, art, or social impact. During the creation of the database, these blockchain-based artworks were scattered and almost hidden from well-known media outlets. Therefore, I relied on a combination of online research, recommendations from experts in the field, and engagement with blockchain communities to identify these projects. The third step in the research design was to conduct in-depth case studies of the four selected blockchain-based activism art projects. The selection criteria for these case studies include the following considerations:

[4] See for examples https://incidentdatabase.ai/, the Artificial Intelligence Incident Database.

1. Relevance to the research topic: The selected projects should focus on utilizing blockchain technology for social impact and activism art.

2. Variety and diversity: The case studies should represent a diverse range of projects in terms of their objectives, scope, geographical location, and target audience.

3. Accessibility of information Sufficient information and data should be available about the selected projects to conduct an in-depth analysis.

4. Innovative use of blockchain technology: The selected case studies should showcase the innovative and creative use of blockchain technology in the context of activism art or social impact.

5. Absence of financial motives: The selected projects should prioritize social impact and activism over monetary gain, ensuring that the primary focus is on using blockchain technology for society's betterment rather than personal profit.

The four case studies selected for this research meet the aforementioned criteria and provide a comprehensive understanding of the meaningful use of blockchain technology in the realm of social impact and activism art. The case studies comprise the following projects: *Balot NFT* by the CATPC, *Forkonomy()* by Lee Tzu Tung and Winnie Soon, *terra0* by Paul Seidler, Max Hampshire, and Paul Kolling, and *Voices of April* by Strawberry Fields Forever[5].

It is worth noting that most of these artworks are yet to be subject to extensive academic research and analysis, making this study a pioneering effort to explore the intersection of blockchain technology, social impact, and activism art. The Balot NFT project was showcased during the Art Basel fair and has appeared in various art publications and online platforms, but it has not yet been extensively critically analyzed in academic circles. Similarly, Forkonomy(), and Voices of April have received attention and discussion in art and digital media outlets, but there is a gap in scholarly analysis of their social impact and artistic value. terra0 has garnered some academic attention due to its innovative use of blockchain technology in ecological conservation, but a comprehensive analysis of its potential impact on the

[5] The creator of this project has remained anonymous and goes by this online username.

art activism space is still lacking. Therefore, this research aims to fill this gap by conducting a qualitative analysis of these four case studies to understand the ways in which blockchain technology is being utilized for good and activism art.

This methodology involved multiple data collection methods, including extensive internet research, observation of their works and interactions within the blockchain communities, and analysis of relevant documentation such as whitepapers, patents, and reports. These data collection methods aimed to gather comprehensive and nuanced information about the motivations, processes, challenges, and impact of the selected blockchain-based art activist projects. In addition to primary data collection, secondary sources such as scholarly articles, news articles, and online platforms were also consulted to gain a broader understanding of the current landscape of blockchain technology in relation to social impact and activism art. The selected case studies were analyzed using thematic analysis, which involved identifying and organizing patterns and themes within the collected data. These themes encompassed various aspects of the projects, including their conceptual framework, technological implementation, and community engagement. Overall, the qualitative methodology employed in this study allowed for an in-depth exploration of the selected blockchain-based art activist projects.

Literature Review

1. Introduction to Blockchain Technology

Blockchain technology falls under the umbrella of the Web3 movement[6], coined to describe the vision of a decentralized web that contrasts with the centralized nature of Web 2.0 (Geuter, 2021). To adequately present the vision of Web3, we have to delve into its previous iterations. The history of the World Wide Web is split into the Web 1.0 and Web 2.0 eras. Web 1.0 is the first stage of the Internet, where users act mainly as consumers with few content creators. It is also called the "read-only" web, as it was helpful for research and gathering information, but most of the activity was done offline, in the real world (Rouse, 2020). The second stage shifted to the "read-write" stage of the Internet, whereby users can enter information into web fields and communicate with servers in real time. Web 2.0 is also called the "social web" or "participatory web," where users are mainly consumers and producers of content created by centralized platforms (Rouse, 2020). The software and hardware became accessible to a broader audience, which enabled the development of applications and platforms that fostered user-generated content and interaction. This era brought about the existence of big corporations such as Facebook (now Meta), Google, and Amazon, which now dominate the online space (Naughton, 2000; Ryan, 2010; Tuomi, 2002).

This concentration of power by a select few organizations has raised concerns about information control, censorship, and data privacy. Writer Nikos Smyrnaios asserts that GAFAM, an acronym representing a small group of dominant tech companies, including Google, Apple, Facebook, Amazon, and Microsoft, wields significant influence through the use of various algorithmic strategies and the exploitation of customer data (Smyrnaios, 2018, pp. xi-xii). Two important events that have highlighted this power dynamic are the 2018 Facebook data breach and the subsequent Cambridge Analytica scandal[7], which have revealed concerns regarding

[6] Web3 should not be confused with Web 3.0, which represents the theoretical next stage in the Internet's evolution. Web 3.0 envisions the Internet as an intelligent, semantic web where automated programs surpass user-driven activity. (Rouse, 2020)

[7] In March 2018, news outlets revealed that Cambridge Analytica, a British political consulting enterprise, utilized unauthorized personal data from Facebook users to develop an electoral propaganda framework for the campaigns of Donald Trump and pro-Brexit groups (Smyrnaios, 2018, p. 3).

privacy, surveillance practices, and exploitation of digital labor (Smyrnaios, 2018, p. xii). The importance of safeguarding these values has never been greater, and a centralized Internet controlled by a small group of technology behemoths is not the answer. Instead, experts are turning to decentralization as the solution, and blockchain technology is at the forefront of this movement. The fundamental idea of Web3 is to financially empower users by giving them control over the Internet. To achieve this vision, it introduces virtual economies and decentralized autonomous organizations (DAOs) that rely on smart contracts (Zheng & Lee, 2023, p. 4). In short, the user has control over the monetization of their interactions, meaning that they can directly benefit from their online activities without relying on intermediaries or centralized platforms. Blockchain stores data across multiple nodes, which offers a secure and immutable alternative that assures users of a safe environment. In short, the users are the ones calling the shots on the financialization of their agency. The users can assert full authority over their data and possess it using cryptocurrency wallets like MetaMask. The wallet stores keys and protects digital identities, allowing users to log into various blockchain applications and retain complete control over their data, which completely diverges from the centralized control exerted by Web 2.0 corporations. To put it into perspective, the use of a crypto wallet is similar to having your own data-centered Facebook account, with one vital distinction: the users have complete ownership and control of their information (Zheng & Lee, 2023, p. 6).

Daniel Drescher identifies four different definitions of blockchain technology in his book "Blockchain Basics: A Non-Technical Introduction in 25 Steps". The first definition refers to the blockchain as a data structure combining data blocks sequentially and chronologically (Drescher, 2017, p. 34). This data structure ensures the integrity and security of the information by using cryptography to prevent tampering or forgery. The second definition of blockchain technology characterizes it as an algorithm for reaching consensus on a decentralized network (Drescher, 2017, p. 34). This consensus mechanism allows multiple participants to agree on the validity and ordering of transactions without a central authority. The third definition highlights blockchain technology as a suite of integrated technologies, including distributed data storage, peer-to-peer transmission, consensus mechanisms, and cryptographic algorithms (Drescher, 2017, p. 34). These technologies work together

to create a decentralized and trustless system. Finally, the fourth definition characterizes blockchain technology as an encompassing term for decentralized peer-to-peer systems operating within a shared application domain (Drescher, 2017, p. 34). In this context, the term "blockchain" denotes a complete and entirely decentralized system rather than explicitly referring to a software component within such a system (Drescher, 2017, p. 35). These diverse definitions illustrate the multifaceted nature of blockchain technology and highlight the various perspectives from which it can be understood.

This thesis will focus on Drescher's third and fourth definitions of blockchain technology, which emphasize its integrated suite of technologies and its role in decentralized peer-to-peer systems. The chosen case studies I will investigate employ blockchain 2.0 protocols, which extend beyond the conventional application of blockchain in cryptocurrencies such as Bitcoin. Furthermore, to fully comprehend the significance and influence of blockchain technology on the arts, it is crucial to first grasp its fundamental characteristics and operations by examining Bitcoin and its underlying blockchain technology. Bitcoin paved the way for creating other blockchain applications and highlighted the potential of blockchain as a decentralized and transparent system for facilitating transactions and exchanging digital assets. Ethereum, essential for developing blockchain 2.0 protocols, expanded on these foundational principles and introduced the concept of smart contracts. These smart contracts are the backbone of almost all of the projects this thesis will explore, as they enable the execution of programmable and self-executing agreements on the blockchain. In short, the use of blockchain technology extends beyond its popular application in digital currency like Bitcoin, yet most other uses link back to these roots of blockchain being fundamentally a financial technology. For this reason, understanding the potential and influence of blockchain technology requires examining its fundamental characteristics and operations first through Bitcoin and then through Ethereum.

The Beginning of Blockchain: Bitcoin and Its Underlying Technology

Blockchain technology draws its roots from the second generation of peer-to-peer file-sharing systems in the early 2000s, which included Gnutella and BitTorrent (De

Filippi & Wright, 2018, p. 17). These networks allowed users to share files from their personal computers without needing a centralized authority. Gnutella enables a user to search for and download files from other users connected to the network. BitTorrent, on the other hand, introduced the concept of sharing files in a distributed manner by dividing them into smaller pieces called "torrents" and allowing multiple users to download and upload these pieces simultaneously (Swan, 2015, p. 19). These decentralized content-sharing systems laid the foundation for the development of blockchain technology. Cypherpunks, a group of enthusiasts interested in public-private cryptography, were instrumental in conceptualizing and developing this groundbreaking technology (De Filippi & Wright, 2018, p. 18). They combined cryptography and peer-to-peer networks, viewing both as essential for counteracting growing personal privacy and government surveillance erosions. Cypherpunks advocated using cryptographic tools to empower individuals and promote privacy in a digital world while undermining the control of centralized authorities (De Filippi & Wright, 2018, p. 18). Democratization and decentralization became the core principles of their ideological stance. The software they developed was both freely available and open-source, possessing characteristics of being impervious to destruction and immune from being forcibly terminated, which they hoped would foster a collaborative and transparent environment free of intermediaries or centralized control (De Filippi & Wright, 2018, p. 19). Their main focus was creating anonymous, secure, and untraceable digital transactions for an innovative monetary system.

Digital currency is a collection of binary data stored within the computer's memory, lacking physical form. This attribute makes it susceptible to replication and duplication, raising apprehensions regarding potential fraudulent activities (De Filippi & Wright, 2018, p. 19). Double spending, the phenomenon in which an individual can spend the same digital currency multiple times, was a pressing issue that programmers needed to address to establish trust and credibility in digital currency (De Filippi & Wright, 2018, p. 19). It is crucial to have an authoritative entity that can accurately monitor and verify the amount of currency in circulation and validate transactions, which prevents individuals from undermining the currency's worth by counterfeiting money or generating unauthorized funds (De Filippi & Wright, 2018, p. 20). The monetary system also needed a way to securely keep track of these

transactions and maintain a transparent record of all financial activities (De Filippi & Wright, 2018, p. 20). In 2008, Satoshi Nakamoto introduced the concept of Bitcoin in their paper "Bitcoin: A Peer-to-Peer Electronic Cash System" to solve these challenges. Bitcoin brought together public-private key cryptography, distributed consensus mechanisms (such as the blockchain), and decentralized peer-to-peer networks to create a trustless and transparent system for conducting digital transactions without an intermediary (De Filippi & Wright, 2018, p. 20). Bitcoin works as follows: when a user initiates a transaction, it is broadcasted to a network of computers, also referred to as nodes. Public-private key cryptography allows participants to create pseudonymous identities and securely sign their transactions, ensuring authenticity and preventing tampering. The transaction can take a matter of minutes from and to multiple global locations. Once the transaction is verified and added to the blockchain, it becomes a permanent and immutable record. To begin trading in Bitcoin, a user has to set up a wallet to manage their account and obtain a unique address that can be used to send and receive digital currency. This wallet is usually stored on the user's computer, mobile device, or hardware device, i.e., as a USB flash drive designed explicitly for secure cryptocurrency storage (De Filippi & Wright, 2018, p. 21).

Transactions on the blockchain are meticulously documented and regulated through open-source software known as the Bitcoin protocol (De Filippi & Wright, 2018, p. 21). Unlike second-generation P2P systems, which store music or files on individual computers, the blockchain distributes the entire transaction history across a network of computers, making it more resistant to hacking or censorship attempts (De Filippi & Wright, 2018, p. 21). In order to determine the validity of a transaction, the blockchain relies on consensus mechanisms, such as proof-of-work (PoW) or proof-of-stake (PoS), where participants in the network collectively agree on the validity of transactions and the order in which they are added to the blockchain. All transactions are publicly auditable and can be verified by anyone with access to the blockchain (De Filippi & Wright, 2018, p. 22). The Bitcoin blockchain is distributed in several countries worldwide. It is stored on thousands of computers, making it highly resistant to any single point of failure or malicious attack. As long as one computer remains operational and connected to the network, the blockchain will continue functioning and maintaining its integrity. If the entire blockchain is shut down, the

system can be recovered from any available copy of the Bitcoin blockchain in a matter of hours (De Filippi & Wright, 2018, p. 22).

Groups of blockchain transactions are organized into blocks, which are then appended to the existing chain of blocks, forming a sequential and permanent record of all transactions or "chain" (De Filippi & Wright, 2018, p. 22). Each block within the blockchain system consists of distinct elements, including a one-of-a-kind identifier, a timestamp denoting when it was created, and a reference to the preceding block. In addition to these fundamental components, any supplementary details on the transaction itself can also be appended. To summarize, it is a new type of information storage solution that can hold various forms of data securely and transparently on a decentralized network (De Filippi & Wright, 2018, p. 22). Moreover, each block is assigned a header to effectively arrange and systematize the data contained within the blockchain (De Filippi & Wright, 2018, p. 22). The block's header contains a unique hash value that serves as a digital fingerprint for that specific block and the timestamp and hash of the previous block's header (De Filippi & Wright, 2018, p. 22). The data within the block's header organizes the blocks in a hierarchical structure, facilitating efficient searching and retrieval of information within the blockchain (De Filippi & Wright, 2018, p. 23).

The Bitcoin blockchain's protocol makes it difficult for malicious actors to tamper with or alter the existing records, which is achieved through cryptographic mechanisms and the consensus protocol employed by participants in the network (De Filippi & Wright, 2018, p. 23). This procedure is known as proof of work and requires users to solve increasingly complex mathematical problems to validate and add new blocks to the blockchain (De Filippi & Wright, 2018, p. 23). To find the correct solution to the mathematical problem, users must iterate through a large number of possibilities, consuming energy and computational resources, which is why they are often referred to as "miners" (De Filippi & Wright, 2018, p. 23). The mathematical puzzle becomes more difficult the more miners engage in the mining process as the network adjusts the difficulty level proportional to the total computational power being utilized by the miners (Bonneau et al., 2015, p. 107). The network uses this process to achieve a consensus on the ownership of Bitcoin at any moment.

Though blockchain is advertised as being immutable, it is essential to note that a network can fork (i.e., split into multiple copies) and create different versions of the blockchain if there is a disagreement in the consensus algorithm (De Filippi & Wright, 2018, p. 24). Forks can occur due to disputes over changes to the blockchain protocol or instances of malicious attacks on the network (De Filippi & Wright, 2018, p. 24). In the event of a blockchain fork, "the database's structure begins to resemble a tree rather than a linear chain" (De Filippi & Wright, 2018, p. 24). The Bitcoin protocol has a fork choice rule that forces miners to adopt the longest chain as the valid one, thus resolving any conflicts and ensuring that the majority of the network agrees on the version of the blockchain to be considered the legitimate one (De Filippi & Wright, 2018, p. 24). This mechanism ensures the integrity and immutability of transactions on the blockchain and maintains the blockchain network's security and reliability. To append a new block, the miner must invest computational power to solve a complex mathematical problem - the more blocks added to the blockchain, the more complicated and computationally intensive the problem becomes. One possible method for altering a transaction record within the Bitcoin blockchain would involve orchestrating what is known as a "51% attack" (De Filippi & Wright, 2018, p. 24). In this scenario, a group of malicious actors gains control over more than half of the network's total computational power. This dominance allows them to manipulate transaction approvals faster than the remaining nodes in the network.

To incentivize miners to continue participating in the blockchain network and maintain the system's security and integrity, they are rewarded with bitcoins for successfully adding a new block to the existing blockchain, i.e., a "block reward" (De Filippi & Wright, 2018, p. 25). To trigger this reward, the miner must successfully solve the computational problem and add a new block to the blockchain. The blockchain protocol relies on "transaction verification" to evaluate whether or not a user has enough Bitcoin to issue a transaction. This process involves retrieving transaction history starting from the "genesis block" (its first block), validating the legitimacy of each transaction, and checking the balance of the user's Bitcoin wallet. Then, the transaction is approved and added to the blockchain. If the user has sufficient Bitcoin in their wallet to cover the transaction, the network will accept it.

Ethereum: A New Beginning

The Bitcoin network has established itself as the pioneer in blockchain technology, but it is important to note that not all blockchains function similarly. The Bitcoin blockchain was great for trading cryptocurrencies but was slow (it could only validate transactions every 10 minutes) and had limited functionality. Its decentralized structure made it difficult for developers to update the protocol. The network needed formal governance, meaning that a small group of developers could make decisions that impacted the entire community without a broader consensus (De Filippi & Wright, 2018, p. 27). Numerous iterations of blockchain technology have been developed to address these limitations, each with unique characteristics and use cases.

Ethereum, for example, is a blockchain platform that goes beyond just being a cryptocurrency. Blockchain is a data storage system, and it can also be programmed to store or reference other types of data, including small computer programs known as smart contracts. Ethereum was the first blockchain that enabled the deployment of smart contracts on its platform, making it a second-generation blockchain (De Filippi & Wright, 2018, p. 27). It is a P2P network, it has its cryptocurrency (ether), and it allows developers to build decentralized applications on top of its blockchain. Until 2022, it also worked based on the proof-of-work (PoW) consensus algorithm. However, it transitioned to the proof-of-stake consensus algorithm (PoS) due to the rampant electricity consumption of the network caused by the proof-of-work algorithm, leading to concerns about sustainability and scalability. On 13 August 2022, electricity consumption peaked at 93.975 Terrawatt hours (TWh) per year for the Ethereum network, roughly equivalent to the annual electricity consumption of the Philippines in 2018 (Kapengut & Mizrach, 2022). Stakers must validate new transactions in this verification process rather than solve complex mathematical puzzles like in proof-of-work. The stakes pledge their Ethereum holdings as collateral within a smart contract. If these individuals fail to fulfill their obligations of validating transactions – whether it is due to negligence or with malicious intent – they may face repercussions such as losing the coins that they used for staking (Kapengut & Mizrach, 2022). Since transitioning from PoW to PoS, the Ethereum network has cut

electricity usage to 0.015 Terra Watts per hour, significantly reducing its environmental impact and making it more sustainable (Kapengut & Mizrach, 2022).

