# Exploring the Creation and Expansion of a Value Regime through the Nascent Technology of Non-Fungible Tokens

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# Abstract

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How does a new technology become valuable? Existing literature proposes that an object is perceived as valuable due to structures involving the production, evaluation, distribution, and exchange of value. Such structures are termed "value regimes." While existing work explains the transformation of value regimes or changes in the perceived value of an object as it moves between value regimes, we know less about how value regimes come to be and expand. This study answers this gap by exploring the expansion of the value regime of the nascent technology of non-fungible tokens (NFTs). To theorize the process through which a value regime expands, I collected and analyzed qualitative data composed of interviews, podcasts, newspapers, magazine articles, conferences, and webinars focusing on the NFT market. My analysis demonstrates that the three elements constituting a value regime (normative and cultural values, governance mechanisms, and economic models of value creation and distribution) expand from specific mechanisms that lead to a value regime's growth. Normative and cultural values support expansion through the promotion of norms and values, the resolution of internal challenges, and challenges to the entry of market actors with misaligned values. Governance mechanisms support expansion through the entry of regulative bodies and the creation of standards. Economic models support expansion through the creation of new modes of value exchange, the creation of new methods of value creation and distribution, and the simplification of exchange mechanisms. Last, I provide potential limits to expansion and expand on the model's implications for managers.

Keywords: value, value regimes, non-fungible token (NFT), expansion, technology

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# Chapter 1: Introduction

> "In March 2021, a work of art called "Everydays: The First 5000 Days" sold for $69 million at Christie's Auction House. It's not out of the ordinary to see eight-figure art sales, but this one received a lot of attention because the piece was sold as a non-fungible token (NFT) – an electronic record corresponding to an image that lives entirely in the digital world. […] Put differently: Someone paid almost $70 million for a picture on the internet. [Kaczynski & Kominers, 2021]"

On March 11th, 2021, Beeple, a digital artist who had previously not sold a print for more than $100 USD, sold his "Everydays" artwork as a non-fungible token (NFT) for $69 million, making it the third most expensive artwork sold by a living artist (Januszczak, 2021). Since then, NFTs have taken the world by storm. An NFT is a digital asset that provides ownership for a unique item, such as digital art, collectibles, or even real estate (M. Clark, 2022; Ethereum, 2021). NFTs have become a sensational phenomenon bringing incredible value to digital artists as well as various market actors. By market actors, I mean consumers, firms, governments, and other types of organizations that play a role in a market. NFTs representing virtual avatars on social media or virtual property in digital worlds and games are now exchanged for immense sums (Graves et al., 2022; Morris, 2021; Mozée, 2021). While inexistent less than ten years ago, the NFT market has rapidly grown, with over $23B USD generated in trading volume in 2021 (Tripathi, 2021), up from $82.5M USD in 2020 (P.A. Clark, 2022). This rapid growth begs the question: how did NFTs become so valuable?

Understanding the worth of objects is an important research area (e.g., Arsel, 2015; Çalışkan & Callon, 2009; Graeber, 2001). According to a leading approach, objects have value because they are integrated into structures comprised of the production, evaluation, distribution, and exchange of value (Appadurai, 1986; Arnould, 2014; Gollnhofer et al., 2019; Graeber, 2001; Kopytoff, 1986). Such a system is termed a value regime.

Extant research on value regimes mainly concentrates on how the value of objects is transformed within mature markets. Some studies in this area examine how value regimes transform following the efforts of market actors (e.g. Jamieson, 1999; Murakami, 2016). For example, Levy et al. (2016) explain how firm efforts have led to the increased valuation of sustainable coffee. Consumers who band together into movements can also work to create alternative distribution models that revalue originally value-less objects, such as not-so-fresh vegetable products (Gollnhofer et al., 2019). Other researchers have also examined how the value of objects changes as they move from one value regime to another (Crossley & Picard, 2014; Valk, 2020).

While extant work overly concentrates on the transformation of value regimes and ensuing shifts in value for certain objects, it has not examined how the regime that anchors the value of a nascent technology is created and expands. By expansion, I refer to the growth and development of a value regime. It is unlikely that the extensive knowledge surrounding the transformation of value regimes for mature markets (e.g., the coffee sector or the retail food

industry) can inform the creation and expansion of the value regime for new objects and markets. I aim to fill in this gap by exploring how NFTs became valuable and, more precisely, by theorizing the creation and expansion of the value regime for a nascent technology.

By filling in this gap, I discover expansion mechanisms associated with three interrelated elements constituting a value regime: normative and cultural values, governance mechanisms, and economic models of value creation and distribution. These expansion mechanisms explain how a nascent value regime emerges and grows.

This study offers two key contributions. First, it complements current work by explaining how a value regime expands rather than transforms. Second, it contributes to broadened use of the value regime concept as an analytical tool that can be applied to theorize the emergence of markets and the growth of perceived value for nascent technology.

In the following sections, I first review prior research on value regimes and existing conceptualizations of value regimes to offer an analytical framework for my findings. Next, I describe the context of non-fungible tokens. After, I describe my methodology and findings regarding the expansion of a value regime. Last, I conclude my thesis by examining its implications and limitations and propose future research avenues.

# Chapter 2: Extant Work on Value Regimes

Value can be defined as "the different ends an object creates or enables" for various market actors within a value regime (Arnould 2014; Gollnhofer et al., 2019, p. 464; Graeber 2001; Lambek 2013). The concept of value regimes originates from Appadurai (1986), which he defines as the structure in place presiding over the production, evaluation, distribution, and exchange of value for a specific object (see also Arnould, 2014; Gollnhofer et al., 2019; Graeber 2001; Kopytoff 1986). More specifically, Appadurai's value regime conceptualization puts emphasis on the economic and normative value of an object (Appadurai, 1986; Levy et al., 2016). Value regimes highlight how objects do not have intrinsic value; instead, their value is given to them through socio-material arrangements and "mechanisms of signification," or processes through which objects are given meaning (Corvellec & Hultman, 2014; Frow, 1995, p. 145; Gollnhofer et al., 2019). Objects are perceived as valuable because value regimes provide evaluative frameworks that establish value within specific social contexts, modes of production, distribution and exchange, and rules and governance (Corvellec & Hultman, 2014; Crossley & Picard, 2014).

Although value regimes have previously received attention and have been widely used in anthropology (Arnould, 2014; Gollnhofer et al., 2019; Graeber, 2001; Kopytoff, 1986), research has yet to inform how a value regime is created and expands for a new object, such as nascent technology. Instead, previous work focuses on the transformation of an existing value regime or how an object's meaning and value change as it switches value regimes, both of which I now describe.

To date, research has focused on how actors transform value regimes in mature markets. A key insight from such work is how consumers can gather to transform a value regime. Consumers who band into movements are one such example. Gollhofner et al.'s (2019) investigation of the German retail food value regime examined the formation of an anti-food waste movement by German consumers. Their analysis explains how consumers created alternative methods of accessing and procuring perfectly edible but not perfectly looking food that would otherwise be thrown away. The creation of a new distribution model led to changes in the German retail food value regime, where food that was perceived previously as having no value became valuable.

Firms and non-governmental organizations are other types of actors that can transform value regimes. For instance, Levy et al. (2016) examined how the interactions between non-governmental organizations (NGOs) and major coffee firms surrounding sustainable coffee production led to transformations in the global coffee industry's value regime (Levy et al., 2016). Indeed, NGOs created standards that promoted alternative and more sustainable methods of coffee production and trade. Those standards led to transformations in the coffee value regime, where sustainability became perceived as valuable for consumers and firms.

Adding to Levy et al. (2016) and Gollnhoffer et al. (2019), Jamieson (1999) has informed how the value of an object changes as the value regime in which it circulates is altered by the entry of replicas. More specifically, Jamieson (1999) showed how reproductions or copies of an

object could diminish the value of the original object or increase the value of the original depending on the values imbued with owning the original copy. Although these studies expanded the concept of value regimes, they focused on the dynamics of transformation for an existing regime and overlooked how a value regime emerges and grows.

Aside from studying how actors can alter a value regime, another important area of research is how objects have different meanings and values as they move from one value regime to another. The movement of an object between value regimes allows for its value to be determined, re-established, or devalued (Valk, 2020), such as how an object changes in value as it transfers to a different space, like moving "from a dusty attic to a museum collection" (Pearce, 1994, p. 2; Valk, 2020). Observing the movement of objects in and out of regimes allows for discerning the difference between multiple value regimes, such as following commodities being produced in China to their consumption by tourists in New Zealand (Ateljevic & Doorne, 2003; Crossley & Picard, 2014).

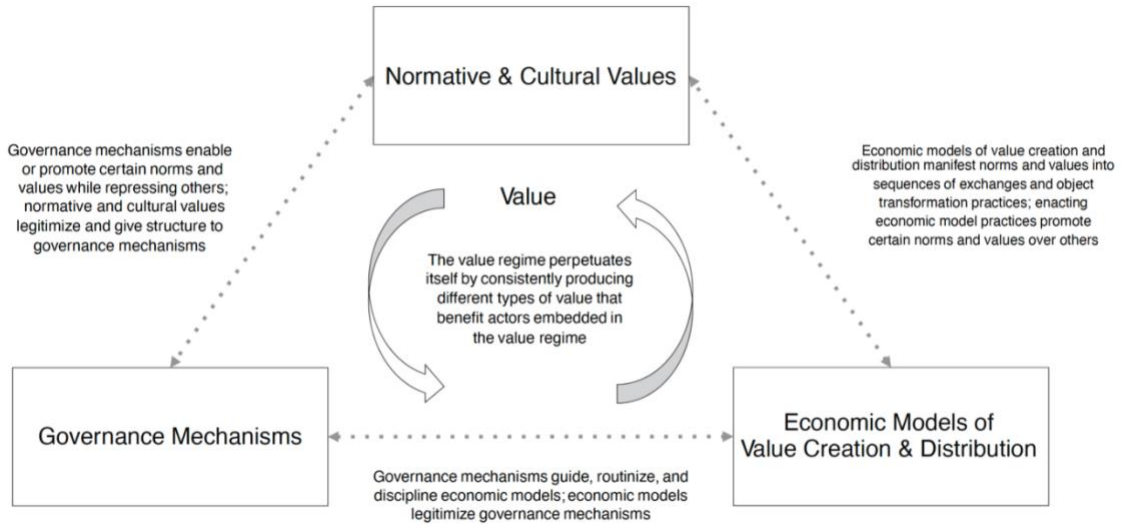
Why do different value regimes confer value to the same objects differently? A key reason is changes in higher-order norms and values. Value regimes offer different understandings of what is or is not of value, which leads to objects being perceived as differently valuable depending on the value regime they circulate in (Arnould, 2014; Barrett et al., 2016; Figueiredo & Scaraboto, 2016; Graeber, 2001; Lambek, 2013; Schau et al., 2009). For example, a political value regime may put emphasis on valuing democracy and give importance to universal public service access, while a market-based value regime might put emphasis on competition and differentiation (Corvellec & Hultman, 2014; Dolbec et al., 2022). This can transform how consumers evaluate certain types of educational approaches or university degrees (Dolbec et al., 2022). In a similar vein, an object can be seen as passé or fashionable depending on changing fashion norms. For example, Valk (2020) demonstrates how malleable the value of an object is by following the movement of second-hand kimonos in Japan. He showcases how second-hand shops receive kimonos that are embedded with symbolic value for the initial owners, and how those kimonos are selected and bought by shop owners depending on how easily they can be resold. To put it in a different way, the kimonos transition from a value regime that gives significance to personal symbolic value, to a value regime that gives importance to their economic value (Valk, 2020). Although informative, this stream of literature focuses on the movement of objects between a plurality of existing regimes and fails to explore the creation and expansion of a single value regime.

My research extends understandings of value regimes by investigating how a nascent value regime expands. As mentioned, Appadurai (1986) initially defined value regime as the "structural conditions governing the production, appropriation, evaluation, and distribution of value in a particular context" (Gollnhofer et al., 2019, p. 461). This initial theorization by Appadurai has received criticism in the past few years for being outdated with present-day marketing theory (Çalışkan & Callon, 2009; Gollnhofer et al., 2019; Graeber, 2001). For this reason, value regimes have been updated and conceptualized differently. This study leverages a recent conceptualization by Levy et al. (2016; see also Gollnhofer et al., 2019), to which I now turn my attention.

## 2.1 An Updated Conceptualization of Value Regimes

Value regimes suggest that the value and meaning of an object are only realized when it is found in a complex system of connections (Appadurai, 1986; Gollhofner et al., 2019; Levy et al., 2016). From this perspective, observing and analyzing value requires examining the system of relationships within which an object circulates (Arsel, 2015). Two recent conceptualizations (Gollhofner et al., 2019; Levy et al., 2016) propose that value is systematically reproduced through the interactions between three elements: 1) normative and cultural values, 2) governance mechanisms, and 3) economic models of value creation and distribution. Further, all three elements are interconnected, dynamic, and affect each other. I now define these elements and their interactions. Figure 1 summarizes my updated conceptualization of value regimes.