It is faster than Bitcoin, as the consensus process takes only twelve seconds on average, and allows users to write smart contracts and execute decentralized applications with greater flexibility and efficiency. The crucial difference between blockchain 1.0 and 2.0 is the introduction of smart contract features, which allow for programmable functionality within the blockchain network. When Ethereum introduced smart contracts, it revolutionized the capabilities of blockchain systems, enabling a wide range of applications (i.e., decentralized apps or dApps) and functionalities beyond simple financial transactions. Smart contracts contain code and data to execute predefined actions based on certain conditions (Maddrey, 2022). The code is a collection of functions that manipulate the data stored within the contract. Once deployed, no party can modify it, guaranteeing that all executed actions are immutable and trustworthy (Maddrey, 2022). There is no way to delete it, either, and it runs indefinitely and autonomously without the need for human intervention. The data can be updated and modified, but any changes are permanently stored on the blockchain, meaning that older program versions can be traced back to their initial deployment (Maddrey, 2022). Smart contracts are not only restricted to the Ethereum blockchain; they have also been implemented in other blockchain projects, such as Tezos, Cardano, and EOS (Maddrey, 2022). NFTs, or Non-Fungible Tokens, are another innovative use case of blockchain technology that has utilized smart contract functionality. In the next section, we will look at the particularities of NFTs, as they were touted as a revolution within the art world, providing a unique way to tokenize and trade digital artworks, collectibles, and other digital assets.

NFTs: Art and Blockchain Combined

In 2020, the world witnessed a surge in the popularity of "art" Non-Fungible Tokens (NFTs for short), which gained significant attention for their high sale prices and celebrity endorsements. They were virtually everywhere and were raking in millions of dollars in transactions. Things came to a head when Beeple, a.k.a Mike Winkelman, made history in digital art by selling an NFT at a Christie's auction for a

staggering USD 69 million. Artists were not the only ones seemingly profiting from this new technology. Paris Hilton, Snoop Dogg, Grimes, and a slew of other celebrities jumped on the bandwagon, selling NFTs and benefiting financially from the booming market. NFTs were everywhere, and it is no shock that the art world has become intimately acquainted with the word NFT. However, there is still a need for clarification regarding NFTs. Ongoing debates surround whether NFTs should be classified as a medium of art, a means of owning artwork, or simply speculative investments (Flick, 2022). Some even argue that NFTs should not be considered real art (Flick, 2022). This is why it is crucial to give an overview and understanding of NFTs and how they are utilized.

NFTs or Non-Fungible Tokens are blockchain ownership records representing unique digital assets. They are tokenized and immutable, making them an ideal tool for establishing provenance and ownership of digital artworks and other digital assets. The term "non-fungible" means that a token cannot be exchanged with another unit one-to-one, as each NFT holds its distinct value and properties. In contrast, fungible tokens, such as Bitcoin, can easily be swapped with another token of the same value without any property difference. NFTs can represent anything from digital art, music, videos, virtual goods in games, and even physical assets like real estate or collectibles (Flick, 2022). The NFT serves as proof of ownership and authenticity. The token comprises a smart contract that delineates the terms and conditions of ownership and transfer of the underlying asset, as well as the metadata that provides information about the asset and its provenance (Flick, 2022). Smart contracts also contain information about the fees distributed among different parties involved in the sale or resale of NFTs. This includes the asset's primary creator, collaborators or contributors, and the marketplace facilitating the transaction (Flick, 2022). While some artists have integrated a decentralized blockchain system to host their digital artworks directly, most rely on third-party venues, hosting them separately on other platforms or servers (Flick, 2022). The smart contract metadata then usually contains the link to the artwork tied to the token.

The rise and mid-2022 crash of the NFT market sparked debates and discussions about blockchain's potential uses and implications in the creative industries and whether there are "any possible socially responsible use cases for NFTs" (Flick,

2022). Furthermore, though the word art was often brought up in tandem with the financial aspect of NFTs, many critics argued that they rarely represented art in the traditional sense but rather were commodities or status symbols (Flick, 2022). Christina D'Agostino, writer and editor of Luxury Tribune, deemed NFTs to be the pinnacle of the "dematerialization of the luxury object" and the "new status marker" (2022). Hito Steyerl called them "'onboarding tools' for tech conglomerates" (Brown, 2023). One writer stated that "an NFT is just a series of smoke and mirrors to distract you from the fact you just paid an ungodly amount of money for a JPEG"(Ward, 2021). Possessing an NFT was the ultimate show of clout or prestige, and buyers acquired them for status rather than for the intrinsic value or appreciation of the artwork itself (Hertzmann, 2021). Scholars like Aaron Hertzmann argued that owning an NFT was a relatively meaningless term because the owner did not actually hold the copyright of the artwork and could easily be reproduced and shared without permission (2021). Rachel O'Dwyer questioned whether blockchain technologies used to create "unique" digital artworks are being utilized to strengthen the digital rights management of these assets (2020, p. 876). While creating digital artwork appears to be one potential application of blockchain, the overarching goal does not seem stuck on limiting an artwork's distribution and reproduction. Instead, these blockchain applications aim to generate "titles and derivatives" through "[its] use and circulation" (O'Dwyer, 2020, p. 876). In fact, the most popular blockchain-based digital artworks (i.e., Beeple's *Everydays: the First 5000 Days*) often straddle the line between speculative art and a speculative asset (O'Dwyer, 2020, p. 876). According to Zeilinger, integrating blockchain-based protocols with IP frameworks will lead to developing "hybrid conceptual-computational financial technologies" that will further strengthen, amplify, and commercialize digital creative processes that have not been monetized before (2018).

Some individuals contended that NFT creators were being taken advantage of, as a significant portion of them during the peak of the cryptocurrency surge were independent contractors from low-income countries located on platforms like Upwork or Fiverr (Stokel-Walker, 2022). These artists produced NFTs quickly and inexpensively for clients who subsequently sold them at considerable profits without adequately remunerating the original artists for their creative efforts. NFTs have also been controversial in several high-profile scams and fraudulent activities, raising

concerns about the lack of regulation and oversight in the NFT market (Flick, 2022). Moreover, though NFTs have been heralded as the next revolution within the entertainment industry, their actual impact and practical applications still need to be made public. Rémy Bocquillon and Joost van Loon have lamented that NFTs are a "parasite" and a Stiglerian "pharmacon," meaning that though they try to cut out the middleman in the art market, they ultimately rely on the existing art world infrastructure for validation and exhibition, becoming the very thing they seek to disrupt (2022, p. 38). Molly White, who runs the popular website "Web3 is going just great," has called the NFT space and other blockchain-related technologies an "enormous grift" (2022).

So, after all of these critiques, a question arises: Are NFTs a form of art or merely commodities and status symbols? In short, are there any good art NFTs? Tina Rivers Ryan, digital art historian and curator, distinguishes between blockchain art and crypto art within the NFT art space. Blockchain art comprises projects that innovatively use blockchain, reflecting on ownership, value, and authenticity (Pearl, 2022). On the other hand, Crypto art is an "art" fad that promotes cryptocurrencies and hype culture (Pearl, 2022). These are the "Elon Musk with red laser eyes, or giant gold bitcoins rotating in space," the Beeple and Bored Ape Yacht Club assets that fetch millions of dollars in the NFT market (Pearl, 2022).

Everything else she refers to as tokenized digital art or design simply uses blockchain to sell or buy as collectible assets (Pearl, 2022). Artists who jumped on the trend to sell their work as NFTs without considering the artistic value or intent behind their creations have contributed to the perception that NFTs are more about financial speculation than genuine artistic expression (Pearl, 2022). Therefore, NFTs that emerged from Neoliberal "art" NFTs in 2020 can reflect how venture capitalists have commodified blockchain technology. These venture capitalists recognized the potential for profit and speculation in the digital art market, leveraging blockchain technology to create a new asset class, and this commodification of creativity allowed for the creation and trading of unique digital assets, effectively transforming art into a speculative investment vehicle that prioritizes financial gain over artistic expression or cultural value. With this shift towards financialization in the art world, artists focused on creating works that would generate high returns rather than

pursuing their artistic vision. This trend exemplifies the neoliberal principles that value competition, profit maximization, and individual empowerment. It is crucial, then, to focus on true blockchain art and uncover the creative potential of NFTs.

2. The Philosophical and Ethical Roots of Blockchain: Philosophy of Technology, Political Imaginaries, and the Commercialization of the "Blockchain for Good" Movement

The field of philosophy of technology explores the nature of technology and its effects on society (Anderson, 2023, p. 12), striving to uncover the philosophical principles that drive the creation and utilization of new technologies. By conducting philosophical analyses of emerging technologies such as blockchain and Web3, we can better understand their ethical implications, social impacts, and potential consequences. For example, the implementation of Web 2.0 resulted in unintended negative consequences such as privacy erosion and the spread of misinformation despite its initial good intentions. While not all negative impacts can be attributed to the inherent faults of the technology, it underscores the necessity of a comprehensive philosophical analysis to proactively identify and address potential pitfalls of new technologies like Web3. Additionally, many fields are implementing new technologies in the name of "progress" and "efficiency" without fully considering the ethical implications and potential social impacts they may bring. While technological progress can bring about various advantages and possibilities, it is crucial to carefully assess their effects and outcomes to guarantee they contribute positively or at least avoid causing harm to individuals or communities.

The rapid growth and widespread adoption of blockchain technology across various industries has prompted a critical examination of its underlying philosophical and ethical principles. This thesis specifically delves into the impact of blockchain technology on the humanitarian and digital activism sectors, as many blockchain initiatives are built on the premise of creating a more equitable and just world. This idea is commonly known as the "Blockchain for Good" paradigm, which encompasses projects that aim to harness the power of distributed ledger technology (DLT) beyond just cryptocurrency, with the goal of generating positive societal

outcomes. As such, these projects emphasize the importance of an ethical and responsible approach to implementing blockchain technology. While the "Blockchain for Good" movement has gained traction in recent years, it has also faced criticism from academics and journalists alike. The primary critiques argue that the movement's interpretation of "for good" does not incorporate conventional elements found in social justice theories, such as allocation (determining who merits income), acknowledgment (identifying who deserves rights), and visibility (uplifting or highlighting certain individuals or groups) (Semenzin, 2023). Meanwhile, proponents of the “Blockchain for Good” judge the value of “good” using logic and mathematical principles. They focus on competition to define social good, placing importance on efficiency, transparency, and accountability rather than systemic issues of inequality and injustice (Semenzin, 2023). This sort of approach raises concerns that projects may prioritize neoliberal financial schemes over addressing genuine social needs. So, while some ventures have genuinely focused on solving social and ethical problems, others have used this approach as a marketing ploy to garner attention and public support without delivering tangible results.

In this chapter, I delve into the philosophical and ethical considerations surrounding blockchain technology. My exploration includes a comprehensive definition of concepts such as philosophy of technology in regards to its ethical facets, such as the topic of technological determinism, and the debate on whether technology is value-neutral or value-laden. These concepts provide a foundation for evaluating the ethical implications of blockchain technology. We will also explore the idea of political imaginaries and their significance in blockchain projects. Imaginaries represent the collective visions, ambitions, and societal values that influence the creation and implementation of new technologies. This thesis aims to demonstrate how various blockchain projects embody distinct political imaginaries, spanning from crypto-libertarianism to crypto-commonism, each carrying its own implications and potential consequences for society (Husein et al., 2022)

We will also take a closer look at the "Blockchain for Good" movement, including its origins and its eventual commercialization. We will examine the criticism and skepticism that surrounds this movement, as well as the challenges and risks that arise when implementing blockchain technology in both humanitarian and digital

contexts. Our ultimate goal is to gain a deep understanding of the impact of blockchain technology on society and to ensure that its integration aligns with ethical principles and values. Additionally, I will explore how the original message of promoting blockchain technology for social good has been distorted and misused by factions fueled by venture capital money. This raises crucial questions about the ethical implications of the commercialization of blockchain technology.

Defining the Concept of "Technology"

To truly understand what philosophy of technology entails, it is essential to establish a precise definition of the term "technology" first. This framework will aid in analyzing and comprehending its philosophical implications. Val Dusek offers four distinct interpretations of technology:

1. Technology as hardware,
2. Technology as rules,
3. Technology as a system, and
4. Technology as Applied Science (Dusek, 2006).

These definitions highlight the intricate nature of technology and stress the significance of examining its various aspects to comprehend its philosophical implications fully.

The first definition describes technology as hardware, i.e., tools, equipment, and machinery (Dusek, 2006, p. 31). This definition is widely accepted and pertains to the tangible and visible aspects of technology. It is the most commonly held definition that comes to mind when people hear the term "technology" and draws attention to its physical nature and its tangible components (Dusek, 2006, p. 31). Perusing technology brochures or flyers, it is common to see depictions of "rockets, power plants, computers, and factories," which offer a concrete and simplistic interpretation of technology as instruments or mechanisms (Dusek, 2006, p. 31). Unfortunately, this portrayal falls inadequate in instances where technology operates without such physical implements. According to psychologist B. F. Skinner, verbal and interpersonal communication can also be classified as technologies that enable individuals to attain desired outcomes through language and social interactions

(Dusek, 2006, p. 31). This form of technology differs from conventional technologies that rely on physical tools, as it rests solely on human communication and interaction. Lewis Mumford also challenged the notion that technology can only be viewed strictly as a physical object. He stressed that technology encompasses not only the physical artifact but also the knowledge, skills, and processes involved in its creation and use (Dusek, 2006, p. 31). To illustrate this point, he introduced the idea of a "megamachine," where large groups of people come together as a collective force to construct massive structures like Stonehenge, the pyramids of Egypt, or modern skyscrapers (Mumford, 1966). These achievements highlight how the synchronization of human bodies and the application of knowledge and skills are also forms of technology.

The second definition proposed by Dusek refers to technology as the set of rules and practices governing its use and application. The difference between hardware and software can easily exemplify this definition. Hardware corresponds to physical tools and machinery, while software encompasses the statutes, patterns, and techniques that govern the operation of technology. This view is exemplified by Jacques Ellul's concept of "technique," i.e., "patterns of rule-following behavior," whereby the primary focus of technology is to achieve optimal efficiency (Dusek, 2006, p. 32). Humans must adjust to the new limitations imposed by technology, and as it progresses, permeating every facet of our existence, it employs humans as a tool to accomplish its objectives (Ellul, 2011). This idea is echoed in the works of Max Weber, who termed this process as "rationalization," which reduces everything in the world to calculable, predictable systems of efficiency (Weber, 2011). The third definition posits technology as a system. Similar to Dusek's second definition, technology is not only based on its physical attributes but is deeply intertwined with the human context in which it is used and understood (Dusek, 2006, p. 33). Consider an abandoned airplane in a rainforest or imported machinery and equipment used by the Iranian government for its oil industry - these tools are rendered useless without the support of human operators and a well-structured organization. It is worth noting that individuals from high-tech urban areas and developing indigenous populations alike can struggle with operating and maintaining technology.

Finally, the fourth definition views technology as the practical application of scientific knowledge to solve problems (Dusek, 2006, p. 33). While modern technology is often linked with digital and electronic devices, Dusek's definition reminds us that technology encompasses any human-made artifact, tool, or technique used to achieve specific goals or fulfill particular needs (Dusek, 2006, p. 33). While technology is frequently linked with digital and electronic devices, defining it solely as applied science fails to capture the extensive historical and systematic range of technological progress. In reality, technological advancements frequently involve elements of chance, trial and error, and troubleshooting. Dusek points out that technology includes many inventions that were not discovered using scientific principles, such as those that emerged during the Industrial Revolution and unexpected discoveries in the development of pharmaceuticals like antibiotics and Viagra (Dusek, 2006, pp. 34–35).

Scholars have provided several definitions of technology, but the most comprehensive approach is the "technological systems" approach (Dusek, 2006, p. 35). This perspective takes into account all physical tools, knowledge, skills, techniques, methods, practices, and societal processes involved in creating and using technology. It encompasses both hardware and software viewpoints, allowing for a holistic understanding of technology and its impact on society as it recognizes the interplay between physical tools and human knowledge and practices. Although some postmodern scholars (like Foucault) argue that there is no definitive definition for technology (Dusek, 2006, p. 36), the technological systems approach provides a broad framework for understanding the multifaceted nature of technology and its implications in society. This framework will be essential for analyzing and evaluating the ethical implications of using new technologies.

Technology Ethics: Is Technology Neutral?

The importance of technology in our daily lives cannot be ignored, as it impacts communication, entertainment, transportation, and healthcare. On the one hand, Technologies have the potential to facilitate human cooperation, but they can also be used for harmful purposes and have unintended consequences. As innovative technologies like blockchain continue to emerge at a breakneck pace, it is imperative to take into account the ethical implications of their implementation, as they can

either empower or hinder our ability to lead fulfilling lives (Robson & Tsou, 2023, p. 1). A critical debate in this regard is whether technology embodies values or simply reflects those of its users. One perspective argues that technology is value-neutral, and its impact on society depends solely on how it is utilized. The opposing perspective believes that it is value-laden and includes inherent values that can shape societal outcomes.

As previously stated, the theory of value neutrality questions whether technology possesses inherent values or is morally neutral. Within this philosophical framework, scholars argue that technology does not have intrinsic values or moral qualities (Pitt, 2023, p. 14). Humans manifest values and biases, and if they are reflected in that particular technology, this does not automatically imply that it actually possesses these qualities (Pitt, 2023, p. 15). Determining the value of an object can prove to be a difficult task. When a hammer is used to drive nails into a wooden board, it can be viewed as a "good" tool. However, if someone uses it to harm another, it becomes a "bad" one. In this case, the hammer itself is neither "good" nor "bad"; its functionality relies solely on the intentions of the person utilizing it. Should the user misapply it, the hammer should not be held accountable for failing to perform its intended purpose. An atomic bomb was created for a specific purpose, but its potential use is not limited to that purpose alone. The same technology used to develop nuclear weapons can also be utilized to power plants and explore the possibilities of intergalactic space travel (Pitt, 2023, p. 15). Pitt (2023, p. 16) posits that humans have little control over the advancement of technology, as our self-interest and desire for progress often guide our actions. Nevertheless, if we remain steadfast in our commitment to our ethical principles and prioritize the betterment of society, we can harness technology to achieve these lofty goals. The value-neutral theory has faced criticism from experts who argue that it overlooks the intricate ways in which technology impacts our perceptions of ourselves and the world. Detractors contend that the theory is too limited, ascribing negative consequences solely to user error, while positive outcomes are attributed to good choices or happenstance (Morrow, 2023, p. 18).

Conversely, the "value-laden perspective" emphasizes that technology is not morally neutral and has inherent values and biases. These values and biases are built into

the design, development, and implementation of technology and can have a significant impact on individuals and society as a whole. Morrow (2023, p. 19) notes that technology can influence behavior by making specific actions more accessible, convenient, or socially acceptable, enabling us to do things we might not otherwise be able to do. While not everyone may immediately alter their behavior in response to various encouragements, these changes can shift group behavior over time. This aligns with the concept that people respond to incentives, a fundamental idea in many social sciences, particularly microeconomics and other related fields (Morrow, 2023, p. 20). The inherent characteristics of technology can also change our motivations and behaviors - for example, when television became widely available, it provided people with a convenient and enjoyable way to spend their evenings at home. As a result, many individuals opted to stay in more often without necessarily abandoning all outdoor activities. Instead, they simply spent more time at home than they would have if they did not have access to television.

Therefore, technology-induced changes can have both positive and negative effects. Some may argue that in cases where technology-induced behavioral changes result in negative consequences, the blame should be placed entirely on the individuals who changed their behavior. For instance, ransomware can be attributed solely to the immoral conduct of the person using it. Morrow suggests that even if individuals hold good morals and values regarding technology, negative outcomes can still occur due to accidental mishaps, short-term thinking, or a collective action problem (2023, p. 22). People were using refrigerators that emitted ozone-destroying chemicals without knowing that they were harming the environment. For this reason, Morrow asserts that inventors have the duty to carefully evaluate the potential impact of their creations on human behavior (2023, p. 24). Additionally, technologies should be crafted in a manner that mitigates any harmful outcomes to the greatest extent possible. In certain instances, it may even be deemed unethical for an individual to pursue the advancement or dissemination of such technology (Morrow, 2023, p. 24).

The contrasting perspectives of the value-neutral and value-laden theories provide valuable frameworks for analyzing and comprehending the implications of emerging technologies such as Web3. In a subsequent chapter, I will explore the trend of humanitarian neophilia in the humanitarian sector, a term that describes the

fascination with innovation and its implementation across various industries and sectors. This thesis raises the issue of neophilia sans humanitarianism as it is a phenomenon prevalent in the tech industry, which frequently celebrates and embraces new inventions. The swift adoption of blockchain technology exemplifies society's captivation with new and innovative technologies. In the media, blockchain has been hailed as a groundbreaking technology with the potential to disrupt conventional industries and revolutionize various aspects of our lives. However, projecting the possible benefits of emerging technologies like Web3 is one thing, while critically assessing the values and ethical considerations underlying their development and implementation is another. The value-neutral theory contends that researchers should scrutinize and analyze emerging technologies like Web3 without any preconceived notions or biases. This entails approaching the study of Web3 and other emerging technologies with an entirely objective outlook, focusing solely on the technical aspects and potential benefits they can offer. In contrast, the value-laden theory argues that emerging technologies like Web3 cannot be separated from the social, cultural, and ethical values that surround them. This thesis asserts that it is crucial to recognize that the development and implementation of blockchain technologies are not value-neutral endeavors. This will be most evident in the section where I analyze the "Blockchain for Good" movement and the repercussions it has had on certain socio-technical systems in which blockchain has been implemented.

Technological Determinism and Code is Law

Technological determinism is a theory that suggests that technology has an autonomous power to shape and control society (Wyatt, 2023, p. 26). This theory emphasizes that technology drives societal change and human behavior is primarily shaped and determined by the development and adoption of new technologies. Technological determinists believe that culture and society do not have agency in shaping the direction of technology, but that technology determines society's course (Dusek, 2006, p. 84). Technological innovation happens outside of the confines of society, arising from the activities of scientists, inventors, and engineers (Wyatt, 2008, p. 168). Meanwhile, technology exerts a direct effect on the structure and organization of social systems (Dusek, 2006). Technological determinism is

shrouded in a veil of utopianism, often wielded by politicians and other stakeholders as a justification for implementing certain technological advancements. Positing that technology will drive progress and improve the human experience, they might assert that predictive algorithms have the potential to mitigate crime rates. Nonetheless, the notion of technological determinism also harbors a dystopian undertone, prompting apprehension regarding the possible adverse effects of technology on society. Detractors can volley back to the aforementioned politicians that predictive algorithms could be discriminatory and result in racial profiling of select minority groups.

There are several different technological determinism theories, but they all share the core belief that technology is the driving force behind societal change. The two types most commonly used by technocrats are technological solutionism and permissionless innovation. Technological solutionism, as described by Evgeny Morozov, is a belief that technology can solve all of society's problems (2013). This perspective holds that technology alone can solve societal challenges without needing more profound social or political changes. On the other hand, permissionless innovation proponents argue that allowing unrestricted technological advancement is essential for progress and economic growth, as it allows individuals and organizations to flexibly and innovatively explore new possibilities without being hindered by regulations or social norms (Dotson, 2015). This rhetoric is used by Silicon Valley entrepreneurs, such as Jeff Bezos (Amazon) or Peter Thiel (Paypal and Palantir), who advocate for innovators to "go fast and break things" to avoid red tape and unleash the full potential of technology for societal development (Dotson, 2015).

Critics of technological determinism state that this theory fails to acknowledge the reciprocal relationship between society and technology. They point out that technology is not an independent force but a product of social processes and decisions individuals and societies make. Though most academics repudiate this theory, technological determinism is still popular among policymakers and industry leaders who view technology as the primary driver of societal progress. It completely removes democratic agency and reduces societal change to a predetermined outcome guided solely by technological advancements (Wyatt, 2023, p. 30).

Furthermore, as some technical systems grow more complex and interconnected, it becomes increasingly difficult to attribute societal change solely to technology. Langdon Winner (1977) discusses the rise of "autonomous technology," which refers to systems that operate independently, making decisions and taking actions without direct human control or intervention. These instances of "autonomous technology" raise vital ethical concerns and questions about who or what is responsible for the consequences of these technologies. There is a growing body of literature examining the implications and effects of new technologies such as blockchain and Web3 on society[8]. Taking a deterministic perspective on the impact of these technologies on society and the economy would be unrealistic and unproductive. It is essential to understand that technological determinism is not a fruitful or realistic way to comprehend the interactions between technology, economy, and society (Wyatt, 2023, p. 30).

The concept of technological determinism within the realm of Web3 and blockchain technology implies that these innovations possess an inherent capacity to drive societal change and reshape industries, regardless of the intentions or values of their creators. Though venture capitalists and technologists would love to embrace this perspective as they stand to benefit economically from the widespread adoption of Web3 and blockchain technology, it is essential to question the validity of technological determinism. The most opposing argument to technological determinism in this context can be found in the Code is Law paradigm, which encapsulates the notion that technology can serve as a governing and regulatory force, with software coding taking on the role of a legal framework. According to scholar Campbell-Verduyn (2017, p. 8), certain design features embedded in technology can shape the behavior and interactions of users, effectively replacing traditional legal systems (such as laws and regulations) with self-executing codes. Moreover, specific technological frameworks, including those associated with transformative technologies like the Internet and blockchain, can be regarded as "arrangements of power" that significantly shape the dynamics of socio-economic exchanges (Benkler, 2011, p. 722). For example, the influence of the Internet, with its values and principles of open access to information and decentralized

[8] The most recent example I found is the *Stanford Emerging Technology Review*, which is an inaugural report created by Stanford University to report on new, transformational technologies to policymakers and the public sectors.

communication, has become ingrained in societal norms. De Filippi and Hassan (2016) have argued that the regulation of Internet users has increasingly relied on code as a means of control, and in the era of blockchain technology, a similar dynamic is at play. Blockchain technology can create and mimic existing social, economic, and political structures through its decentralized nature and smart contracts, a topic this thesis will explore in the next section on political imaginaries. This means that programmers can implement preexisting rules and regulations or create new ones that align with their values and interests within the code. De Filippi & Hassan point out that Web3 technologies transition from code being considered law to the definition of law itself becoming intertwined with code (De Filippi & Hassan, 2016). This shift implies that "law" on the blockchain can be prefiguratively determined through algorithmic systems and code. Given that a significant number of Web3 projects currently operate outside traditional legal frameworks, it is crucial to ponder over the potential implications if the system solely relies on the underlying code without external sources of regulation.

Political Imaginaries, Prefigurative Politics, and Blockchain

Given the previous discussion I laid out concerning the ethics of Web3, it seems blockchain technology is constantly teetering between techno-utopianism and skepticism, with different actors projecting their political imaginaries onto it. In an article titled "The Political Imaginaries of Blockchain Projects" (2020), the authors define a *political imaginary* as the collective visions, aspirations, and ideologies that shape how actors understand and engage with political issues. The article delves into the intricate interplay of technologies that gave rise to blockchains, with particular emphasis on the ledger and the internet's pivotal role. The authors contend that the development of any technology with broad applicability, such as the ledger or the internet, is shaped by diverse political ideologies or imaginaries, leading to varied outcomes. For instance, the ledger facilitated the exchange of goods and services by establishing a credit system, leading to the concentration of power and wealth in societies. Conversely, the internet decentralized communication and knowledge, enabling direct information sharing among people, but has been used by different political factions for both positive and negative purposes (Husain et al., 2020, p. 380). Both of these technologies gave rise to the blockchain, which is

creating new political imaginaries that have the potential to reshape our collective understanding of politics, both in the real world and the digital realm.

According to Husain et al., blockchain projects embody the principles of "prefigurative politics" through their intentional design, which reflects and materializes alternative political and socio-economic ideals as well as power structures in both their technical framework and organizational objectives (Husain et al., 2020, p. 380). Blockchain projects are not just about technological advancements or increases in productivity but serve as vehicles for expressing and enacting different political visions. In this paper, the authors clearly express that technology is "neither neutral nor apolitical in its technical design or socio-economic implementation" (Husain et al., 2020, p. 381). Incorporated within blockchain projects are various inherent features of accessibility, decision-making, and value—which collectively impact the power dynamics between individuals and communities. These dynamics can shape the political agency of actors involved in blockchain projects and have broader societal implications.

When considering the integration of political ideologies into blockchain projects, it is crucial to recognize our role in shaping technological advancements. Husein et al. argue that technology cannot be divorced from human agency and politics, as the creation, implementation, and use of technologies like blockchain can have significant political consequences (2020, p. 382). This means that the technology is not neutral but rather reflects and reproduces existing power structures and ideologies. Unfortunately, technology's effects and autonomy are often disregarded or underestimated by the people developing and implementing it, leading to a lack of critical analysis and accountability (Husain et al., 2020, p. 382). Turning a blind eye to the repercussions of Web3 has resulted in a polarizing discourse regarding blockchain projects, with some seeing it as a revolutionary force for decentralization and empowerment, while others view it as a tool for authoritarian control and surveillance (Husain et al., 2020, p. 382). To fully comprehend and harness the potential of technology in shaping our political agency, it is essential to investigate how blockchain can bring about transformative change. This requires us to examine important questions, such as the flexibility and openness of the conceptual ideas behind blockchain and how intentional the development of these concepts was

initially. Additionally, we must consider whether those working with blockchain acknowledge the political implications inherent in their technology (Husain et al., 2020, p. 382).

For Swartz, blockchain projects can be placed into two categories - they can either be radical, meaning that they are focused on creating "revolutionary social, economic, and political changes," or they can be incorporative, aiming to integrate blockchain into existing political and economic systems (Swartz, 2017, pp. 86–87). It is important to note that this distinction is not clear-cut, and there can be overlap between these two categories (Swartz, 2017, pp. 86–87). For example, start-ups frequently have a radical vision for using blockchain technology to disrupt existing systems. However, as they grow and gain recognition, they may have to incorporate aspects of the traditional political and economic systems to operate within the existing framework. Husein et al. emphasize that despite the transformative potential of these projects, nearly all of them incorporate some form of prefigurative politics - meaning they embody the desired politics and power structures for which they are striving (2020, p. 382). While blockchain projects have the potential to bring about transformative changes, many of them present a normative vision of an idealized future rather than reflecting current realities. To illustrate the influence of technological infrastructures on political systems, Brett Scott (2015) introduces the concept of the "Techno-Leviathan." Rather than providing an alternative, these infrastructures shape and perpetuate political systems and power dynamics in new ways. This is why it is crucial to recognize the inherent power structures embedded in the implementation of such systems.

In the realm of blockchain governance, blockchain projects frequently integrate and emphasize the "design principles" inherent in this technology, including attributes such as "access, disintermediation, decentralization, empowerment, and equality" (Husain et al., 2020, p. 383). These design principles shape the political imaginaries of blockchain projects, as they aim to create systems that challenge traditional power structures and promote inclusivity. Husain et al. analyzed and categorized a number of blockchain projects based on their political imaginaries, which fall into four types: (i) crypto-libertarians, (ii) crypto-commonists, (iii) crypto-governmentalists, and (iv) crypto-collaborativists (2020, p. 383). The initial two clusters (i and ii) aim to create

unique and innovative systems of governance that function separately from traditional institutions, which place them in the domain of crypto-anarchism. This involves utilizing blockchain technology *as* a means of governing. Clusters (iii) and (iv) fall under the crypto-institutionalist umbrella, aiming to incorporate blockchain technology into established political and economic structures, specifically through the use of blockchain *in* government. Crypto-libertarians (i) are proponents of minimal government intervention and emphasize individual freedoms, while crypto-commonists (ii) advocate for collective ownership and resource sharing. Crypto-governmentalists (iii) are typically established government institutions that seek to integrate blockchain technology into their systems to enhance efficiency, transparency, and trust. In contrast, crypto-collaborativists (iv) aim to experiment collaboratively with current governmental structures, aiming for hybrid models of governance that combine traditional institutions with decentralized blockchain technologies. To simplify this complex typography, the authors have created a grid that highlights the key characteristics and goals of each cluster (see Fig. 2).

Table 1 Typology of blockchain imaginaries

	Crypto-anarchists		Crypto-institutionalists	
	Crypto-libertarians	Crypto-commonists	Crypto-governmentalists	Crypto-collaborativists
Basic political imaginary	Free-market libertarian political economy	Commons-based political economy	Free-market, government regulated political economy	Commons-oriented, municipalist political economy (hybrid), transnational movements
Mode of governance	Decentralized mass-driven, individualistic	Decentralized collectivist, commons-driven	Centralized, state-run	Partially decentralized, municipal and civil society, transnational institution, and global civic society
Value and incentives	Speed, efficiency, risk, growth	Equality, social justice, ecological (commons goals)	Efficiency, transparency, accountability, growth	Collaborativism, translocalism
Political scale	Global/translocal	Local/translocal	National	Local/municipal/translocal
Implementation process	Start-up/crowdfunded	Start-up/crowdfunded	Government-led	Municipal/citizen-led, institution-led
Dominant node of power	Market, mass consensus	Collective	National government	Municipality/city
Examples	Most cryptocurrencies (Bitcoin, Litecoin EoS etc.), SunExchange, DAOStack, Bitnation, Project Graceland	FairCoin, Democracy Earth, WePower, RightMesh, P2P Models	E-estonia, GrantSolutions, China's social credit system, Smart Dubai	Colony, FairBnb, ACT community mobilization, Decode, Berkeley Blockchain Initiative

Fig. 2 Typology of blockchain imaginaries, 2020. From *The Political Imaginaries* by Husain et al., p. 381

After thorough research of the selected blockchain projects, Husain et al. found two predominant themes, encompassing concepts like 1) decentralization and disintermediation and 2) access, inclusion, and empowerment of individuals (Husain et al., 2020, p. 385). Within group (1), the authors showcase how these characteristics are most often referenced and appealed to by blockchain initiatives,

as the architecture of blockchain technology effectively eliminates the need for intermediaries such as banks and governments. Nevertheless, while the decentralization of nodes enables the possibility of disintermediation, it is worth noting that not all blockchain projects are designed solely for this purpose. In the case of Bitcoin, the system has established a distinct governance system that, unfortunately, exhibits centralized tendencies due to large-scale mining operations that pose risks of collusion or cartelization (Husain et al., 2020, p. 385). Like the traditional financial system, Bitcoin's "social life" is marked by inequalities in wealth and power. One begs the question as to the extent to which these blockchain projects are truly capable of challenging existing power structures and creating more inclusive and equitable systems. Replacing traditional authorities with blockchain governance perpetuates existing power structures, as demonstrated by the concentration of power in large-scale mining operations within the Bitcoin ecosystem. These critiques are not only limited to Bitcoin but also extend to other blockchain projects that claim to promote decentralization and disintermediation, as disintermediation for the sake of decentralization alone may not guarantee a more equitable and inclusive system. Schneider (2019) asserts that decentralized projects eventually morph into centralized systems due to power imbalances outside the blockchain ecosystem. Oftentimes, cryptocurrency wealth equates to the concentration of wealth in the external world, as well as the hands of a few early adopters and mining operations, which challenges the idea of decentralized power distribution (Schneider, 2019). These problems can be counteracted by placing checks and balances or using diverse modes of decentralization within blockchain projects.

Regarding group (2), most of the problems these projects want to solve concern the digital and democratic divide. The digital divide refers to the disparity and inequity in accessing and utilizing digital technologies, particularly the internet, which can result in "further disadvantages for marginalized groups within society" (Min, 2010, p. 22). This means that individuals with limited access or skills concerning digital technologies may encounter additional obstacles and drawbacks. Conversely, the concept of the democratic divide, coined by political scientist Pippa Norris in 2001, describes how people use the internet in various ways for political engagement, and Husein et al. assert that this idea can be extended to include attitudes and skills

regarding blockchain technology (2020, p. 387). It is essential to acknowledge that there may be discrepancies in individuals' abilities to comprehend and engage with the blockchain system, which can be influenced by their existing knowledge, viewpoints, and socio-economic circumstances. This could potentially worsen existing divisions and inequalities. Start-ups and blockchain projects expecting diverse populations to adopt and embrace new technological systems without considering these disparities may inadvertently exacerbate existing social inequalities.

The "Blockchain for Good" Movement: Blockchain Will Change the World and How It Did Not

In 2016, an article popped up in *The Guardian* titled "Blockchain: The Answer to Life, the Universe and Everything?" in which technology writer Alex Hern highlighted the potential of blockchain technology to revolutionize various sectors, including finance, supply chain management, social services, and even the prevention of human trafficking (2016). At that time, pockets of users began to pop up online, believing in the power of blockchain to "save everything" and bring about positive change in society. For instance, Don and Alex Tapscott's book "Blockchain Revolution: How the Technology Behind Bitcoin is Changing Money, Business, and the World" offered a completely utopian view of blockchain. With this technology, they contend, it was possible to establish a system where there would be no intermediaries, thereby reducing instances of abuse of human and civil rights (Tapscott & Tapscott, 2016). Due to this perceived potential for empowering individuals against exploitation and financial inequality, it was only natural that blockchain technology would eventually find applications in humanitarian and activist pursuits. For example, Vitalik Buterin made a substantial philanthropic contribution towards supporting causes like malaria prevention and existential risk research using Ethereum and its associated cryptocurrency ether (Sankaran, 2021).