Figure 1: The Elements Constituting a Value Regime




Updated from Gollnhofer et al. (2019).

### 2.1.1 Normative and Cultural values

Normative and cultural values (norms and values for short) regard the moral and social value of products, lifestyles, labour conditions, and the natural environment (Levy et al., 2016). They can be defined as the ethical, moral, or other desirable ends considered within a social and cultural context (Dewey, 1939; Gollnhofer et al., 2019; Graeber, 2001; Holbrook, 1999; Miller, 2008). For example, a society that values physical wellness may translate to a higher perceived value for healthy products.

Within a social context, norms and values are articulated via shared, circulated, and, sometimes, conflicting narratives based on how or what objects can be used for, desired, or valued (Arsel, 2015; Gollnhofer et al., 2019; Thompson & Troester, 2002). For example, a society can valorize both sustainability and abundance of choice. Such conflicts are often resolved through the interactions of norms and values with the two other regime elements (i.e., governance mechanisms and economic models). For example, if abundance of choice is more likely to support profit under certain economic models, it might stand a higher chance of being

the dominant norm for a range of value regimes. Narratives can change over time, which might increase the prominence of some norms and values over others (Gollnhofer et al., 2019; Thompson & Troester, 2002). For example, "media coverage of natural disasters may intensify narratives on corporate greed or remind consumers of humanity's responsibility for caring for nature," potentially changing the value of oil or nuclear power (Gollnhofer et al., 2019, p. 462).

Norms and values give structure and legitimize governance mechanisms and economic models of value creation and distribution. This happens through the process of transforming and materializing ideas stemming from norms and values into tangible objects and practices (Gollnhofer et al., 2019; Graeber, 2013; Holbrook, 1999; Lambek, 2013; Miller, 2008; Otto & Willerslev, 2013; Thompson & Troester, 2002).

### 2.1.2 Governance Mechanisms

Governance mechanisms are formal and informal rules, technical standards, power relations, and organizations with authority in a value regime (Brunsson et al., 2012; Levy et al., 2016). The concept of governance involves legal or normative structures that prioritize certain norms and values while repressing others (Gollnhofer et al., 2019). For example, governments in developed countries have promoted values of food safety, health, and freshness using various methods such as legislation and regulation, health education programs, and school dietary programs (Coveney, 1998; Gollnhofer et al., 2019; Kjærnes, 2003; Yngfalk, 2016).

Markets and their underlying value regimes are shaped by the interactions between diverse socio-material actors (Araujo, 2007; Giesler & Fischer, 2017; Harrison & Kjellberg, 2016; Maciel & Wallendorf, 2016; Martin & Schouten, 2014). However, these different actors do not have the same power and influence (Gollnhofer et al., 2019). Most often, the influence of the most powerful members of a value regime weighs heavily on the definition of the regime's governance mechanisms, such as supply chain actors, laws, courts, and unions, as well as state institutions, banks, and NGOs, which are the formal institutions with legitimized authority under a regime (Levy et al., 2016).

In addition, governance mechanisms can enable, regulate, and institutionalize economic models of value creation and distribution by establishing and maintaining "sociomaterial infrastructures, legitimizing and codifying formal and informal exchange procedures, creating trust between actors, policing transgressions, and sharing knowledge" (Araujo, 2007; Gollnhofer et al., 2019, p. 463; Harrison & Kjellberg, 2016; Levy et al., 2016). This power of governance guides the approval and acceptance of economic models of value creation and distribution that supports and prioritize certain norms and values over others (Maciel & Wallendorf, 2016).

### 2.1.3 Economic Models of Value Creation and Distribution

To conceptualize economic models of value creation and distribution (hereafter "economic models"), I draw from the business model literature, as these two concepts have been recognized as conceptually and empirically similar. For example, DaSilva and Trkman (2014, p. 385) suggest that "historically, economics often used the term "economic model" to describe what is nowadays considered to be a "business model." Business models are defined as the "design or architecture" of the processes of value creation, delivery, and capture used by a firm

(Teece, 2010, p. 172). In other words, they are the blueprints for how an enterprise creates and delivers value to relevant market actors (e.g. the focal enterprise, exchange partners, customers, etc. (Amit & Zott, 2001; Teece, 2010; Johnson et al., 2008; Zott & Amit, 2010). Notably, although the business model concept refers to how a single company creates different types of value (Zott et al., 2011), I use economic models to describe how organizations within a value regime understand how to create value. Economic models can then be thought of as an institutionalized model of value creation across firms, or how one or a few similar business models are shared by a variety of firms within the same value regime. For example, Levy et al. (2016) mention how economic models mostly consist of processes of production and exchange, associated market structures and business models, and mechanisms of valuation.

Economic models materialize and are supported by the more abstract notions of governance mechanisms and higher-level values (Gollnhofer et al., 2019). For example, if consumers value sustainability, firms will likely develop business models to create profit from the production of sustainable products and services. The convergence of business models across firms will result in institutionalized economic models. These economic models might be encouraged by a country's government, which could put in place specific rules and regulations concerning sustainability, making most actors within the economic models element, such as food retailers, more likely to embrace sustainable modes of value creation.

### 2.1.4 The (mis)Alignment of the Elements

Alignments and misalignments between the three value regime elements reproduce or impede the reproduction of value. For value to be reproduced over time, the elements of a value regime – norms and values, governance mechanisms, and economic models – need to be aligned. Changes within one component can lead to misalignments with the other two elements, which can undermine the reproduction of value for an object over time.

Previous research showcases the need for aligned relationships between the components of a value regime. To highlight the role of interactions between all three elements and the importance of their alignment for constant value production, I concentrate on situations where misalignments happen between these elements and how they realign. A good example is Gollnhofer et al.'s (2019) study of the transformation of the German food retail value regime. Their study examines how a shift in norms and values created misalignments with economic models and governance mechanisms, which led to efforts to realign the regime as a whole.

Originally, the norms and values of the regime were related to health and consumer safety. Norms and values aligned with governance mechanisms as market actors in charge of governance, such as governments, and those following and normatively enforcing these mechanisms, such as corporations, retailers, and NGOs, all championed the regime's values. These values also translated into retailers' economic models, with dominant activities such as offering the freshest food possible.

A key implication of the value regime was that food had to be fresh and appear as healthy as possible. An unintended consequence of these prevalent values was that vast amounts of

edible food that did not appear 'perfect' were discarded regularly (e.g., vegetables showing slight blemishes; food near expiration date).

The amount of food that was not considered valuable within the regime led to conflicts with some German consumers, whose dominant norms and values were anchored on a different principle – that of sustainability. The misalignment between the norms and values of a group of consumers and those of the value regime led consumers to unite and seek change in the regime. Consumers strove to diffuse their norms and values. To support their alternative norms and values, they created novel structures of exchange and economic models, furthering misalignments. Over time, their efforts led lawmakers and regulators to consider food waste in legislation. Consumer activists and retail stores came to an understanding to work together on reducing food waste, resulting in the realignment of the value regime components.

Hence, changes within an element of the value regime can result in misalignments between value regime elements and disturbances in the reproduction of value. To address misalignments, actors work to realign value regime elements and sustain the value of objects over time. Although several researchers have explored how value regimes change and considered their interconnected dimensions of norms and values, governance mechanisms, and economic models, there has been scant attention to the dynamics of a value regime's creation and expansion. In the next section, I discuss how the emergence of new technology represents an ideal context for understanding these processes.

# Chapter 3: Context

## 3.1 The Emergence of Non-Fungible Tokens

The nascent technology of non-fungible tokens (NFTs) is ideal for exploring the creation and expansion of a value regime. Before theorizing the processes that led to the expansion of the value regime, I explain what this technology is and chart the main market developments.

A non-fungible token (NFT) represents a unique digital asset (Coggan, 2022; Park et al., 2022; Pinto-Gutiérrez et al., 2022). An example of a unique digital asset is a one-of-one digital painting or virtual piece of land. Unlike (crypto)currencies that are fungible, meaning they can be traded or exchanged for one another (e.g., a five-dollar Canadian bill is worth the same as another five-dollar Canadian bill), NFTs each have a unique digital certificate of authenticity and ownership which makes them non-duplicable, scarce, and non-fungible as it "cannot be exchanged for another since each one is unique" (Pinto-Gutiérrez et al., 2022, p.1).

NFTs are not to be confused with the object they represent (ex: art, land, property, etc.). An analogy is prominent paintings being sold at auction houses. After buying a million-dollar painting from a famous painter, such as a Picasso or a Rembrandt, the new owner can hang the painting in his house or gallery, but so could someone else with an identical replica. What sets the original and the replica apart is the certificate of authenticity and the provenance of the artwork, which the owner of the replica cannot provide. In this specific case, the authenticity of the painting is what gives it value. An NFT is similar: it provides proof of ownership, authenticity, and provenance (Okonkwo, 2021; Pinto-Gutiérrez et al., 2022).

The technological foundation of NFTs stems from Satoshi Nakamoto's proposal of a new electronic cash system, Bitcoin, which uses a digital token as currency (Park et al., 2022). In this system, transactions are stored on an immutable computer network called the blockchain – "a technology that acts like a permanent ledger or registry distributed across many computers instead of a central one" (Eng, 2021, para. 4). Hence, an important point of comparison with prior cash systems, which are centralized (e.g., government-issued currency, also called fiat currency, such as USD or EURO), is that the registry for digital tokens is decentralized as it is distributed across many computers. Since the advent of bitcoin, many have created new cryptocurrencies – "digital currency produced by a public network rather than by any government" – and their own blockchain networks (Cambridge University Press, n.d.-a). NFTs operate on these decentralized blockchains.

The creation of the first NFTs occurred in 2012 with "colored coins," tokens that represented real-world assets on the bitcoin network, such as cars, real estate, equities, and bonds (Bamakan et al., 2022; Wong, 2021). In 2017, CryptoArt (a digital artwork that is put on the blockchain using NFT technology) was born, with NFTs allowing scarcity and proof of ownership for digital art and, of central interest for this study, the creation of value for digital assets (Wong, 2021). Given the ease of replicability associated with digital properties, NFTs transformed how digital art could be valued. In 2017, one of the first prominent NFT projects, CryptoKitties, hit the market as a virtual game where players adopted, bred, and traded virtual cats. Each cat was associated with an NFT (Yasar, 2021). The game went viral, generating $12.5

million USD in investments and some news coverage (Yasar, 2021). The popularity of the game led to the creation of NFT marketplaces, where users could trade and exchange NFTs in addition to buying them directly from creators.

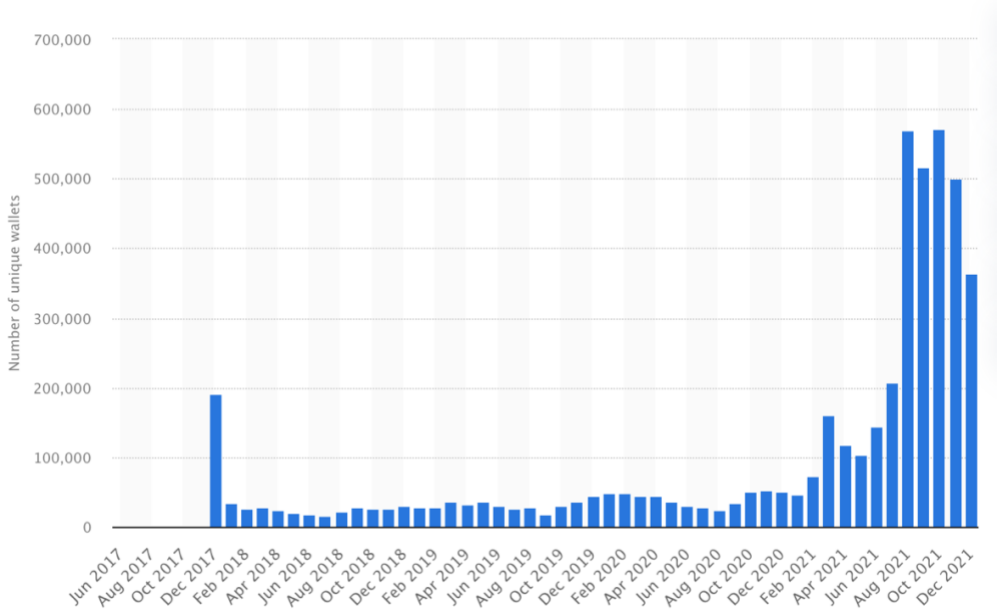
Since 2018, NFTs have gained mainstream notoriety. NFTs saw increased adoption and news coverage, leading to an increase in users transacting NFTs and Google Trends showing a boom in interest for NFTs (see figures 2 and 3). Further, the digital operations required to create an NFT, a process called "tokenizing" or "minting" (Eng, 2021), have become increasingly accessible (Yasar, 2021). Platforms to buy and sell NFTs have proliferated, such as OpenSea (launched in 2017), Super Rare (2018), Rarible (2019), and Nifty Gateway (2020). Sales in the market exploded from $82.5M USD in 2020 to $17.6B USD in 2021 (P.A. Clark, 2022).