Furthermore, a swiftly expanding cluster of initiatives emerged under the "Blockchain for Good" paradigm, which believes that the inherent characteristics of blockchain technologies, such as transparency, traceability, and security, have the potential to make a meaningful impact on society by promoting social good and sustainability (Kaal, 2022, p. 881; Smith & Srivastava, 2022). These movements place emphasis

on ethical considerations and responsible practices in implementing blockchain technology. Their primary objective is to tackle societal issues and foster positive transformation across different sectors, including supply chain management, healthcare, energy, and finance (Kaal, 2022, p. 881).

While the hype around "Blockchain for Good" grew, so did the skepticism and critical analysis surrounding it. Parry and Collomosse, for instance, argue that there is a limited understanding of the value and benefits associated with implementing blockchain technology for positive purposes (2021, p. 2). They point out that assumptions about its inherent goodness are often based on specific areas of study or simply because it exists in a non-financial context (Parry & Collomosse, 2021, p. 2). For example, the authors highlight how identification initiatives for migrants can have different implications depending on one's perspective. While these initiatives may benefit providers by enabling easier profiling and identification, they also pose potential risks such as discrimination and endangerment to participants. Therefore, the assessment of innovation as "good" or not depends on both context and individual viewpoints. According to Olivier Jutel, the use of blockchain in humanitarian and activist efforts has consistently posed challenges for developing countries in regulating this emerging technology and safeguarding their citizens (Jutel, 2022). The media and PR machinery that surround the blockchain industry often present it as a panacea for all societal problems, which can lead to inflated expectations and a lack of critical evaluation of the long-term consequences of applying techno-solutions to complex social issues (Jutel, 2021). Not only that, blockchain projects are often driven by colonial and neoliberal ideologies and soft power agendas veiled under the guise of humanitarianism and activism (Jutel, 2021). I have also brought up the fact that the “Blockchain for Good” paradigm appraises societal good through a cold, financial lens (Semenzin, 2023). Humanitarianism cannot function within this kind of framework alone, as it completely overlooks the human elements of empathy, compassion, and the need for human connection.

In their essay on "Web3 and the Trap ‘For Good’", Sristava and Smith caution against the uncritical adoption of blockchain technology for humanitarian and activist purposes (2022). They argue that 1) decentralized technology does not lead to an equal distribution of power and resources but rather can lead to the reinforcement of

existing power imbalances; 2) most, if not all, of the actors in power are motivated by profit and self-interest and are creating business models that exploit the vulnerabilities of developing countries and marginalized populations; and 3) there is no accountability systems in place to ensure the ethical and responsible use of blockchain in humanitarian and activist efforts (Smith & Srivastava, 2022). If something goes awry or the impacted communities are exploited, the repercussions are minimal, if they exist at all. A clear case that demonstrates this phenomenon is the Axie Infinity controversy. Initially proposed as a means to alleviate poverty in developing countries, the project ended up taking advantage of and causing financial hardships for numerous vulnerable individuals.

Axie Infinity was a game that leveraged blockchain technology and cryptocurrency to allow players to earn income through gameplay. Though Axie never outright declared to be part of the "Blockchain for Good" paradigm, the "play-to-earn" (P2E) model, which aims to reward its players with cryptocurrency for their in-game activities, has been hailed as a transformational gaming model (Loucaides, 2022). The P2E model levels out the playing field by allowing players from all socio-economic backgrounds to earn income through gameplay, potentially providing financial opportunities in regions with limited job prospects (Loucaides, 2022). Users can exchange their cryptocurrencies for real-world money and improve their lives. Though it is not the perfect solution to end all poverty, P2E seamlessly blends entertainment with the prospect of monetary rewards, prompting many proponents to anticipate a transformative impact on labor and income structures (Chow & De Guzman, 2022). It was the perfect blend of humanitarian intentions and financialization.

The game's premise is a generic, monster-battling contest where players collect and trade colorful virtual creatures called "Axies." The players breed, raise, and battle with these Axies, and successful battlers are rewarded with Smooth Love Potion (SLP) tokens, which can be sold on cryptocurrency exchanges. Furthermore, players can earn Axie Infinity Shards (AXS) by participating in seasonal tournaments and selling high-value Axies in the marketplace. One Filipino player reported earning more than 37,000 pesos (about $740) in two weeks through playing Axie Infinity, which was triple the amount he would earn as an IT analyst in Manila (Servando & Sayson, 2021). Some reported making as much as $2000 a month, creating a frenzy

during the pandemic years of economic uncertainty (Loucaides, 2022). The game developed a substantial fan base in the Philippines, constituting approximately 40% of its total user population at one specific juncture (Chow & Guzman, 2022). Roughly a quarter of the Philippines population lived under the poverty line at the time, and many had lost their jobs during the pandemic, which made earning a livelihood through playing Axie Infinity particularly enticing (Chow & Guzman, 2022). The amount of poverty was further exacerbated by the COVID-19 pandemic, where many migrant workers returned to the Philippines and faced limited job prospects (Chow & Guzman, 2022). Several venture capitalist firms and investors also recognized the potential profitability of Play to Earn games, leading to increased interest and investment in the blockchain gaming industry. Sky Mavis, the Vietnamese gaming company responsible for creating Axie Infinity, received financial backing from prominent venture capital firms Andreessen Horowitz and Paradigm (Loucaides, 2022). With a valuation exceeding $3 billion in October 2021, this investment further solidified Sky Mavis as a significant player in cryptocurrency and blockchain (Loucaides, 2022).

Blockchain-based games like Axie Infinity initially promised to alleviate poverty among vulnerable populations; however, a pattern of exploitation and financial hardship quickly emerged. People who invested early into the game could accumulate large amounts of cryptocurrency and in-game assets, creating a significant wealth gap between early adopters and latecomers in the game community. A substantial investment was necessary to participate and become part of Axie Infinity, making it inaccessible for individuals who needed more initial capital. As a result, many players resorted to borrowing Axies from lenders based primarily in Europe or the United States or opted to join scholarship programs that offered opportunities for entry into the game without bearing these high initial costs (Chow & Guzman, 2022). The owners of these borrowed Axies would then receive a portion of the earnings made by the borrower, ranging from 30% to 50% of the scholar's profits (Chow & Guzman, 2022).

Furthermore, the entire system was unregulated, allowing the owners to forge ownership agreements and exploit the labor of these borrowers without providing them with fair compensation (Chow & Guzman, 2022). As 2021 drew to a close, the

tangible value of the in-game currency and assets experienced a decline (Chow & Guzman, 2022). This depreciation can be attributed to the growing participation of players in the game and their increased production of SLP potions. More frighteningly, critics of Axie Infinity have consistently raised concerns regarding the economic model employed by the P2E system, which they deemed to be highly unsustainable (Loucaides, 2022). The game relies solely on the influx of new players as its primary source of economic activity, lacking alternative means for generating tenable financial input (Loucaides, 2022). Once the number of available Axies exceeded the level of demand, it was inevitable that the entire economy would crash and burn (Loucaides, 2022).

In November 2021, the profitability of Axie Infinity scholars experienced a decline that resulted in their earnings falling below the established minimum wage in the Philippines (Chow & Guzman, 2022). Then, by the spring of 2022, playing the game was rendered an unsustainable source of income for numerous players (Chow & Guzman, 2022). Scholars who were promised fair compensation and the opportunity to earn income through playing Axie Infinity were ultimately faced with financial hardship and exploitation. Many reported they were in debt, owing thousands of dollars to friends or family who gave them the necessary funds to participate in the game (Chow & Guzman, 2022). The dream of radicalizing the workforce and empowering individuals through play-to-earn games like Axie Infinity became a harsh reality of economic instability and inequality. In addition, emerging economies in these circumstances function as experimental fields for novel technologies. The discussion of risk, appropriateness in terms of technology and politics, and empowering end-users within specific contexts is persistently bypassed in blockchain white papers and project reports published by blockchain companies (Jutel, Blockchain humanitarianism, 2022). Axie Infinity is just one example of the challenges and controversies surrounding projects promoting the innovative use of blockchain systems for the benefit of society.

Humanitarianism is often used as a guise to promote blockchain projects, which is not bad if the results are there, but the realities of economic exploitation and inequality in these systems cannot be ignored. In the past, a limited number of brands, like Benetton of The Body Shop, openly expressed their political views, but

in recent years, more and more corporations have become politically engaged and using their platforms to advocate for social justice causes (Mahdawi, 2018). Moreover, they are increasingly inclined to associate themselves with social and political issues in order to strengthen their brand image and establish deeper connections with consumers. This is partly driven by the rising consumer expectation for brands to take a stand on societal matters, with 65% of individuals expressing this sentiment (Vredenburg et al., 2020). As a result, companies have an obligation to engage in both authentic and disingenuous forms of brand activism to maintain their reputation and relationship with consumers. Inauthentic forms of brand activism, also known as "woke-washing," "virtue signaling," or moral grandstanding, involve companies engaging in superficial and insincere acts of activism solely for the purpose of appearing socially conscious and gaining positive attention (Vredenburg et al., 2020). Axie Infinity is a prime example of a company that has used blockchain technology to create a virtual economy and claims to empower individuals in the developing world through play-to-earn opportunities while simultaneously benefiting from the economic exploitation of players and the concentration of wealth within the game. In the articles discussing Axie, its "for good" angle is often brought to the forefront, making it a key selling point for the company (Nunley, 2021; Shen & Mathews, 2021). Even the game's blog site prominently featured an article highlighting the impact of the game on Filipinos during the COVID-19 pandemic, positioning it as a pivotal narrative that would elevate Axie "for years to come" (Axie Infinity, 2020). This is why many harbor doubt and skepticism regarding blockchain technology's transformative and advocacy-oriented attributes within the humanitarianism and activism sphere. The messages being put forth by corporations may not necessarily align with their actual values and practices.

The increasing use of blockchain technology in the context of humanitarian and development projects has raised important questions about technological determinism, value neutrality, and value-laden aspects. While the application of blockchain technology in humanitarian and development projects may seem promising, it is crucial to examine the underlying assumptions and implications critically. One of the challenges in this context is the prevalence of technological determinism, which this thesis has explained, overlooks the broader socio-political and economic factors that shape and influence technology's impact. Moreover,

embracing blockchain technology within neoliberal capitalist frameworks further complicates the notion of value neutrality. For a technology that claims to be value-neutral, the blockchain has become deeply entangled with the values and interests of capitalist systems. The neoliberal aid model, which promotes public-private partnerships and emphasizes efficiency through digital technologies, aligns with the principles of competitive acquisitions, audit culture, and transparency (Jutel, Blockchain humanitarianism, 2022). These standards prioritize competition and market-driven approaches, potentially overshadowing the core values of humanitarianism and sacrificing the needs of the most vulnerable populations in pursuit of profit and efficiency. Furthermore, the rhetoric surrounding blockchain technology often emphasizes empowering the individual and correcting asymmetries within humanitarianism. I agree that inclusivity and equity are noble goals to pursue, but as money and finances are also involved, the ingrained systemic issues and neoliberal desires often get in the way of achieving true social transformation. It is of the utmost importance, then, to critically examine whether these claims of empowerment and correction are realized in practice or if they merely serve as marketing strategies to promote the adoption of blockchain technology.

Embedding ethics within technology could play a crucial role in addressing the concerns surrounding technological determinism and value neutrality in "Blockchain for Good" projects within neoliberal capitalist frameworks (Campbell-Verduyn, 2017). This approach acknowledges the inherent values and biases that can be inadvertently programmed into technology and seeks to address and mitigate them actively. Embedded ethics can help ensure that these initiatives align with humanitarian values and prioritize the well-being of affected populations by integrating ethical considerations into the development and deployment of "Blockchain for Good" projects. Moreover, embedded ethics can help challenge the dominant neoliberal assumptions and values that underpin blockchain technology within capitalist systems. For example, the projects examined in this thesis highlight the potential of blockchain technology in truly aiding the most vulnerable populations rather than being driven solely by profit motives or efficiency concerns. The creators of these projects collaborate closely with the individuals or causes they are supporting. As this thesis progresses, it will become clear that these authors are cognizant of the values they are instilling and are mindful of any unintended negative

outcomes. In the event that such issues arise, they are committed to swiftly addressing and resolving them. In the next chapter, this thesis will lay out the fundamentals of activist art practices and how they can be used to challenge and disrupt the dominant capitalist narratives within the "Blockchain for Good" projects.

3. Introduction to Activism and Activist Art

In this section, I will analyze the key components of activism and activist art, as well as their interplay with the media. I will also explore the challenges encountered when conveying artistic messages through different forms of media platforms and delve into the idea of humanitarian neophilia – a desire for innovation within humanitarianism purely for the sake of innovation itself. In this context, blockchain technology is seen as holding immense potential for driving innovative approaches within the humanitarian sector and offering fresh solutions to tackle societal issues. However, it is important to critically evaluate this claim by considering previous chapters that have examined both the positive and negative impacts of blockchain technology in real-life and digital contexts. To develop a holistic comprehension of the impact of blockchain technology on activism and activist art, it is crucial to analyze the core principles and concepts underlying these domains and their potential overlaps within the realm of Web3 and blockchain technologies. While certain artists and activists have reported favorable outcomes in leveraging Web3 technologies, particularly in terms of crowdfunding initiatives and mobilizing social media communities, as previously shown, others have faced backlash for embracing a technology that possesses specific technical limitations when there are alternative sustainable technologies available to achieve similar objectives.

Moreover, there have been allegations that certain artists exploit activist art for financial gain or produce blockchain-based artwork, such as NFT art, that lacks artistic merit and originality. The main message of this thesis is to highlight the potential risk of prioritizing blockchain technology over traditional principles and values in activism and activist art. Therefore, it is essential to not blindly embrace new technology but rather evaluate its compatibility with the fundamental concepts and principles of these domains.

Activism, Activist Art, and the Media

Art activism has historically faced exclusion from mainstream cultural institutions, but it is currently gaining attention and recognition, not only within the art world but also in social and political conversations. According to artist Gregory Sholette, artistic activism is significantly rising, rivaling the civil rights movements of the 1960s and 1970s, as images depicting visual resistance and innovative dissent have become pervasive across social media platforms, street protests, and public areas (Sholette, 2022, pp. 4–5). It is a component of a larger, growing domain of cultural analysis and an artistic trend that has been labeled as a fresh category of political expression, encompassing relational aesthetics, dialogical aesthetics, and social practice art (Sholette, 2022, p. 15). Today, activist art has advanced from the periphery to occupy a more prominent space within the realm of art in just over a decade. Rather than solely focusing on politics or addressing social injustices, activist artists distinguish themselves by utilizing agitation and protest as artistic mediums. These artists often collaborate with other artists and non-art political activists to bring about societal change. While some engage in subtle forms of activism, others adopt a more confrontational approach that blurs the line between art and activism. According to curator Peter Weibel, activist art could be seen as the "first new art form of the twenty-first century," whereas theorist Boris Groys considers it to be a completely unprecedented phenomenon that has reshaped conventional boundaries and expectations of art (2015; 2014). Sholette, however, argues against these perspectives by asserting that the history of activist art is complex yet dates back centuries to events such as the French Revolution and the Paris Commune (2022, p. 22).

Aesthetics is more than the Kantian concept of beauty, the authors of "Protest and Social Movements" insist - it encompasses a plethora of performances and artistic expressions (McGarry et al., 2020, p. 17). Although aesthetics primarily focuses on aspects such as "quality, style, taste, or value" in art, it does not fully capture the "complex communicative and expressive processes in protest action, and what it means for democratic processes" (McGarry et al., 2020, p. 17). Moreover, activist art is powerful, as it has the potential to question and transform political and societal systems by challenging dominant narratives, promoting critical thinking, and mobilizing communities collectively (McGarry et al., 2020, p. 17). This concept dates back to the 19th century with the belief of French social theorist Henri de

Saint-Simon that art has the potential to inspire societal change and advocated for artists' involvement in politics (Sholette, 2022, p. 166). Artists, in his opinion, are t part of the vanguard of a progressive society, working alongside scientists and industrialists to employ their creative abilities in envisioning and constructing an ideal world. Prior to Saint-Simon, Plato cautioned about the potential risks associated with art and its capacity to manipulate emotions and distort reality, which could result in a misinterpretation or distortion of the truth (1997). Only those artists who conformed to the state's agenda were deemed acceptable and permitted to be part of an ideal society; others would be expelled as they were seen as jeopardizing the stability and integrity of the state. This indicates that throughout history, the connection between art and politics has been intricate, encompassing the capacity to challenge established systems as well as uphold prevailing structures.

For activists to effectively connect with the masses and create change, they must communicate their message through engaging and impactful mediums. In the introduction to *The Routledge Companion to Media and Activism*, Graham Meikle delineates several images and artworks that have become iconic symbols of activism. The determined stance of Ieshia Evans standing resiliently in front of riot police during a Black Lives Matter protest, the newsreel footage of Suffragettes fighting for women's right to vote, and the audio of Martin Luther King Jr.'s iconic "I Have a Dream" speech highlights the significance of activism and activist art in molding cultural, social, and political environments is vividly reflected through these images and recordings. Additionally, these examples emphasize the crucial role of diverse media forms in effectively disseminating such movements (Meikle, 2018, p. 1). With the appropriate media platforms and technologies, the impact of activism would be greatly expanded, and its reach would be constrained to localized spaces. Meikle broadly defines the term "media" to encompass not only traditional forms such as television, newspapers, and radio but also digital platforms and social media networks through which meanings and messages are disseminated, circulated, and contested to the masses (Meikle, 2018, p. 1). Conversely, activism refers to "the widest range of attempts to effect social or cultural change," focusing on events, protests, and campaigns to challenge and transform existing power structures (Meikle, 2018, p. 2).

The examples Meikle provides in his article showcase the importance of media in documenting and disseminating the actions and messages of activists, creating a record that can amplify their voices and reach a wider audience. They also illustrate how important it is for activists to strategically craft symbols and situations that resonate with the public and capture the attention of media outlets (Meikle, 2018, p. 1). Media and communications scholars have recognized the impact of activist art in mobilizing collective action and creating social change (Meikle, 2018, p. 1). Media always offer or impose spaces where citizens and governments engage in political contestations and negotiations, making it a crucial tool for activism. In these spaces of contestation and negotiation, activist art challenges the prevailing systems of power that shape and govern a particular society, as well as provides spaces for the cultural responses and expressions that manifest how people feel about and respond to social and political issues (Meikle, 2018, p. 2). They foster resistance against prevailing power structures and enable individuals to articulate their views on pressing issues. By engaging in such artistic practices, people actively shape societal discourse by presenting alternative perspectives outside the boundaries imposed by established powers (Meikle, 2018, p. 2). This process promotes critical reflection, empowers marginalized voices, and contributes to broader social transformation.

Meikle also touches upon social movements, which have become more common since the 1960s as a response to various social, political, and economic injustices. *Social movements* are defined as collective efforts by groups of people to bring about societal change, often organized around a specific issue or set of issues (Meikle, 2018, p. 2). Tilly and Tarrow point out four hallmarks of social movements:

1. They engage in persistent efforts to assert their claims and carry out collective actions.
2. They employ disruptive tactics to challenge existing power structures.
3. They form collective identities among participants (i.e., wearing matching colors and chanting slogans).
4. Draw on social movement bases, such as organizations, networks, and communities, to mobilize and maintain momentum (Tilly & Tarrow, 2015, p. 11).