NFT uses have also expanded. Today, NFTs are used in markets for games, collectibles such as virtual trading cards, music, digital images, video clips, and even virtual real estate (Wong, 2021). Established brands have also supported the nascent technology. For example, Gucci started selling its own NFT collection in February 2022 (Silbert, 2022), while Coca-Cola launched its first NFTs on July 30th 2021 (Swant, 2021). Nike acquired the patent to the NFT-sneakers "CryptoKicks" in late October 2021 (Golden, 2021). Music artists have similarly released NFTs for albums, songs, and merchandise, such as Kings of Leon (March 5, 2021), Grimes (February 28, 2021), and Steve Aoki (March 7, 2021). On May 11, 2021, the fine art world was shaken up when artist Beeple's NFT "Everyday: The First 5000" sold at a Christie's auction for $69 million USD. This event made Beeple's piece "the third most expensive work from a living artist ever sold at auction" (Forbes, Brown, 2021). This moment was also a turning point, as it publicized NFTs throughout the world and made them enter "the public conscience" (Park et al., 2022: 1).

Despite its growth, the novel technology is still in its infancy stage (Ko et al., 2022; Park et al., 2022; Pinto-Gutiérrez et al., 2022; Wang et al., 2021). Indeed, experts argue that the "technologies of NFTs are pre-mature," with most applications focused on the scarcity of digital items (Wang et al., 2021, p. 1). For consumers, understanding this new technology and navigating through the NFT ecosystem can be quite complex. It takes a decent amount of tech-savviness, and the space is evolving at a frenetic pace, which adds a hefty learning curve for newcomers (Forbes, Varsamis, 2022; Wang et al., 2021). The NFT ecosystem is rapidly expanding, making it nearly impossible for consumers to keep up with the hundreds of NFT projects launched every week, constant partnerships forming, and new technology advancements (Varsamis, 2022).

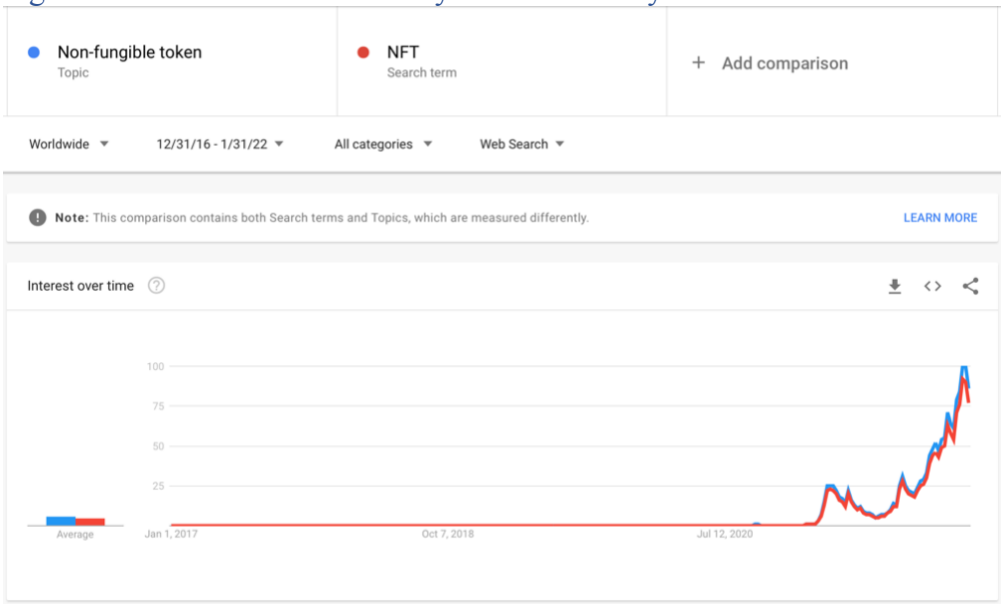
Altogether, the emergence of NFTs constitutes an ideal context to investigate the creation and growth of a value regime. From a value regime perspective, NFTs are not valuable in and of themselves. Their increased valuation presents an ideal case study to investigate how an object went from being relatively valueless to highly valuable, with the NFT ecosystem developing into a multi-billion-dollar market. Lastly, the NFT value regime brings together a wide array of market actors (i.e., government, regulative bodies, firms from various industries, consumers, artists, etc.), making it ideal for analyzing their dynamics, roles, and effects on the expansion of a value regime.

Figure 2: Number of digital wallets transacting NFTs




Statista, 2022

Figure 3: NFT trends from January 2017 to January 2022




Data source: Google Trends (https://www.google.com/trends)

# Chapter 4: Methodology

This study explores how an emerging value regime for a nascent technology (NFTs) expands. I conducted primary interviews and participant observation, along with secondary data analysis of podcasts, secondary interviews, news and magazine articles, webinars, and conferences.

My aim was to understand the emergence of NFTs, the complexities of the NFT market and its related technologies (i.e., blockchain and cryptocurrencies), market-defining events, and their evolution over time. Table 1 summarizes my dataset.

Table 1: Summary of data sources

| Type | Data set | Example of sources |
|---|---|---|
| **Newspaper articles** | 219 articles | e.g., New York Time, Wall Street Journal, Forbes, The Defiant, Business Insider |
| **Webinars** | 3 webinars | e.g., Propy Inc Weekly Webinar |
| **Conferences** | 6 conferences | e.g., Crowdcreate: NFT Global Conference 2021, DevCon5 |
| **Primary Interviews** | 8 interviews | e.g., lawyer, founder, head of sales, product lead, developer |
| **Secondary Interviews** | 35 interviews | e.g., Zima Red, ZenChats, The Defiant |
| **Podcast** | 56 episodes | e.g., NFT Hype Podcast, NFT Roundtable, The NFT Nick Show |
| **Participant observation** | Field notes (46 pages) | e.g., Twitter; Discord channels on NFTs |

Between July 2021 and May 2022, I participated in online spaces where consumers and established players within the NFT community communicated (Twitter and Discord groups). Through these channels, I was exposed to press articles, YouTube videos, blogs, online events, and networking opportunities from all around the world. I developed familiarity with the NFT experience from the lens of various actors, from end-users to project creators and service providers. My weekly participation informed me of active market actors, upcoming NFT projects, the rapid-paced NFT ecosystem, and significant events that could impact the NFT space. Through this process, I developed an in-depth understanding of NFTs and gained knowledge about the prominent leaders in this space and the market as a whole. A glossary of key terms relating to NFTs can be found in Appendix A.

While conducting participant observation, I began collecting secondary data, including podcasts, news articles, and conference recordings. I also engaged in systematic efforts to collect

secondary data. To locate relevant podcasts, I conducted a search by entering the keyword "NFT" into Apple Podcasts. I reviewed each podcast description and selected those that showed potential to answer my research question. The podcast episodes were transcribed in their entirety for analysis. From the podcast data, I identified secondary interviews in which hosts interviewed guests specializing in NFTs, the metaverse, cryptocurrency (crypto for short), and decentralized finance (DeFi for short). To collect news and magazine articles, I entered the keyword "NFT" into the Google News search engine and hand-searched high-quality lay publications such as Forbes, the New York Times, and Rolling Stones, alongside crypto and NFT-focused publications such as The Defiant and NFT Now. I reviewed articles for relevance. I gathered articles from the press published between 2017 and 2022. For conferences, I searched for "NFT Conference" on Google and Twitter. Results included YouTube videos, which I transcribed in their entirety for analysis. I also learned of popular NFT conferences, such as NFT NYC, through my participation in the NFT space.

I conducted eight semi-structured interviews with professionals working in conjunction with NFTs across North America, Europe, and Asia. The interviews lasted an average of 43 minutes (range 27 minutes to 1 hour) and were guided by a topic guide informed by my research question. I recruited participants using a purposive sampling technique to identify key market actors. Using social media, discord, and Internet searches, I located individuals who had expertise and worked in diverse fields relating to NFTs. My goal was to have interviewees that would possess high knowledge of subjects tied to at least one of the three elements of a value regime. The interviewees came from various professions and specialized in a range of fields, including NFTs, blockchain, crypto, DeFi, and art auctioning. I interviewed prominent influencers in NFT spaces to learn about the norms and values present in the NFT space, founders and top-level executives to gain insight into economic models, and lawyers to better understand governance mechanisms. Video interviews were conducted online using Zoom or Google Meets. All interviews were audio-recorded and transcribed in their entirety.

I analyzed my dataset following an enabling theorizing approach (Dolbec et al., 2021), where I coded my dataset both from the ground up, identifying emerging themes as I analyzed data, and from a top-down approach, using my conceptualization of value regimes to inform my coding efforts. Then, I combined my descriptive, emic themes with those that emerged from my theory-informed efforts into the main processes through which expansion occurs in a value regime, which constitute my findings.

# Chapter 5: Findings

My findings explain the emergence and expansion of the NFT value regime. I propose a total of eight expansion mechanisms associated with the three elements of a value regime (i.e., norms and values, governance mechanisms, and economic models). By expansion mechanisms, I mean processes by which a value regime grows. I start by showcasing the expansion mechanisms residing within the norms and values element and how they generate and sustain the NFT value regime's expansion. These findings answer my research question: how does a value regime emerge and expand for a nascent technology?

## 5.1 Normative and Cultural Values

Normative and cultural values (i.e., norms and values) are the social value of products, lifestyles, and moral, ethical, or other desirable ends considered within a social and cultural context (Dewey, 1939; Gollnhofer et al., 2019; Graeber, 2001; Holbrook, 1999; Levy et al., 2016; Miller, 2008). I found that the emergence and expansion of a value regime are supported by three mechanisms related to norms and values: promoting norms and values, norming, and challenging the entry of market actors with misaligned values. Importantly, norms and values that support the emergence and expansion of the value regime are of a specific type. I first present the expansionary values of the NFT regime and move on to explain and exemplify the three mechanisms.

My analysis reveals that the specific values of openness, malleability, and permissionless contribute to the expansion of the NFT value regime by making it more malleable and versatile, allowing for various industries and market actors outside of the focal value regime to perceive NFTs as potentially valuable. In contrast, cryptocurrencies offer a counterexample where, at least at the inception of the technology, the regime was not welcoming of newcomers. As a result, the cryptocurrency saw little increase in value between 2009 and 2017. Difficulties in learning how to buy and trade cryptocurrencies, and in understanding their utility and applications, for example, limited its growth (e.g., Cointelegraph, Melker, 2019; Fast Company, Weissman, 2018).

First, the expansion of the regime relies on values of openness. Openness makes the value regime accepting of and welcoming to various types of market actors who might have different backgrounds and goals compared to regime insiders. It also supports a community-focused space where various market actors might work to achieve diverse and sometimes divergent goals. Members of groups invest their time, knowledge, resources, and engage in collaborations, which supports innovation and expansion of the value regime, making "the space … wide open to anyone who's willing to jump in, learn, and try out new things" (Eng, 2020). This helps explains the variety of actors, from real estate firms to art auctioning houses to sneaker brands, that have found value in the use of NFTs.

Second, malleability – the quality of being easily shaped, molded, or adapted to one's liking, purpose, or goal (Merriam-Webster, n.d.) – eases the entry of various market actors because they can easily adapt NFTs to create and distribute value in ways most beneficial to them. I qualify the NFT regime as malleable because the NFT space is versatile and accepting of

various creative uses. For example, many brands and firms from different industries have delved into the NFT space in various ways, such as Nike acquiring RTFKT, an NFT company that makes digital clothing and footwear (Business Insider, Kish, 2021) or Marvel, which used NFTs to sell collectibles for some movies such as spiderman NFTs (CryptoPotato, Dzhondzhorov, 2021). Other individuals have also bought NFTs to be part of a community, such as the Bored Apes Yacht Club (BAYC), a popular collection of 10 000 unique NFTs (some of the owners are celebrities like Justin Bieber, Jimmy Fallon, and Eminem), which grants the owners access to special events, parties, merch, private discord channels and more (NFT Now, Thomas, 2022).

Finally, the NFT value regime values a permissionless space. By permissionless, I refer to the ability of anyone to participate in the NFT regime without any central authority restricting access. Anyone can thus participate in creating, exchanging, and validating NFT transactions as well as using the system to buy, sell and trade these digital assets (PCMag, n.d.). For example, Peter Van Valkenburgh (Coin Center, 2017), the director of research at CoinCenter, a non-profit focused on policy issues surrounding blockchain technologies, mentioned how valuing a permissionless space enables expansion because of the number of market actors that can enter the space is unlimited as "no one needs to get permission from another in order to take part" in the NFT value regime.

In short, the expansion of a value regime follows from specific types of value, such as openness, malleability, and permissionless. Yet, the sole existence of these values might not sustain expansion. Rather, these values need to be diffused within and outside the value regime and protected, which relies on three mechanisms I now present: promoting, norming, and challenging.