Meikle purports that social movements arose concurrently with the early stages of modern media systems (Meikle, 2018, p. 2). With each new technological advancement, these movements found new ways to harness media to amplify their messages and mobilize their efforts. Effective communication is critical to social movements, serving as a means of informing and persuading others. The act of collective action sends a message to society about its very structure and organization, criticizing the existing power dynamics and advocating for alternative ways of being (Melucci, 1996, p. 9). As a result, media and activism are closely linked, and understanding their relationship is essential to comprehending the dynamics of social change.

One medium that is most important for gaining attention is the news media. News media has tremendous power to shape public opinion and influence political discourse. Communication theorist James W. Carey states that

> [reality] is not given, not humanly existent, independent of language and toward which language stands as a pale refraction. Rather, reality is brought into existence, is produced, by communication—by, in short, the construction, apprehension, and utilization of symbolic forms (Carey, 1989, p. 25).

This means that the concept of reality is not a static and objective entity, but rather, it is formed through language and communication. For this reason, we should not ignore the significance of symbolic forms in shaping our perceptions and comprehension of what is considered to be real. It is often constructed through the lens of media representations, and the news media can select, frame, and interpret events and issues according to their interests and biases and turn them into news. Activists are acutely aware of this power dynamic and recognize the need to strategically engage with news media to shape public discourse and raise awareness about their causes and grievances. However, the media also has the potential to demonize and delegitimize activists and social movements, which presents a challenge for activists seeking to gain public support and legitimacy, meaning that activists are always treading a fine line between relying too much on technology and risking co-optation or being dismissed as superficial. Sean Scalmer

is one of the first theorists to highlight activists' dilemma when gaining media coverage. He likens the activists' interactions with the media to a "performance" (Scalmer, 2002, p. 41). Individuals and groups "perform" activism for various media audiences and must follow specific strategies (or principles) to navigate the complex terrain of media representation because only the events and actions deemed newsworthy by the media will receive coverage (Scalmer, 2002, p. 41). Another reason this interaction can be considered performance is that the media like to keep an eye out for oddities - the more novel and disruptive the activist actions are, the more attention they are likely to attract from the media (Scalmer, 2002, p. 41). Finally, the news media will not communicate the message the way the activists intended it to be communicated; rather, it will be a simplified and stereotyped version that fits within the media's predetermined narrative and agenda (Scalmer, 2002, p. 41). This is why activists have to craft their message to make it concise, impactful, and easily understandable for the media to convey their intended message effectively.

Meikle suggests that this dilemma can be tackled by ushering in changes to the media landscape to ensure that activists have greater control over the narratives surrounding their movements (Meikle, 2018, p. 5). Conversely, activists can also utilize alternative forms of media and communication, such as social media platforms, to bypass traditional gatekeepers and directly reach their target audience. Alternative media platforms allow for "democratic communication" and a space for people on the margins of society to share their perspectives, challenge dominant narratives, and mobilize support for their causes (Atton, 2006, p. 4).

Activist Art: A Comprehensive Overview

There is a long history of artists engaging in politics and using their art to express social and political critique. Francisco Goya, Pablo Picasso, Ai Wei Wei, and others have produced work reflecting their political stances. One of the essential discussions surrounding activist art during the 90s is the appearance of tactical media, that is, strategically using new media and communication technologies to promote social and political change. This type of media activism involves an inherent power imbalance between activists and the dominant institutions they challenge. It focuses on "mobility and transience, impermanence and reinvention," it is satirical

and often appropriates and manipulates pre-existing elements to generate alternative meanings that stimulate critical thinking (Meikle, 2018, p. 6). Scholars Scott (2000) and de Certeau (1984, p. 37) refer to this type of media consumption as "weapons" or "art of the weak."

Culture jamming is another form of activist art that involves remixing and repurposing existing cultural symbols and messages to subvert dominant narratives. It transforms a sign or an image into a tool for critiquing and challenging the power structures that produce and uphold those narratives. The word "jamming" can refer to an interruption/disruption/interference and the practice of collaboratively musically improvising and layering sounds (Meikle, 2018, p. 6). As editing software has become more accessible, culture jamming has proliferated on social media platforms. Content is constantly being pumped out and shared on various digital platforms, reaching millions of users worldwide. Although social media has been used for activism, it is not a perfect tool. Meikle points out that users are being surveilled by governments, corporations, and even their peers on these platforms (2018, p. 6). Media scholar Ethan Zuckerman is one of the leading voices in highlighting the potential pitfalls of social media activism. In his essay "The Cute Cat Theory of Digital Activism," he discusses how Web 1.0 was created for researchers and institutions, while Web 2.0 was designed for user-generated content and social interaction (2015, p. 4). To help activists, Zuckerman suggests using seemingly harmless online content to their advantage, such as pictures of "cute cats" (2015, p. 3). The theory suggests that activists should leverage this characteristic by concealing their activism within widely shared and popular material, such as cute cat videos or other engaging content. By doing so, they can reach a larger audience while avoiding suspicion from authorities and bypassing any forms of censorship or surveillance that may be in place. This approach enables activists to disseminate their message effectively and incite societal change without drawing unwanted attention (Zuckerman, 2015, p. 3). Unfortunately, several guardrails have appeared, making it harder for these groups to utilize these tools as they used to. By analyzing the Chinese and Tunisian political landscapes, Zuckerman showcases that authorities have started to crack down on online activism with Internet shutdowns/slowdowns, real-name registrations, coded language detection, and the corporate censorship of online content (2015, pp. 18-19). The biggest threat to

online activism, however, is the attention deficit of social media users. He says most people are more interested in trivial and meaningless content than activism or other meaningful activities. As more people saturate the internet, competition for attention increases. As the pool of content grows, it becomes increasingly challenging for activists to capture and maintain the attention of their target audience, as it did with the Kony2012 movement (Zuckerman, 2015, p. 19).

In response to these obstacles, researchers argue that activists can benefit from utilizing emerging media platforms. One solution involves reconsidering traditional notions of collective identity and action within the context of the digital era (Castells, 2004; della Porta & Diani, 2020; della Porta & Mattoni, 2015; Melucci, 1996). Bennett and Segerberg (2013) call this approach "connective action," emphasizing the importance of personalized, networked structures and flexible organizing tactics. This phenomenon has become more prevalent in late modern societies, where traditional institutions are losing their influence over individuals, and social connections are being replaced by expansive and flexible networks (Bennett & Segerberg, 2014). These networks play a significant role through the mechanisms of social media platforms without necessarily relying on strict organizational control or a collective identity (Bennet & Segerberg, 2013). At the heart of connective action is the process of personalizing politics because the advent of social media has ushered in "the convergence of public media and personal communication" (Meikle, 2018). Connective action is just the natural progression of activism in the digital age, where individuals have more outstanding agency and can participate in political action through online platforms. Organizations can be the driving force behind connective action and crowds, which can mobilize and coordinate actions through social media platforms without needing hierarchical structures or rigid collective identities (Bennet & Segerberg, 2013, p. 47). That is not to say that connective action has completely erased collective identity and traditional forms of activism. However, it offers an alternative approach that complements and expands upon existing methods of collective action (Meikle, 2018, p. 7).

Still, while social media has become a powerful tool for activism, it is vital to recognize its limitations. One limitation is the risk of shallow engagement and slacktivism, where individuals may share or like posts without taking further action.

This phenomenon, known as "clicktivism" or "armchair activism," refers to individuals' minimal effort to engage in online activism (Meikle, 2018, p. 7). One limitation of digital media is the creation of echo chambers, where people only encounter information confirming their beliefs. This phenomenon can lead to a lack of diverse viewpoints and hinder the development of critical thinking and open dialogue among activists. Additionally, relying on social media as a primary platform for activism can magnify inequalities in access to information and participation. For example, marginalized communities may have limited or no access to the internet or social media platforms, excluding them from participating in connective action. Furthermore, social media platforms' transient and ephemeral nature poses challenges for sustaining long-term activism.

Duncombe and Lambert open their article by recounting that humans process the world primarily through stories and that art has always played a crucial role in shaping and transmitting these stories (2018, p. 58). Rationality and logic alone are often insufficient to inspire action or create lasting change. Emotional and aesthetic experiences often make people re-evaluate their beliefs and take action (Duncombe & Lambert, 2018, p. 58). Though political scholars would like to believe that democracy is born out of rational deliberation and logical argumentation, the reality is that emotions and aesthetics play a significant role in shaping political beliefs and mobilizing individuals to engage in activism. As Duncombe and Lambert posit, "[p]olitics is about people's perceptions of the truth, their feelings about facts, and their visceral experiences of the world" (2018, p. 58). Though ill-intentioned actors can exploit these feelings, activist art can also harness them for the greater good. Facts and the truth do not exist in a vacuum; they must be repackaged and represented through signs and symbols to impact individuals positively (Duncombe & Lambert, 2018, p. 58). Louis Borges (1999) argues that art is a tool for transforming reality into something more meaningful, noteworthy, and profound, into something comprehensible to those around us. It can also create new realities and perspectives (Lorde, 1984, p. 37). The ability of art to elicit strong emotions and influence individuals is commonly known as the "sublime" (Lorde, 1984, p. 59). This phenomenon encompasses positive and negative experiences, although it remains intangible and elusive, defying description or quantification (Lorde, 1984, p. 59). The German philosopher Immanuel Kant referred to this phenomenon as the

"supersensible"; anything beyond what can be perceived by the senses is not directly accessible to reason or understanding (Brotherton, 2022). The sublime is awe-inspiring and a credible force that can compel individuals to reflect, question, and act upon their beliefs and values (Brotherton, 2022, p. 59). This "mystical power" has appeared in various religious and philosophical texts, from the Bible and the Quran to the writings of Plato and Aristotle (Brotherton, 2022, p. 59).

Activism deliberately questions, challenges, and changes prevailing power relations to achieve tangible results (Duncombe & Lambert, 2018, p. 63). It aims to elicit or prompt action to achieve a specific outcome (Duncombe & Lambert, 2018, p. 63). In comparison, art does not have a specific agenda or goal; instead, it aims to show new perspectives and meaning to human life (Duncombe & Lambert, 2018, p. 63). Great art possesses abundant significance, and its objective is to provoke cognitive reflection, evoke emotions, or transform our perspective (Duncombe & Lambert, 2018, p. 63). In short, art is a creative expression that evokes and generates emotional responses (Duncombe & Lambert, 2018, p. 63). Though these two seem distinct, art and activism can intersect in powerful ways to create activist art. Affect and effect can be intertwined in activist art, as the emotional impact of the artwork can lead to tangible changes in society (Duncombe & Lambert, 2018, p. 64).

Activist art harnesses the power of the sublime to create spaces of reflection on political and social issues, provoking emotional responses that can lead to transformative action. However, contentious perspectives exist on the exact definition and nature of activist art and its effectiveness in driving social change. According to Groys, activist art aims to dismantle and challenge the existing societal order (2014). This process involves envisioning a revolutionary potential for change and encouraging viewers to engage in imaginative contemplation of an alternative world (Groys, 2014). Mouffe argues that activist art has the potential to challenge and undermine the hegemonic power structures in what she refers to as an "agonistic" model of public space. In this model, artistically engaging with political issues can reveal suppressed narratives and shed light on aspects typically silenced by prevailing political discourses (Mouffe, 2007, pp. 9–10). For Bishop, activist art should encompass the conflicts and contradictions that arise from the ongoing struggle between autonomy and social intervention (Bishop, 2006). It encompasses

not only the formal structure of the artwork but also how its audience receives it (Bishop, 2006). The artist should actively engage with these opposing forces, acknowledging their existence and embracing them within their work. By doing so, activist art has the potential to create a space for dialogue and critical engagement while challenging established norms and structures. In this way, both the artistic process and its reception become sites of contestation where differing perspectives can be explored (Bishop, 2006).

Duncombe and Lambert take issue with these definitions, as they only partially capture the full scope and potential of activist art. For instance, it is crucial to differentiate between "political art" and "activist art" (Duncombe & Lambert, 2018, p. 62). Political art is often created to express a political message or make a political statement but does not work or involve itself in a political way (Duncombe & Lambert, 2018, p. 62). Activist art, on the other hand, goes beyond mere expression. Though organizations and advocacy groups might use activism as window dressing to promote a cause, true activist art should balance aesthetic expression and specific political goals (Duncombe & Lambert, 2018, p. 63). Activist art comprises both utilitarian and emotive aspects. It involves strategy, material change, subtlety, and cultural impact. It operates on multiple levels of accessibility and complexity, generating both practical results and emotional responses (Duncombe & Lambert, 2018, p. 63).

Humanitarian Neophilia and Beyond: When "Blockchain for Good" Becomes Tech Fetishism

Tom Scott-Smith expressed concerns regarding the humanitarian sector's excessive focus on technology and innovation, heavily influenced by the entrepreneurial culture of Silicon Valley (2016, p. 2229). He refers to this infatuation as "humanitarian neophilia," which represents a departure from traditional humanitarian principles towards an excessive preoccupation with new and innovative approaches (Scott-Smith, 2016, p. 2230). The term has both positive and negative connotations and can be used to describe technology enthusiasts as well as people who blindly follow fads and trends. In the context of humanitarianism, it describes an ideology that encompasses both political spectrums and couples it with a "techno-utopian

fervor" (Scott-Smith, 2016, p. 2230). It combines almost blind faith in the positive impact of technology and a solid commitment to broadening its reach through the market. Defining humanitarian innovation can be difficult, as it involves inventive and unconventional methods that may be unclear even to those working in the field. It aims to incorporate new technologies and involve private sector stakeholders to improve its outcomes (Scott-Smith, 2016, p. 2230). The media coverage of the latest gadgets and advancements has caused the wider public to associate these characteristics with humanitarian innovation. These inspire excitement and imagination, fostering faith that technology can conquer any problem. Unfortunately, it appears that market interests heavily influence the humanitarian innovation field, as many large private corporations are involved in producing humanitarian products (Scott-Smith, 2016, p. 2231). Because of these actors, there is a growing trend towards developing relief strategies with a business-oriented mindset.

In today's business landscape, staying ahead of the competition and adapting to the ever-changing environment of capitalism requires an innovative mindset (Scott-Smith, 2016, p. 2232). This same mentality is now being applied to those who champion humanitarian causes. Supporters of aid reform recognize that the aid sector is lacking in competition and has an outdated structure and, therefore, believes that embracing innovation is a critical step to staying relevant. To achieve this goal, advocates seek to overhaul the traditional top-down approach and instead promote bottom-up solutions. They maintain that innovation is essential for change and aims to generate more efficient and emancipatory relief by relying on market forces, incentives, and entrepreneurship despite potential pitfalls in the sector (Scott-Smith, 2016, p. 2232). The biggest detractor of this movement is that it creates a gap between innovators and the people they aim to help, which is reminiscent of the ideology propagated by Silicon Valley technologists (Scott-Smith, 2016, p. 2232). It emphasizes liberation, progressive intentions, and the promotion of humanitarian reforms, and foremost, it places emphasis on novelty. Nowadays, humanitarian innovation, just like Californian techno-utopianists, leverages emerging technologies and market dynamics to enhance aid efforts (Scott-Smith, 2016, p. 2233). Within official documentation, those who provide assistance are referred to as "suppliers," while beneficiaries are referred to as "consumers" (Scott-Smith, 2016, p. 2233). The ultimate goal of these documents is to develop novel products and

approaches to support those in need. Throughout history, humanitarianism has been linked to liberalism's principles of individual rights, equality, and freedom, as well as the "sans-frontièrist" movement's borderless approach to humanitarian efforts (Scott-Smith, 2016, p. 2234). However, in the 20th century, a group of "new" humanitarians opposed anti-authoritarianism and prioritized personal expression, transforming the humanitarian movement into something resembling neoliberalism. In the 1980s, the "sans-frontièrist" movement morphed into "anti-étatisme," meaning that borders were not the only obstacle in providing aid to communities but the state and government, as well (Scott-Smith, 2016, p. 2234). Humanitarianism has shifted towards promoting entrepreneurship and encouraging the utilization of modern technology for business among the less fortunate. This transition has also shifted the jargon and terminology in the field and, as a result, changed the perception of the entire sector from providing aid to facilitating transactions between aid suppliers and aid consumers. Aid recipients are no longer seen as "beneficiaries" but rather participants in impersonal transactions lacking a sense of human community. The act of giving aid is no longer perceived as an act of compassion motivated by human solidarity.

According to Scott-Smith, the economic terminology used to describe humanitarian organizations has drastically altered the core principles of the sector and how it is perceived by the general public (Scott-Smith, 2016, p. 2235). By focusing on these entities as "suppliers of humanitarian goods," the emphasis is placed solely on their material provisions. This narrow view overlooks humanitarianism's crucial roles in areas such as advocacy, long-term planning, coordination, and addressing the underlying causes of crises. Additionally, reducing humanitarianism to merely providing material supplies raises the question of why the private sector could not take over this role from traditional solution providers. Allowing corporations to enter the sector could result in more efficient and cost-effective delivery of supplies - for instance, using WalMart instead of the Red Cross for aid distribution (Scott-Smith, 2016, p. 2236). Nevertheless, "humanitarianism is not surgery, nor can it be reduced to a need for things" (Scott-Smith, 2016, p. 2236). In order to achieve success in the humanitarian profession, it is crucial to prioritize interpersonal relationships, cultural awareness, and active participation (Scott-Smith, 2016, p. 2236). Success in this sector demands prioritizing the needs of others and acting with compassion based

on ideals and global ambitions. That is not to say that these ideals have completely vanished; they have just been modified and expressed through market forces.

The humanitarian sector has also changed its perspective in relation to the function of the state. In the past, emergencies were seen as uncommon incidents, and the state's inability to handle them was considered a temporary deviation (Scott-Smith, 2016, p. 2237). It was the responsibility of humanitarian workers to prevent any further calamity until the government could resume its regular duties. Nowadays, emergencies are seen as unavoidable events, and the humanitarian sector must be ready to confront them, eventually building a world where people are self-sufficient and can manage without relying too heavily on the state. According to Scott-Smith (2016), the modernist idea of state-led progress has been replaced by the postmodern concept of "fracture, instability, and the need for individuals to help themselves rather than relying on the state" (p. 2238). This era of humanitarianism under-states government and over-states the aid of technology. Its proponents are constantly framing technology as a revolutionary tool in assisting and providing aid. However, despite the numerous claims about them, only a handful of technologies can be labeled revolutionary. In fact, the term "revolutionary" or "world-changing" has been debased to a cheap marketing tactic that many from within the new humanitarian movement have repeatedly called out (Scott-Smith, 2016, p. 2238). Innovation prioritizes quick, flash-in-the-pan solutions over long-term, time-consuming improvements. Routine activities have become subordinate to the intricate gadgetry of many of these projects, and complex humanitarian issues have been reduced to material, one-dimensional solutions. In the worst-case scenario, innovators may approach emergencies and crises with abundant enthusiasm but need more empathy and understanding of the underlying problems affecting the community.