### 5.1.1 Promoting Norms and Values

Promoting refers to the diffusion of norms and values central to a value regime. While certain norms and values support expansion by, for example, facilitating the entry of multiple actors and making the value regime easy to connect with for outsiders, insiders and outsiders need to be aware of these values.

Actors within the NFT value regime work diligently to educate others about the openness of the regime and its malleability, such as the versatile uses of the technology. Take, for example, this excerpt from an interview with Erroll, an NFT influencer who offers educational services to onboard individuals and brands into the NFT space:

> For people and projects entering the space [...], it really depends on their goals and where they're coming from, and their background and experience. Like, if they're completely new to the space, like an existing brand [or individual] trying to come in the NFT space, then I'm trying to teach them about the ethos and culture of the NFT space and all its possibilities […] and so I write and create content [on Twitter, Discord, and my NFT Academy course] on a wide variety of things. […] Everyone has different questions and are coming at the [NFT] space from a different level of experience and they want to achieve different things […].

This excerpt exemplifies how some market actors utilize their influence and create avenues to promote values, or more specifically, the "ethos" and "culture" of the NFT space,

especially towards market actors just entering the NFT value regime. Erroll mentions that he promotes the openness of the space and its multiple "possibilities," and showcases that the NFT space is malleable as there are various actors with different experience levels and different goals entering the value regime. He specifically utilizes Twitter (e.g., Twitter threads and Twitter spaces) to communicate and diffuse these values that are central to the NFT space, along with his NFT Academy course, Discord group, and YouTube channel where he releases podcasts and interviews with prominent players in the NTF space.

Erroll is one of many influencers that onboard market actors new to the regime and use their legitimacy and influence to promote the versatility of the regime. Take, as another example, NFT influencer Nathan Roth, who is ranked as a Top 50 CMO by Forbes and Top 25 CMO by Business Insider and the current CMO at a cryptocurrency company. Nathan uses his legitimacy and popularity within the NFT space to promote and diffuse norms and values that are central to the value regime, such as the malleability of the NFT regime, through various tweets such as the one in figure 4.

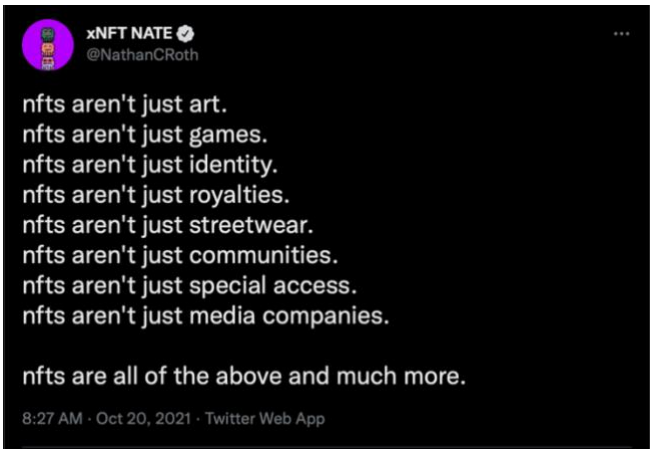


Figure 4: Twitter Post, Roth (2021)

Even though Nathan's tweet emphasizes how NFTs can serve various uses across a range of products, markets, and actors, this is one out of many tweets which showcase the regime's openness and malleability to different industries. The promotion of the values of openness, malleability, and permissionless signals to market actors outside of the regime that they are invited to create value within the NFT regime.

Moreover, promotion is not only done by actors central to NFTs, such as Erroll and Nate, but also by actors new to the regime. In an interview, Kabel, the head of sales for one of the world's top auction houses, expressed how the auction house was promoting the NFT regime's openness and permissionless by educating their traditional consumers:

> The key to getting through to our audiences is by just continuing to educate, to be engaged, have these sales, these exhibitions, and these collaborations, representation of NFTs at art fairs, whatever it may to maintain the presence of NFTs. […] we have a lot of talks, we did a panel discussion in February with our NFT sale, taking advantage of all of that type of media, putting out more content about NFTs, about these [NFT] projects and about this medium. So very much just being taking advantage of all sorts of educational opportunities.

Actors like major auction houses use their own media and platforms, such as art sales, exhibitions, collaborations with NFT artists and experts, art fairs, and panel discussions as mediums to diffuse information such as the NFT space's norms and values. These endeavours increase promotion activities to many markets and actors outside the NFT value regime. Therefore, just like the work of technologists and influencers within the NFT space, highly powerful institutional actors, such as auction houses, promote central values that support the value regime's expansion.

While the previous mechanism enables expansion through promotion, the norms and values of an emerging regime may lack stability, leading to internal and external challenges between competing norms and values. I identify two mechanisms to resolve such challenges: norming (for internal challenges) and challenging (for external challenges).

### 5.1.2 Norming

Norming relates to negotiations between insiders to select norms and values for the regime. The negotiations between regime actors and their responses to internal challenges can ensure expansion when expansionary values such as the ones presented earlier are prioritized. I exemplify norming through negotiations between value regime actors around the value of openness.

A dominant value being challenged in the NFT regime is that of openness. Will Peets, the founder of 100 Acre Ventures, an investment firm specializing in emerging digital assets, explains how there is a push for open rights models and conferring intellectual property (IP) rights to NFT holders, which reflects how the NFT space cares about this value (The Defiant, Dale, 2021). Arguably, the main reason why openness is wanted as a dominant value is that it "allows for rapid innovation, [for example] by copying existing ideas and tweaking it to create something new" (Dale, 2021, para. 13).

Yet, the value of openness has been challenged through NFT projects that emphasize closedness. The clash between being a closed vs. an open regime is exemplified in an interview with Tory, the main assistant to Christopher, a top leading lawyer in the crypto and NFT space who's worked with leading NFT projects:

> So what we're seeing in the space right now is a divide. And I think it's a great divide, you've got a couple of projects on one side that are CC0 [i.e., open] projects, which say that there's no copyright, it's free for everybody, anybody can use this image to do anything. […] And that philosophy is basically like, these images can go anywhere. But the original token, the original image will become ever more valuable when the meme goes and spreads like wildfire. […] Then there's a middle, maybe this is like where Bored Ape [Yacht Club] stands where you own the token, you have the rights to that image, and you can do whatever you want with it. If you don't own it, you don't have those rights. And so what we're seeing is owners, there are some owners who are taking responsibility, and they're super excited, and they're like, oh my gosh, I'm going to create a restaurant around my ape, or I'm going to license my ape using Jenkins the ballet and I'm going to monetize it and it's going to be awesome. Then [on the other side] you have a more restrictive ground. […] This is the bucket where you can only monetize it up to $100,000 or you can't monetize it at all. And the sole owner of the copyright is the original project [creator(s)]. That means that the project founders can monetize the IP in any way they want, they can make a movie, they can make a game, they

> can make derivatives or whatever. But if you're not part of the original team, you're not allowed to do that. And so you can sue other people who are using your intellectual property and make them take it down.