Furthermore, these "revolutionary" solutions often only temporarily fix more significant systemic issues. Scott-Smith provides two examples that highlight this new dynamic. The first one involves the Litre of Light project, which tackles the problem of providing affordable light to underserved communities using readily available materials. Scott-Smith recognizes that this invention can improve the daily lives of those in need but opposes the hyperbolic commentary surrounding this

innovation. Some have described Litre of Light as a powerful instrument capable of "changing the world," a statement which he adamantly opposes (Scott-Smith, 2016, p. 2238). He justifies this critique by positing that the "liter of light" is nothing more than a discarded water bottle suspended from the ceiling of a run-down dwelling. While it may provide some illumination, the underlying conditions of the "hovel" remain unchanged (Scott-Smith, 2016, p. 2238). Another problematic example comes from the Sprinkles project, which distributes single-dose sachets of micronutrients to young children in need. These sachets contain a light-colored powder that can be sprinkled onto a meal to enhance its micronutrient content without requiring any changes to the eating habits of the beneficiaries. The project has been hailed as a revolutionary innovation on par with the Internet by the *New York Times* (Scott-Smith, 2016, p. 2238). The Heinz company, one of the project's financial supporters, was awarded a "visionary award" for its contribution (Scott-Smith, 2016, p. 2238). Scott-Smith has reiterated that this approach fails to address the root cause of malnutrition and does not improve the dire living conditions of these children. Adding a sprinkling of pale powder to a meager gruel does not magically turn it into a nutritious meal. These minor enhancements are exaggerated and obscured by hype and hyperbole.

With all of these issues plaguing the "new humanitarian" movement, who, in the end, actually benefits from these innovations? Scott-Smith argues that the providers rather than the beneficiaries often reap the rewards of these initiatives (2016, p. 2239). One can argue that those receiving aid from the mentioned projects might not consider a backpack with powder or a plastic water bottle as sufficient help for their problems. Because of this, the humanitarian sector needs to consider the perspectives and needs of the people their projects will impact. If they cannot involve the community in creating the solution, then this has to be supported with arguments. Some organizations, like the Humanitarian Innovation Project at Oxford, attempt to engage people in the innovation process (Scott-Smith, 2016, p. 2240). However, many innovations need more proper representation. Underrepresentation can result in ethical and practical issues regarding whether the innovations are acceptable and appropriate, all in pursuit of neophilia, i.e., creating or implementing new technology. This issue is leading to a greater disconnect between the aid workers and the recipients, a phenomenon termed by some as the "bunkerisation" of

humanitarianism (Scott-Smith, 2016, p. 2240). More and more aid workers since 9/11 have secluded themselves behind armored vehicles and walls, abandoning the human element that is a core compound of the movement (Scott-Smith, 2016, p. 2240). They are no longer involved with the communities or in touch with the lives of the people they are helping.

The humanitarian innovation movement forms short-term partnerships with businesses to ensure funding and obtain necessary supplies. This approach also involves embracing the private sector's priorities, language, and perspective. Moreover, the primary objective of this movement is to assist organizations in expanding their reach by conducting product trials among the two billion impoverished individuals (Scott-Smith, 2016, p. 2242). Advocates of humanitarian innovation argue that businesses possess dynamism, responsiveness, and inventiveness, but these qualities only partially translate into the humanitarian sector. Furthermore, while particular literature may promote collaboration with the private sector, it is essential to recognize that a certain level of skepticism towards it helps preserve the essence of humanitarianism (Scott-Smith, 2016, p. 2242).

Introduction to Case Studies

This section will examine four different case studies that exemplify how blockchain technology is being utilized to address social and environmental challenges in a more community-driven, transparent, and efficient manner. The selected projects aim to make a positive impact on society and the environment by leveraging blockchain technology without placing profit-making as their primary focus, in contrast to mainstream consumer markets like Axie Infinity. The case studies have been carefully selected based on their relevance, impact, and ability to provide diverse perspectives on the potential of blockchain technology in addressing pressing global issues, such as ownership rights, ecological conservation, colonial disparities, and authoritarian censorship. The first case study involves Balot NFT, an initiative to repatriate Indigenous cultural heritage and empower Indigenous communities through Non-Fungible Tokens. The second case study revolves around the Forkonomy() project, which addresses geopolitical and colonial issues tied to the South China Sea territorial disputes. This project reframes complex historical narratives through blockchain-based smart contracts, allowing Indigenous communities to take ownership of their cultural heritage and reclaim their narratives. The third case study will explore terra0, a project that combines blockchain technology with ecological conservation efforts by creating a self-owned and autonomous forest ecosystem. Lastly, the fourth case study centers around the Voices of April project, which strives to combat authoritarian censorship by leveraging blockchain technology to store and disseminate information securely and anonymously. What these case studies demonstrate is that blockchain technology has the potential to empower marginalized communities, protect cultural heritage, foster ecological conservation, and ensure freedom of expression in an increasingly restricted digital world. They also show that blockchain has the potential to do "good" without compromising ethical considerations and social impact. Furthermore, these projects challenge the notion that NFT art is solely for profit and speculation by showcasing how NFTs can be seen through the prism of relational aesthetics, i.e., art's ability to foster social connections and promote positive change.

I. Case Study One: Decolonial Activism - The Balot NFT

The Balot NFT is a blockchain project that debuted on February 11, 2022, by The Congolese Plantation Workers Art League "CATPC" (acronym of the French "Cercle d'Art des Travailleurs de Plantation Congolaise"), an art collective comprised of plantation workers in Congo (CATPC, 2022). It is named after the sculpture depicting Maximilien Balot, a Belgian colonial officer who was decapitated as a result of a Pende uprising. This rebellion occurred due to the widespread incidence of sexual assault on the wives of the men who worked at the palm nut plantation in Lusanga (Boffey, 2022). The act of sexual assault against Kafuchi, who was the wife of Pende leader Matemo, acted as a catalyst that sparked the uprising of the Pende people (CATPC, 2022). As a direct consequence of this heinous act, the Pende took retributive action by decapitating Balot. Consequently, both the Unilever plantation system and representatives of Belgium's colonial administration reacted with utmost brutality in retaliation (Boffey, 2022). This rebellion stands out as one of the final significant uprisings against colonial rule in Congo that occurred before it attained independence approximately thirty years later, specifically in 1960 (Boffey, 2022).

The sculpture, created in 1931, serves the purpose of containing the restless spirit of Maximillien Balot for the betterment of the Pende people (CATPC, 2022). Crafted from wood and standing at a height of approximately 62.5 cm, this particular artwork had been concealed from the Belgian authorities but resurfaced when Herbert Weiss, an emeritus professor at the City University of New York, came across it during his journey through Congo in 1972. In a charitable act, Professor Weiss then gifted this piece to the Virginia Museum of Fine Arts (VMFA) located in Richmond, Virginia, in the United States (Boffey, 2022). Since then, this statue has remained on public display within the museum's premises, far away from the context of its creation and the community it represents. Furthermore, The Unilever plantations still exist after nearly a century of exploitation and continue to exploit both the land and the people of the Congo. Despite changes in ownership, the pattern of exploitation has remained unchanged. In the 1960s, it underwent a name change to Plantations et Huileries du Congo under new DRC government ownership, and in 2009 was acquired by Feronia Inc., a Canadian company backed by development banks (World Rainforest Movement, 2022). Currently, PHC is owned by a private equity firm

located in Mauritius with support from various financial institutions (World Rainforest Movement, 2022).

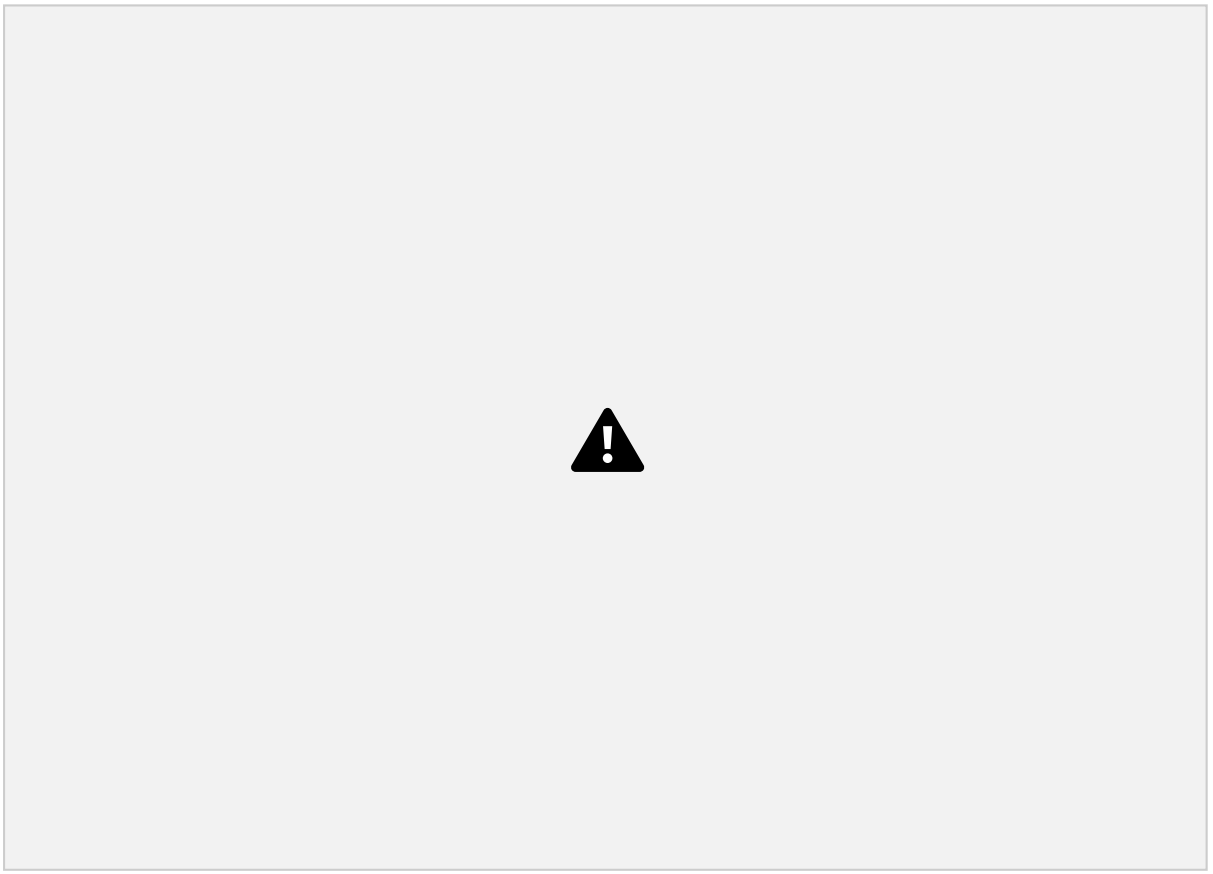

Fig. 3 CATPC. (2022). *Balot NFT No. 84*. Human Activites. Retrieved September 5, 2023, from https://www.humanactivities.org/en/balot/.

In February 2020, Cedart Tamasala and Matthieu Kasama, both members of the CATPC, visited the VMFA, during which they initiated a request to loan the statue. They intended to exhibit the piece in the White Cube—a museum constructed by members of CATPC on what used to be a Unilever plantation. The VMFA denied their request, even though the statue has been lent to institutions such as the Rietberg Museum in Zurich, Switzerland. This was when the CATPC decided to investigate alternative venues of "claim[ing] the power of the sculpture" (CATPC, 2022). Specifically, they discovered images of the Balot sculpture on the VMFA website and proceeded to download and transform these photographs into NFTs (Non-Fungible Tokens). During the Art Basel event on June 14, 2022, a collection of 306 Balot NFTs became available for purchase (CATPC, 2022). These NFTs provide buyers with a digital representation of the Balot sculpture alongside a fragment of an artwork by Ced'art Tamasala, who is a member of the CATPC. The drawing

showcases global value flows encompassing capital, commodities, and cultural exploitation. It also illustrates how the Balot sculpture was intricately carved as an act of resistance against these unjust power dynamics and their detrimental consequences for the local community. By acquiring one of these unique sculptures through individual purchases, not only does each owner possess an exclusive piece, but they also contribute to catalyzing positive transformation in an economically disadvantaged region. Proceeds from every sale are directly channeled towards repurchasing land, replenishing forests, and restoring biodiversity in one of the world's most impoverished areas. This initiative offers several advantages, such as offsetting carbon emissions while concurrently promoting self-sufficiency and enhancing food security among plantation workers. The CATPC also wishes to build a “White Sculpture” exhibition space on repurchased/liberated land for housing the sculpture (CATPC, 2022).

This inventive strategy allowed for communal ownership over these digital representations while also serving as a means to generate funds for reclaiming the land that was unjustly taken from them during the era of colonialism (CATPC, 2022). By minting these NFTs, control over this artistic expression was placed directly in the hands of the Congolese community, empowering them to actively participate in rectifying historical injustices inflicted upon their people. Another important issue being explored by the Balot NFT project is that it directly challenges the traditional authority of museums in defining and validating art. Situated within a museum in the United States, the sculpture is subject to Western perspectives and values that maintain a hierarchical framework, marginalizing artists from non-Western cultures and upholding a Eurocentric canon. Exhibitions also play an active role in shaping knowledge and culture, influencing public opinions through decisions about inclusion/exclusion and presentation (Feld, 2023, p. 7). Even if the Balot sculpture is stored away rather than displayed in the main exhibition space, its absence still conveys a message regarding its artistic worth and value. According to Tuck and Yang, in their article "R-Words: Refusing Research" (2014), the academy and other institutions maintain narratives of oppression from a position of power, which ultimately reinforces existing power structures and sustains inequality. This inadvertently leads to the marginalization and exclusion of artists and cultures that do not align with the dominant Western art canon (Tuck & Yang, 2014, p. 241).

Furthermore, these perspectives can then be perpetuated through digital platforms, resulting in an ongoing cycle of exclusionary practices. While the art world commodifies and profits off of cultural artifacts and expressions, the artists and communities from which they originate often do not receive equitable recognition or compensation. However, by involving the cultures of origin in digital heritage programming initiatives, there is potential for increased accessibility and more authentic modes of engagement with diverse artistic and cultural expressions (Feld, 2023, p. 7).

Another interesting aspect of the Balot NFTs is the spiritual significance that the CATPC attributed to the minting process. They conducted a ceremony where palm wine was poured onto the plantation soil, symbolizing a restoration of spirituality to the statue and reclaiming its cultural importance beyond museum boundaries (Brown, 2022). Through NFTs, there is now an opportunity for tangible ownership in the digital realm, allowing for meaning and value to be found independent of physical possession. This viewpoint is based on the recognition that Indigenous peoples find the preservation of cultural artifacts in museum collections deeply offensive, as these artifacts are often seen as living entities with spiritual and cultural significance rather than inanimate objects to be owned and displayed (Feld, 2023, p. 10). Returning cultural objects to their place of origin is seen by many as a necessary step in addressing the historical injustices caused by their removal and appropriation. However, the repatriation process faces various challenges, including legal and ethical complexities, as well as resistance from museums and cultural institutions unwilling to part with their collections (Feld, 2023, p. 10). While it is important to note that digital iterations cannot replace owning the original object, communities looking to engage with cultural traditions may discover a form of alternate possession within the digital space when physical access is not possible.

II. Case Study Two: Reclaiming Ownership of Occupied Territories - Forkonomy()

Forkonomy() is a project developed by artists Lee Tzu-Tung and Winnie Soon in 2020 that addresses issues related to the South China Sea territorial disputes and the colonial legacies associated with them. China has asserted its sovereignty over this entire territory, a claim that multiple countries, such as Taiwan, Vietnam, Brunei,

Malaysia, the Philippines, and the United States, have contested. Because of these tensions, the sea has become a site of geopolitical conflicts and colonial disparities for many years. What makes this territory valuable is its strategic geopolitical location, as about a third of all maritime trade passes through its waters. The Forkonomy() project, created by artists Winnie Soon and Lee Tzu-Tung, aims to shed light on this complex issue by utilizing blockchain technology and NFTs to explore ownership and control over the South China Sea. In an essay titled "Sailing in the Pirate Sea of Art," Tzu-Tung discusses commons, property regimes, complex colonial histories, and how blockchain and NFTs can offer new possibilities for understanding and reimagining ownership relationships (2022). The author describes the lack of recognition by Japanese occupiers towards the personhood of Indigenous people in Taiwan in 1907 (Tzu-Tung, 2022, p. 107). Through her analysis, she presents the case of a Japanese colonial officer who concluded that the people in Taiwan lacked personhood, implying that they were not bestowed with rights, protections, privileges, responsibilities, and legal liability under the framework of Japanese national law (Tzu-Tung, 2022, p. 107). As a result of this classification as non-legal persons, they were often treated more like animals than human beings. Consequently, many contracts made with Indigenous people held no legal weight, and the government enacted new laws declaring that land belonged to the nation. Because legal protections did not bind them, many Indigenous individuals suffered from displacement, dispossession, and exploitation during this period. Numerous contracts and agreements were made without the free, prior, and informed consent of the Indigenous communities.

Blockchain contracts, on the other hand, provide transparent and immutable records of ownership and transactions. They are decentralized and are not bound by national governments or regimes, allowing for greater inclusivity and accountability in ownership relations (Tzu-Tung, 2022, p. 107). Tzu-Tung posits that blockchain can empower Indigenous communities and challenge historically oppressive property regimes by providing a means for secure and transparent ownership of digital assets (2022, p. 107). Blockchains are designed with decentralization and horizontality in mind, allowing for contract execution that bypasses the control of national regimes and empowers indigenous communities to reclaim their cultural heritage and land rights.

With these histories in mind, Tzu-Tung and Soon initiated their initial workshops to explore the concept of Forkonomy() and its implications for reconceptualizing ownership dynamics in the South China Sea. The workshops, titled "Exploring Ownership: Acquiring/possessing a single milliliter of the South China Sea (Mandarin: 南海, Nan Hai)?", brought together participants from diverse backgrounds such as artists, activists, scholars, and community members to investigate how Forkonomy() could serve as a framework for communal ownership (Tzu-Tung, 2022, p. 107). Through these workshops, the artists have developed a collaborative ownership framework where each millimeter of seawater in the South China Sea is priced at 1.61 New Taiwan Dollars (1.61 NTD is equivalent to 0.05737705 USD or 0.02473149 TEZOS on 19 Dec 2020) (Tzu-Tung, 2022, p. 109). By purchasing an NFT representing a millimeter unit of seawater, individuals gain shared ownership over that specific section as well as ecological and economic responsibilities for the entire territory. There is a ritualistic/symbolic dimension to this project, as well, because the Forkonomy(), in part, demonstrates the impossibility of actually enforcing such ownership claims.

To support future editions of this project, the authors have uploaded 10,000 copies of the agreement onto the Tezos blockchain with potential royalties involved (Tzu-Tung, 2022, p. 109). The artists have a vision of a future in which the collective body of member-owners grows to such a degree that it "forks" the South China Sea from its current confines within nation-states. "Forking" in blockchain refers to splitting a single chain into two or more separate ones, creating independent systems with their own rules and governance. Forkonomy() utilizes this feature by proposing an alternative ownership model for the South China Sea that challenges traditional notions of territorial sovereignty.

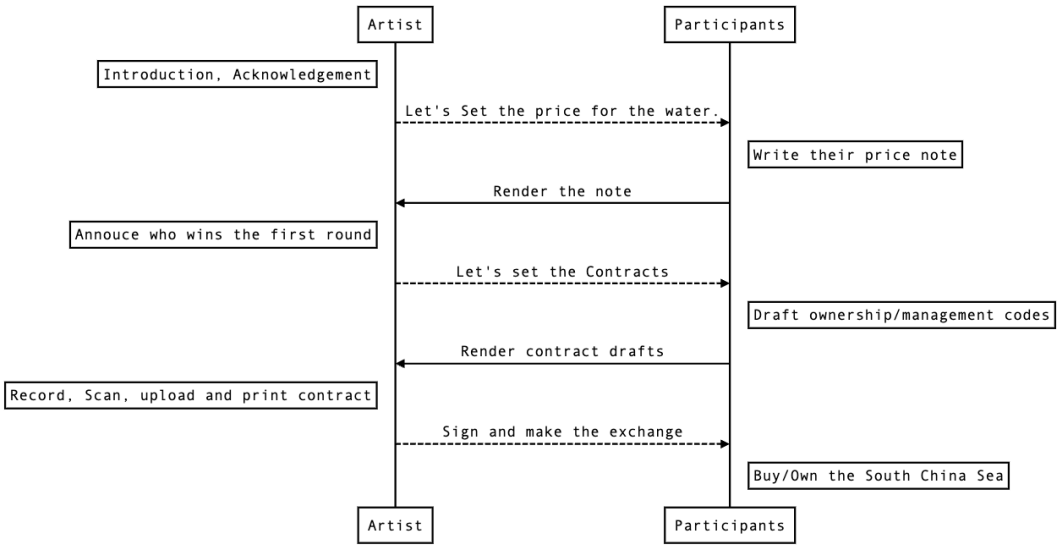

Fig. 4 Tzu-Tung, L., & Soon, W. (2021). *Workshop flow (*工作坊流程*)*. forkonomy() 岔經濟(). Retrieved November 1, 2023, from https://hackmd.io/@siusoon/forkonomy-public.

During the last decade, there has been an increase in alternative organizational models and governance structures in response to the limitations and inequalities of traditional corporate hierarchies (Yuan Zhang, 2023). Within the current global economic and political system, there is a growing recognition of the need for new approaches prioritizing inclusivity, transparency, and accountability. Primavera de Filippi and Jessy Kate Schingler have originated the term "extitution" to describe these emerging forms of organization, which operate outside of traditional institutional frameworks (Yuan Zhang, 2023). Traditional institutions, i.e., governments, corporations, and universities, adhere to particular regulations, categories, parameters, frameworks, and power structures. Extitutions, on the other hand, challenge these conventional systems. They are adaptable and decentralized and leverage technology and community-driven approaches to achieve their goals (Yuan Zhang, 2023). Furthermore, they often prioritize cooperation, value open-source principles, and embrace non-hierarchical decision-making processes (Yuan Zhang, 2023). Forkonomy() can be categorized as an extitution as it challenges traditional ownership structures and empowers marginalized communities through blockchain technology to create a more decentralized and adaptive ownership system (Yuan Zhang, 2023). There is a growing need to create organizational structures that can withstand existing legal and economic constraints and promote a more equitable distribution of resources and power.

Furthermore, Forkonomy() also invites an exploration into "moral coding" and embedded ethics in technology (Yuan Zhang, 2023). Embedding a code of conduct within any piece of technology is incredibly difficult, as it has to be adaptable enough to encompass all of the perspectives and values of a diverse group of stakeholders while ensuring fairness, transparency, and compliance with existing legal frameworks (Yuan Zhang, 2023). This issue becomes even more complex when attempting to map digital rights and ownership on the blockchain to physical assets in Forkonomy(). A well-defined framework for mapping digital rights and ownerships on the blockchain to physical assets is required to address this challenge. With such a framework, the proper utilization of blockchain technology to ensure ownership and possession of assets in the physical world is unlimited.

The "protective frame" of the Forkonomy() project is designed to provide a defense or resistance against dominant corporate hierarchies and power structures that perpetuate inequality and exclusion; however, the ocean is elusive and cannot be easily controlled or contained (Yuan Zhang, 2023). Assigning monetary value to natural resources and ecosystems is a complex task that raises ethical and practical challenges (Yuan Zhang, 2023). Furthermore, establishing autonomous organizations through blockchain technology allows for the creation of fluid digital networks with governance structures more akin to informal barters, bazaars, and social contracts rather than conventional corporate hierarchies. These new structures challenge traditional notions of ownership and power and may require dedicated regulation to ensure fair enforcement of rights and duties in the physical world. Placing monetary worth on natural resources runs the risk of commodifying and devaluing those resources, which may lead to exploitation and further environmental degradation. However, in the case of the Forkonomy() project, the act is more symbolic, challenging the existing power dynamics and advocating for a more equitable distribution of resources. The utilization of blockchain technology and the concept of NFTs, as demonstrated by Forkonomy(), serves as a notable illustration of how traditional ownership models can be challenged and marginalized communities empowered.

III. Case Study Three: Rethinking the Environment - Terra0

This chapter presents a case study on terra0, an innovative project that combines blockchain technology and ecological systems created by Paul Seidler, Paul Kolling, and Max Hampshire. terra0 is an ongoing artistic endeavor to establish a self-owned forest as a prototype for autonomous land utilization. Through advanced technologies such as smart contracts and blockchain, terra0 enables the forest to sell licenses for timber extraction in an automated manner, generating capital. This innovative approach eliminates the need for third-party valuation and direct involvement by human actors. It allows the forest to accurately determine its actual exchange value, ultimately enabling it to acquire ownership of itself and potentially expand by acquiring additional land.

The technical aspects of terra0 involve two smart contracts on the Ethereum blockchain that control the buying, selling, and management of resources within the forest ecosystem (Seidler et al., 2017, p. 67). One contract regulates a crowd sale, in which people can invest in the forest by buying tokens representing a share in the forest's future value and revenue stream. The second contract is "the real owner" and handles the governance and management of the forest resources, including the sale of licenses to remove forest resources (Seidler et al., 2016, p. 4). Satellite pictures are used to monitor the forest, detecting changes in its biomass and overall health, which a program fetches every six months and uses as input for decision-making processes (Seidler et al., 2016, p. 3). The licenses for harvesting specific trees are sold by terra0 through an online marketplace to private buyers (Seidler et al., 2017, p. 71). As these license sales generate revenue, the project repays its debt by purchasing its own terra0 tokens from the initiators. After full repayment, the forest becomes the exclusive economic value owner as the initiators no longer hold terra0 tokens (Seidler et al., 2017, p. 71). The program takes into account that it does not overharvest the biomass. After accumulating sufficient capital from timber sales, it can replicate itself by buying additional land and becoming a self-owned economic unit (Seidler et al., 2016, p. 4).

Fig. 5 terra0. (2016). Terra0: The Self-Owning Augmented Forest. Institute of Network Cultures. Retrieved October 9, 2023, from https://networkcultures.org/moneylab/2016/09/29/terra0-the-self-owning-augmented-forest/.

Moreover, each subsequent edition of the smart contract operates more competitively, aiming to maximize its economic worth and adjust dynamically to various regions based on climate conditions and local flora (Seidler et al., 2016, p. 4). The authors illustrate this project with a real-world example of a hypothetical medium-aged spruce forest. The cost of such a forest is estimated to be around €1 per square meter, with the potential for one hectare yielding up to 10 cubic meters of timber annually (Seidler et al., 2016, p. 5). By offering licenses to remove forest resources for 30 euros per cubic meter, terra0 can generate a consistent annual income of €300. In the case of a forest worth €10,000, the property can be paid off in approximately 33 years (Seidler et al., 2016, p. 5). According to Seidler, Kolling, and Hampshire (2017, p. 71), terra0 represents a paradigm shift where the forest is no longer seen as mere raw material for third parties but engages with these parties on an equal footing as a self-owned economic unit. The project is a pioneering example of an autonomous economic entity within a post-human framework (Seidler et al., 2017, p. 71).

The initial location for the project was in the Brandenburg forest, situated 30 kilometers east of Berlin at coordinates 52°27’39.8″N 13°50’22.9 "E (terra0, 2021). With access to roughly 100 conifers spread out across 0.1 hectares of forest land, the team created a sensor system that could evaluate environmental conditions in real time (terra0, 2021). They experimented with various open-source hardware and software solutions, including IoT devices and drones, before ultimately deciding to use satellite images due to their cost-effectiveness, low maintenance requirements, and comprehensive coverage. However, the artists encountered difficulties finding a sustainable profit-generation model to maintain the technical infrastructure. Creating satellite images was expensive, and the sale of wood could not cover the cost.

Furthermore, smart contracts were legally ambiguous regarding ownership and regulations, and buyers needed to be more interested in purchasing such a small quantity of wood produced by the terra0 forest. Despite these challenges, the team persevered in pursuing a sustainable profit generation model, creating small controlled prototypes to test different approaches and gather data on their feasibility. One such prototype was *Flowertokens* (2018), a digital token system that allowed individuals to purchase, trade, and speculate on the value of virtualized Dahlias (Dahlia x Hortensis) (terra0, 2021). Each physical plant was located in Berlin and monitored by a camera, which captured its growth and health. The images were then analyzed by a CV program to determine the value of the corresponding virtual Dahlia token, and the changes were updated accordingly on the digital marketplace. While *Flowertokens* manufactured virtual versions of physical objects, the *Premna Daemon* (2018) initiative explored virtual assets' social dynamics, using Flowertokens as its foundation (terra0, 2022). *Premna Daemon* used a Bonsai tree as its prototype to demonstrate how blockchain technology could enable an asset to interact with its surroundings and receive care from humans. The project involved a Bonsai tree connected to a monitoring system with sensors and cameras, a web interface, and a smart contract on the Ethereum Mainnet. The prototype was initially located in Berlin before being hosted by three different European institutions. When *Premna* required assistance, it would send a small amount of Ether to the host's Ethereum wallet address, signaling a request for help. The hosting institution would then respond by providing the necessary care or maintenance (such as watering, lighting, or

trimming) to ensure *Premna*'s well-being. The Ether was donated by users who believed in the idea and wanted to contribute to its sustainability. In essence, *Premna* demonstrated that it could achieve autonomous status, interact with its environment, and receive care from humans using blockchain technology.

In their essay titled "terra0 – Can an Augmented Forest Own and Utilize Itself?" the authors discussed their inspirations for developing the project and thoroughly analyzed its application in forest management. One inspiration came from Bitcoin and its ability to manage capital without human intervention, as a user only needs a wallet and a functioning internet connection to interact and handle Bitcoin (Seidler et al., 2017, p. 63). Another innovation that inspired the terra0 project was Vitalik Buterin's article "Bootstrapping A Decentralized Autonomous Corporation: Part I" (2013), in which Buterin proposed the idea of self-owned and self-operating organizations. In it, he posited the framework for decentralized autonomous organizations or DAOs, entities that can operate autonomously by executing smart contracts on a blockchain. In short, a DAO is a virtual organization that operates through pre-defined rules encoded on a blockchain, allowing for decentralized decision-making and the execution of smart contracts without a centralized authority (Seidler et al., 2017, p. 64). The terra0 whitepaper compares its smart contract to artificial intelligence that governs the economic activities of the forest (Seidler et al., 2016, p. 4), and when an artificially intelligent agent gains control over a certain amount of capital within a decentralized infrastructure, it transforms into more than just an AI managing financial resources - it becomes a decentralized autonomous organization (Seidler et al., 2017, p. 64).

The idea to transform natural ecosystems into decentralized autonomous corporations or DACs came from science fiction writer Karl Schröder (Seidler et al., 2017, p. 64). According to Seidler et al. (2017, p. 65), terra0 implemented this idea by creating a DAC (or DAO) that takes charge of "natural resources" or "natural infrastructure" and operates financially independently without the need for human involvement in covering expenses. The design also incorporates an adaptive feedback system and interacts with humans on an equal footing rather than being perceived as a mere tool (Seidler et al., 2017, p. 65). Moreover, it can reproduce

itself and expand its influence over additional resources/infrastructure (Seidler et al., 2017, p. 65).

The project explores two main philosophical ideas. The first revolves around the notion of non-human property rights and ownership in the context of natural resources, specifically forests. According to Seidler, Kolling, and Hampshire, blockchain technology and smart contracts can allow non-human entities like terra0 to assert property rights, challenging the traditional understanding of property as solely about human control and agency (2017, p. 66). While legal entities such as corporations already possess certain property rights, decentralized autonomous organizations with their agency can independently exercise ownership. The project also questions the evolving concept of property ownership in the context of technological advancements and the emergence of non-human actors. Since artificial intelligence has become an important topic with the emergence of ChatGPT, questions about agency and personhood have arisen concerning non-human entities. For instance, the European Parliament is thinking of categorizing "working robots" as "economic persons," which the authors note relates to tax and legal responsibilities (Seidler et al., 2017, p. 68); however, the very notion that the topic of non-human ownership is being discussed at the highest echelons of governance highlights the relevance and potential consequences of projects like terra0. Projects like terra0 signal that, gradually, there is a growing change in our perception of understanding property rights and the agency of non-human entities (Seidler et al., 2017, p. 70).

The other philosophical concept explored in terra0 is the idea of "The Stack." Developed by philosopher Benjamin Bratton, The Stack is a conceptual framework that segments the complex geopolitical reality of today into interconnected layers, which include digital entities and shape a unified megastructure (Seidler et al., 2017, p. 66). While human participation remains an indispensable element within The Stack, its primary purpose does not solely revolve around humanity. Instead, it centers on the efficient management and processing of global information, given that humans face difficulties achieving the same speed and precision level demonstrated by digital entities operating within The Stack (Seidler et al., 2017, p. 66). One solution to mitigate this issue involves considering all agents, including artificial ones,

as different iterations of "users," thus blurring the distinctions between "nature" and "culture" (Seidler et al., 2017, p. 66).

In conclusion, the terra0 project represents a ground-breaking convergence of technology, sustainability, and philosophical investigation. It is an innovative endeavor that challenges traditional concepts of property ownership by introducing the concept of non-human organisms claiming property rights, such as a self-owned forest. The relevance of this initiative goes beyond technological innovation; it reflects a major shift in our notion of agency and ownership in an increasingly automated and networked society.

IV. Case Study Four: Breaking the Walls of Censorship - Voices of April

On Chinese social media, artists and activists have limited freedom of expression due to strict censorship laws and regulations. Artist Qiyun Gao describes how there are different code words to circumvent censorship and find posts related to sensitive topics (2022, p. 1). For instance, if a user wants to use the word "politics," they will use the term "ZZ" (initials for "zheng zhi," the Chinese term for politics) to avoid detection and censorship (Gao, 2022, p. 1). Immigrating to another country is expressed with the Chinese character 潤, a homonym for the English word "run" (Gao, 2022, p. 1). Suppose users do not take care of modifying their language online. In that case, they run the risk of having their posts deleted or their accounts suspended, which happened to WHO's chief Tedros Adhanom Ghebreyesus during the COVID-19 pandemic for criticizing China's zero-Covid approach (Gao, 2022, p. 1). Billionaire Wang Sicong was also banned when he posted criticisms of traditional Chinese medicine used to treat COVID-19 (Gao, 2022, p. 1). Both Ghebreyesus and Wang Sicong are permanently banned from posting on China's popular social media site Weibo. Though they are highly influential figures, they were not exempt from the implications of China's strict censorship policies.

The topic of blockchain and Web3 is contentious in Chinese society, with different perspectives and conflicting opinions among the government, businesses, and individuals. China initially adopted a cautious approach towards developing and implementing blockchain technology, primarily due to its renowned characteristics such as anonymity and immutability of information (Ekman, 2021, p. 1). Additionally,

each transaction on the blockchain is digitally recorded and assigned an unalterable signature, making it a reliable source of evidence, which has implications for legal proceedings and content censorship. Blockchain technology poses a challenge for the Communist Party of China as it contradicts its censorship efforts regarding sensitive content and overall cyber sovereignty goals (Ekman, 2021, p. 1). Despite initial concerns about the emergence of blockchain technology, the Chinese government has come to view it as an opportunity with potential economic, political, and geopolitical value for the country if properly managed and regulated (Ekman, 2021, p. 1). Blockchain is an inherently decentralized technology, and the Chinese government has implemented regulations to maintain state control over its development and implementation. Although the Chinese government has disapproved of decentralized cryptocurrencies like Bitcoin, it has ventured into creating its digital currency, called the digital yuan (Ekman, 2021, p. 2).

Fig. 6 Strawberry Fields Forever. (2022). *Voices of April (四月之声)*. Youtube. Retrieved November 19, 2023, from https://www.youtube.com/watch?v=5pzwkFCAv44&ab_channel=RealTalkMandarin.

Furthermore, China's approach to blockchain technology extends far beyond cryptocurrencies and has applied it across various sectors such as energy conservation, urban management, and law enforcement. President Xi Jinping also declared in 2019 that he envisions China at the forefront of setting standards for blockchain technology (Ekman, 2021, p. 2). The deployment of blockchain

technology in China is driven by strong government support and aims to enhance the Communist Party's control over both individual citizens' daily lives and macroeconomic aspects. The introduction of the digital yuan further strengthens the government's ability to monitor transactions, overall consumption, and inflation levels. Experts warn that this approach may serve as a potential model for other non-democratic nations seeking to develop blockchain systems with surveillance and censorship capabilities (Ekman, 2021, p. 6). In short, the Chinese government's adoption and implementation of blockchain technology is driven by a desire to maintain control over information, enhance surveillance capabilities, and promote economic development. However, there is tension between the decentralized nature of blockchain technology and the Chinese government's efforts to maintain strict control over information and promote cyber sovereignty.

The Voices of April by Strawberry Fields Forever is a project demonstrating the potential of blockchain technology to empower individuals and challenge existing power structures within China's digital landscape. On April 22, 2022, a six-minute video was uploaded to Chinese social media showing black and white drone footage of the empty city of Shanghai and audio recordings of some of the most harrowing and emotional experiences of its citizens during the COVID-19 pandemic (Kuo, 2022). The video begins with a news conference held on March 15 by an official from Shanghai's epidemic prevention and control headquarters, informing the public that the city will not impose a lockdown despite rising cases (Kuo, 2022). It continues with a compilation of over 20 different recordings featuring accounts of delivery drivers and community workers being stranded and unable to return to their homes due to lockdown measures and transportation restrictions, a distressed mother seeking assistance for her child, and a horrified witness observing the mistreatment of a dog by a health worker (Kuo, 2022). Other recordings include residents expressing gratitude towards healthcare workers and engaging in acts of kindness, such as sharing food with neighbors (Kuo, 2022). The author, an anonymous filmmaker from Shanghai, noted underneath the video that they wished to document and preserve these stories to remember and honor the experiences of ordinary citizens during this challenging time (Yang, 2022). The video's tone is reserved, without any personal flourishes, emphasizing the raw and unfiltered voices of the individuals sharing their stories. The video struck users as apolitical and neutral, focusing solely on human

experiences and emotions rather than making explicit political statements (Yang, 2022). However, because of its virality and far-reaching audience, the Chinese government found the video disruptive and potentially subversive to their control over information dissemination.

The video went viral the very afternoon it was posted, but it was quickly censored and removed from Chinese social media platforms (Kuo, 2022). Directives from the Beijing office of the Cyberspace Administration of China have been leaked, instructing social media platforms to erase any video material, screenshots, or other content related to Voices of April by 12:30 a.m. (Kuo, 2022). Strawberry Fields Forever took the video down by midafternoon, stating in a blog post that the "viewers may have attached more meanings to it than it originally intended" (Forever Strawberry Fields (永远的草莓园), 2022). The author followed up by asserting that the original intent behind the creation of the video was to impartially document certain events that occurred in Shanghai during a specific period. If any official personnel contacted them regarding the video, they would promptly cooperate by providing any necessary information or addressing any concerns (Forever Strawberry Fields (永远的草莓园), 2022). By the following day, nearly all content was expunged entirely from Chinese social media platforms. Based on information from an insider, the creator's initial video garnered 5 million views before its removal. Considering there were various reuploads, millions more Chinese individuals likely had the opportunity to view it that evening (Yang, 2022). Still, each version of the video and any sympathetic narratives discussing it were swiftly subject to censorship measures.

The aggressive censorship on the part of the government does not mean the Chinese netizens did not go down without a fight. A former censorship monitor for China Digital Times revealed that they had never seen such a level of dissatisfaction and outrage among users before (Kuo, 2022). As soon as one version of the video was taken down, another version would appear, demonstrating the resilience and determination of the project to be heard despite censorship attempts. Internet users wrote "Jieli," that is, "Pass on the baton" or "relay" in English, in the comments sections of these reposted videos, symbolizing their support for the project and their commitment to sharing the stories it contains (Kuo, 2022). The video was embedded

into a QR code; the footage was removed and replaced with government news clips or SpongeBob SquarePants images to evade censorship algorithms (Kuo, 2022)(Kuo, 2022). Finally, users turned to blockchain to counter the disappearance of the content.

One solution involved turning the video into NFTs and distributing them on blockchain platforms, making it even more difficult for authorities to remove or censor the content. NFTs are usually just a referent or link to a file, meaning while the token is stored on the blockchain, the digital artwork can be stored on an ordinary web server (Flick, 2022). Moreover, the image link can always be changed to ensure the content remains accessible and resistant to censorship (Flick, 2022). In the case of the Voices of April video, users uploaded it to an IPFS (InterPlanetary File System), a decentralized storage network designed to guarantee the accessibility and longevity of the saved content (Ye, 2022). Around 250 NFTs were created and listed on OpenSea, and many are available at no or minimal cost, indicating their intention to prioritize accessibility over profit (Lu & Hao, 2022). There is one exception, however, with an NFT priced at 404 ETH, which some believe is a symbolic reference to the "not found" error that can occur when content is censored or blocked (Lu & Hao, 2022). Another blockchain solution involves Arweave, a decentralized storage infrastructure that includes protocols that work with the "cloud" (i.e., centralized servers) and ensure the longevity and accessibility of data (Herbiwanto, 2018). Users can store files for a one-time fee and upload and share them anonymously. The firm also claims that files are stored permanently, safe from harm and prying eyes (Herbiwanto, 2018). It is a secure system that prevents incidents like data breaches, fraud, and theft because when a file is stored on the blockchain, the author's identity is recorded, providing proof of ownership and certifying its authenticity (Herbiwanto, 2018).

The storage of information on blockchains is costly in terms of financial resources and computer processing power. Due to these challenges, non-fungible tokens have become an increasingly popular solution for storing data-rich files. Despite the advantages of this approach, experts in the blockchain space warn that if the original file is removed from the server, the NFT will still point to its original location and generate a 404 error (Lu & Hao, 2022). To minimize the risk of content disappearing,

Neha Narula, director of the Digital Currency Initiative at the MIT Media Lab, has stated that creating multiple copies on a global scale is the most effective strategy (Lu & Hao, 2022). This way, the NFT can point to multiple servers instead of just one, offering greater resilience and protection against data loss. It is crucial to understand that NFTs and blockchain technology have the potential to help bypass censorship. Still, their effectiveness may vary based on the specific situation and the determination of the censors.

Discussion: Four Blockchain Projects "for Good"

This thesis seeks to highlight art activist initiatives that prioritise societal good in the traditional sense over financial gain, as the blockchain activist space is dominated by the frequently unethical pursuit of profit under the guise of benevolence. This thesis has analyzed four such projects: Terra0, Forkonomy(), Balot NFT, and Voices of April. They utilize NFTs and blockchain technology to raise awareness and support various causes, which is a departure from the typical focus on high-value sales and profit-making ventures in the blockchain space. There are a few key similarities among these projects. Firstly, all four projects focus on working with the communities they aim to serve rather than simply extracting value from them. They actively engage with the participants and seek their input and collaboration in shaping the project. For example, Terra0 prototypes a decentralized autonomous organization that aims to create a fully automated forest by leveraging blockchain technology. They work closely with developers, artists, and technologists to develop a self-sustaining ecosystem that benefits the (local) environment and community. The project is slow in nature and prioritizes ecological restoration over profit generation, emphasizing the importance of sustainable practices.

Similarly, Forkonomy() worked with indigenous communities, academics, and scholars to explore alternative economic systems that challenge the dominant geopolitical framework. Through cooperative endeavors, they strive to redefine their Indigenous rights that were forcibly seized through colonization. They envision the South China Sea as a digital shared space where communities can collectively govern and safeguard their resources by utilizing blockchain technology. Balot NFT takes the human aspect of activist art and technology to a new level by combining NFTs with religious and spiritual practices. The project transformed the blockchain as an artistic medium into a quasi-spiritual artifact, turning NFTs, which are primarily associated with greed and commercialization in the art world, into a symbol of sacredness and reverence. Lastly, Voices of April documents real people's stories and experiences during the April 2021 COVID-19 lockdowns. The artist himself has experienced and witnessed the horrors of authoritarian control and lived through the Shanghai lockdown. It is a collective effort to capture, amplify, and preserve the voices and struggles of everyday individuals greatly affected by the pandemic.

It should also be emphasized that these initiatives were developed by artists who are members of the affected or marginalized communities they aim to support and champion. Their efforts do not simply address issues from an external perspective but stem from a profound comprehension and firsthand experience within these communities or circumstances. Lee Tzu Tung is from Taiwan, and Winnie Soon is from Hong Kong, both regions with a long history of cultural and political struggles, which is reflected in the very concept of the Forkonomy() project. The CATPC collective comprises plantation laborers from the Democratic Republic of Congo who have collaborated to create artwork to buy back ancestral lands previously seized during the colonial era. The Voices of April initiative was established by an unidentified artist who risked personal safety to protest the COVID-19 measures implemented by the Chinese government and those individuals who spread and circulated the project online. The European authors of Terra0 address the intricate problem of environmental management, a critical issue in light of climate change and ecological decline impacting communities globally. The artists involved in these projects highlight the importance of incorporating diverse perspectives and experiences in blockchain activism. This is not to say that the creators need to be directly affected by the issues they are addressing. However, by experiencing the issue firsthand and/or originating from the affected communities, the artists can often bring more significant and practical solutions to the table.

Another aspect that emerges from these projects is that they contain experiments rather than attempts at large-scale transformation. As previously stated, Web3 technologies are still in their early stages, and these projects serve as proof-of-concept initiatives. Though the proponents of these neoliberalist projects believe that technology is just a tool to wield like any old hammer, the debate is still current as to whether or not technologies are value-laden or completely devoid of it. However, as evidenced by various examples, both in the realm of venture capitalist and art activist projects, it is clear that widespread adoption or financial success should not be the only measure of a project's impact or value. Instead, emphasis should be placed on exploring the numerous possibilities to advance social and political ideals. Axie Infinity does not set the standard for venture capitalist projects, as there are profitable projects that have upheld their commitment to social good. However, Axie demonstrates the potential negative outcome of profit-driven

blockchain projects and highlights the need for greater scrutiny and accountability in the blockchain space. Regrettably, investors are more focused on replicating such success rather than considering alternative models. The recent downfall of companies like FTX and Coinbase - two major cryptocurrency exchanges - illustrates the risks of prioritizing profit over ethical considerations. Neophilia, not just in humanitarianism, is often used as an excuse to overlook the potential social and environmental consequences of "revolutionary" technologies like blockchain to implement widespread change in the name of bettering society and solving global challenges.

Furthermore, disruption, a term that has become so popular in the tech industry that Silicon Valley has a conference dedicated to it, often leads to the disregard of existing systems, institutions, and regulations without considering their potential value or the unintended consequences of their replacement (McKelvey, 2021). It also seems that the epithet "for good" is used as a woke-washing strategy for most of these ventures to present a positive image or attract attention without addressing the underlying issues. There is a notable instance of this deceptive strategy in the FTX indictment, where a political advisor informed an unidentified executive that Bankman-Fried contributed to "a lot of woke shit for transactional purposes," thus emphasizing the cynicism that can occasionally underlie profit-oriented blockchain initiatives (Pearson, 2023). In worst-case scenarios, "for good" PR campaigns and tokenomics structures are often employed to appear socially responsible while prioritizing profitability. Professor Catherine Flick has likened many of these projects to being part of a "colonialism project" - in the current framework, power and control are concentrated in the hands of a select few individuals who occupy positions of authority (Stokel-Walker, 2022). These individuals exert dominion over others within the system with their wealth and resources. The original intention was to establish a decentralized structure to liberate the economy from centralized organizations like banks. However, this aim has yet to be fully realized as new institutions have emerged with comparable functions. Instead of fostering true decentralization, these entities act as gatekeepers exploiting and profiting from people's labor (Stokel-Walker, 2022). Corporations often escape accountability for their mistakes, even when engaging in genuine brand activism. The lack of repercussions and justice for those affected by scandals like the Axie Infinity case perpetuates this

cycle. Companies can continue superficial gestures without implementing real change or addressing underlying social issues. Additionally, blockchain and Web3 technologies operate within ambiguous legal frameworks, enabling potential misuse by corporations with no regulatory measures to guarantee authenticity and transparency in brand activism. This approach leaves room for manipulative practices that serve the interests of these companies rather than genuinely supporting social causes.

In contrast to the activist art projects mentioned above, these initiatives investigate the potential and constraints of blockchain technology in particular settings without compromising the broader societal structure. The effects of these initiatives may take time to exert a significant influence. Still, they establish the groundwork for future exploration and improvement of blockchain technology for societal benefit in the long term. For instance, the creators of terra0 emphasized in an interview with CLOT Magazine that the regulations governing forest DAOs are ultimately shaped by humans (Fischer, 2021). Despite the project's aim to establish self-sustaining ecosystems, human input is still necessary for formulating these regulations. This raises concerns about avoiding previous errors, such as promoting unsustainable rapid monoculture growth. From the outset, the group speculated whether the terra0 concept would positively or negatively impact the world, emphasizing the possibility of unforeseen outcomes and ethical quandaries linked to blockchain activism (Fischer, 2021). They also assert that

> As an artist, we don’t think an idea can be ‘unthought’, and as soon as something is possible, someone will also implement it. For any well-founded critique, however, one always needs an understanding of the subject. In this regard, *art can be a safe place to discuss concepts that may be recognised as problematic in hindsight*[9] (Fischer, 2021).

This approach should be celebrated, as it encourages critical thinking, open dialogue, and an awareness of potential consequences that can occur in the pursuit of innovation. This thesis has emphasized the idea that Web3 technologies embody prefigurative politics, aiming to reflect the desired political and power structures of a more participatory and democratic society. Benkler's concept of "arrangements of

[9] My emphasis.

power" frames blockchain technology as a highly multifaceted system (2016, p. 19). Like the Internet, it is not just a technical structure but also an inventive organizational framework, as well as an institutional arrangement influenced by common interests and resources, a competitive market with minimal entry barriers, and a cultural mindset or ideology (Benkler, 2016, p. 19). Similarly, Husein et al. demonstrate that blockchain technology is a vehicle for expressing different political imaginaries that shape the design and goals of blockchain projects. For them, technology is not a neutral tool but a means to promote a utopian (or dystopian) vision for society (Husain et al., 2020, p. 381). De Filippi and Hassan further argue that blockchain projects intertwine law with code to create new governance and dispute resolution systems, challenging traditional legal frameworks and power dynamics (2016). If programmed and utilized responsibly and ethically, these technologies can provide avenues for decentralized decision-making, ownership, and economic empowerment.

What terra0, BalotNFT, Voices of April, and Forkonomy() recognize and actively work to address are the ambiguous aspects of blockchain technology, including its potential to sustain inequality and centralize power to a select few (like Web 2.0 with GAFAM). Instead of creating a system in a vacuum that does not consider the broader societal implications, these projects actively engage with the communities they aim to serve, ensuring their voices are heard and incorporated into the decision-making process. They emphasize autonomy and agency, as they recognize that true empowerment can only be achieved when communities or individuals have control over their resources and decision-making processes. In addition, I argue that blockchain art initiatives could function as a very effective means of examining and evaluating the current socio-political landscape. Activist artworks created with this technology could serve as a medium for reflecting on and challenging existing power structures more easily due to their ability to program interactions and governance mechanisms on the blockchain. Since our current sociopolitical systems have inherent power imbalances and limitations, exploring alternative systems through blockchain art projects for reimagining "flawed" governance and social relations.

One critique that could be volleyed at the blockchain activist artworks I have analyzed in this thesis is their limited reach and impact. While these projects are

commendable in addressing social issues and empowering marginalized communities, they often need more resources, capital, and influence to have a significant and widespread impact. They may be limited to small-scale communities or niche audiences, which restricts their ability to effect systemic change on a larger scale. They often do not have any visibility or significance beyond their immediate community, and their experimental nature limits their potential for real-world implementation. Furthermore, blockchain technology remains a complex and closed-off concept for many individuals. In the case of Voices of April, only a small group of technologically proficient individuals have access to the artwork. They can actively engage with it, further restricting its reach and influence. If only a select few people can access Voices of April, its capacity to initiate broader discussions and bring about meaningful change could be significantly impeded. As a result, censors still wield significant control over the narrative and do not need to overexert themselves to suppress diverging perspectives. This is true for all projects presented in this thesis, as accessibility and user-friendliness are not always prioritized in their design and implementation.

Similarly, though these blockchain activist artworks may challenge existing power structures and ideologies embedded in blockchain technology, they still operate within the framework of the technology itself and within the larger socio-political and economic systems in which they exist. This means that there is a limitation to how much they can truly disrupt or dismantle these systems, as well as have the potential to perpetuate the existing power imbalances within them. This thesis shows that the implications of blockchain activist art and blockchain-for-good projects must be carefully evaluated on a broader societal level in the long term. For this reason, I believe closed, contained projects such as Terra0, Forkonomy(), Balot NFT, and Voices of April serve as valuable serve “sounding boards” or laboratories for experimentation. They provide insights into the potential of true "Blockchain for Good" projects and highlight the need for further research and development in this area. These four artworks possess a unique human touch that sets them apart from the majority of "Blockchain for Good" initiatives, as they are fundamentally dedicated to their specific communities and the issues plaguing them. If problems arise or difficulties are encountered, they aim to work closely with their communities to find solutions and ensure that the projects' benefits are meaningful for the people they

aim to help. Hence, I have deduced that technology alone is insufficient to tackle complex social issues.

Conclusion

As this thesis has shown, a number of artists have utilized blockchain technology as a means to create activist interventions and to confront exploitative practices within the art market; however, the influence of capitalism and profit-seeking still overshadow genuine attempts at art activism in today's context. Nevertheless, the four projects that have been laid out within this thesis demonstrate that art activism can go beyond raising funds through NFTs for humanitarian purposes. They also illustrate how the technology has significant potential to replicate real-life systems and explore innovative governance and economic distribution models. One should take into account that blockchain technology is still relatively new, and the ongoing exploration of its uses and limits remains largely experimental and highly theoretical. It will take some time before the potential of blockchain technology can be fully realized and its impact truly assessed in the humanitarian sector. However, what the fou

The use of blockchain technology extends beyond its popular application in digital currency like Bitcoin. Blockchain technology can enable non-human entities like terra0 to claim property rights, marking a significant shift in ownership dynamics. It can circumvent harsh authoritarian censorship and provide an indelible record of human rights abuses, as seen in the Voices of April project. It can be used to create alternative economic systems like Forkonomy(), challenge traditional power dynamics and enable new forms of governance, or allow communities to reclaim ownership of their cultural heritage through projects like Balot NFT. In short, activist art experiments with blockchain technology demonstrate the potential for decentralization, accountability, and empowerment in various sectors. This thesis sought to showcase examples of activist artworks that utilize blockchain technology for social good without solely focusing on monetary gain. Upon analysing the dialogue and incentives behind these artworks, it is evident that they are motivated by a drive to confront current power dynamics and advocate for social equality. If present, financial gain is viewed as a way to support and advance the project's goals rather than the main aim. Examining blockchains as an organic whole consisting of technical, scientific, social, economic, and political considerations is important.

These blockchain activist artworks challenge the notion that disruptive technologies must solely prioritise financial gain and disregard existing systems.

Unfortunately, NFTs that did not gain much recognition and were not sold for exorbitant prices are often overlooked by mainstream media and the art market. Additionally, when a particular trend or craze emerges and dominates the art market, there is often an excess of subpar or lower-quality works inundating the marketplace. Therefore, it is crucial to distinguish between quality artworks and mere cash grabs, ensuring that NFTs are valued for their artistic merit rather than just their financial potential. In a way, there is a dichotomy between the potential of blockchain technology to create positive change and the commercialisation and speculation that can overshadow its true impact. Money is needed for art activist projects to be visible to the wider public; however, as demonstrated, these projects often need more financial resources and reach to substantially impact on a larger scale. And when venture capitalists or large financial institutions back these projects, there is a risk that their activist nature could be diluted or compromised. In conclusion, blockchain "for good" projects must find the perfect balance between financial sustainability and staying true to their activist goals. Blockchain projects must collaborate closely with the communities they serve, ensuring their initiatives align with the needs and aspirations of the people they aim to empower.

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