In this excerpt, Tory discusses a clash between two values – openness and closedness – and whether the creators behind the digital assets should own the IP or if the buyers should own the IP of the digital asset linked to the NFT. Resolving these conflicts and "divides" can be beneficial for the continuous growth of the value regime if the "winning" norm or value supports expansion (e.g., in this case, the value of openness).

I next exemplify a way that this clash was resolved: through argumentations surrounding the success of similar-but-competing projects emphasizing each of these discordant values within the market. This conversation was prevalent in November 2021, with two of the biggest NFT collections that promoted different values in the NFT space often being mentioned: Bored Ape Yacht Club (BAYC), which values openness and CryptoPunks (CP), which values closedness.

Back in 2021, BAYC's NFTs were rising in price, while the price of CP, which were originally higher than BAYC prices, was decreasing. Market actors within the crypto and NFT space believed the cause was that BAYC creators gave their NFT holders the IP rights to the artwork, while CP's creators held all IP rights, leaving none to their NFT holders. Take, for example, how Brady Dale (2021), a crypto reporter at Axios, discussed the situation:

> What's behind the change [in price]? Prices are always anyone's guess, but it seems like part of Crypto Twitter believes it's because the Ape's [BAYC] creators, Yuga Labs, conferred something on their holders of true and enduring value: the intellectual property rights to the underlying artwork of the NFT.

Mr. Dale further explained how there was the formation of two "camps:" NFT project creators controlling all IP versus the ones giving IP rights to their holders or even giving away the IP to everyone by putting their work in the public domain for anyone's use (a process called CC0).

The discussion as to why BAYC NFTs became more successful than CP ones directly compared the competing values of openness versus closedness as they relate to the use of intellectual property rights. The commercial success of BAYC and the many positive commentaries from prominent NFT actors (e.g., Dale, 2021) points to a negotiation where openness prevailed. The lack of openness in CP led some influential NFT users, such as Punk4156, the creator behind a popular NFT project, to sell their CPs as a protest (Decrypt, Hayward, 2021). Following the transaction, Punk4156 took on Twitter (@Punk4156, 2021) to say how the IP rights not being distributed to NFT holders made him leave the CP project: "I love [Crypto]punks, but the copyright issue kind of broke my heart. […] will otherwise be focusing my time on NFT projects that give the IP rights to everyone." Ultimately, Yuga Labs, the creators of BAYC, acquired CP in May 2022 and transferred the IP rights to the NFT holders of that project. Openness, a dominant value that fosters expansion, prevailed (Fortune, Kharif, 2022; TechCrunch, Matney, 2022; Business Wire, Sims, 2022).

### 5.1.3 Challenging the Entry of Actors with Misaligned Values

Challenging is a mechanism that protects dominant values from regime outsiders who want to enter the value regime but promote discordant values. A central way this is accomplished

is through boundary-maintaining work that aims at preventing the entry of powerful outsiders who could up-hand the dominant values that support expansion.

Take, for example, the following tweet by Brendan Forster (figure 5), the head of strategy at OpenSea (the current biggest NFT marketplace in the world [The Business of Business, Abrams, 2022]), that exemplifies a clash of values between insiders and outsiders and boundary-maintaining work:


Figure 5: Twitter Post, Forster (2021)

In this example, Brendan expresses the general negative sentiment of NFT regime actors towards Meta's (previously named Facebook) entry into the NFT ecosystem. His reputation and position in the NFT space speak volumes about whether other NFT actors should be welcoming to Meta. Such discursive efforts serve to prevent the entry of Meta and protect dominant values – openness, malleability, and permissionless – which Meta does not abide by, at least according to various regime actors in the NFT space. Echoing this sentiment in an interview, Erroll implies in his Web2 versus Web3 comparison that Web2, which refers to the era of the Internet where users accessed services through servers owned by tech companies that monetize from users' data (e.g., Facebook, Twitter, YouTube, Instagram), is competing against Web3, where users can access services on applications running on a blockchain and own their personal data, without the platforms monetizing from it (Ethereum, 2020b). In other words, the NFT space did not like a Web2 company (a centralized company) rebranding itself as if it was a Web3 company (a decentralized company using an open, transparent and permissionless public blockchain) by using a term mostly used to describe virtual worlds created on decentralized systems. Erroll further mentions other reasons for challenging the entry of some market actors:

> I think it's very clear when an established brand is trying to enter the NFT space and launch an NFT project, when they sort of understand the ethos and culture and when they don't. The difference is that, if they don't understand it, […] there's very little interaction with the community, […] maybe they don't, you know, engage in the discord [top platform besides Twitter for communication in the NFT space]. […] And by and large, the [NFT] space does not look kindly upon outsiders just because it seems extractive, it seems like they're launching a project to get money and take money out of the ecosystem. Whereas if a brand is coming in and trying to spend some time understanding the space, talk to people, maybe bring on advisors from within the space that can help them do things the right way, and trying to add value […], then they're much more likely to be embraced by the [NFT] community.

This excerpt makes it clear that regime actors within the value regime notice when a firm entering the NFT space is aligned with the regime's "ethos," "culture," and overall norms and values or when it is not. Outsiders that only want to extract value, with no intentions of contributing to the value regime, are challenged and confronted as they do not align with the regime's values and might contravene expansion. Discursive actions, in the form of criticisms, serve as efforts to protect the regime's boundaries and reaffirm dominant values.

This last value-related mechanism of challenging protects the regime from outsiders with misaligned values and supports dominant values that foster expansion by confronting firm outsiders that are trying to enter the value regime with the purpose of capturing a portion of the market. Next, I look at the expansionary dynamics present within governance mechanisms that enable the value regime's expansion.

## 5.2 Governance Mechanisms

Governance mechanisms enable, regulate, and institutionalize economic models as well as provide governing structures (e.g., legal structure) that promote certain norms and values (Gollnhofer et al., 2019). My findings show the emergence of governance mechanisms within the NFT value regime from the formation of laws, rules, and regulations, the adoption of standards, and the advent of organizations with authority. I found that two mechanisms play key functions in the expansion of the value regime: the entry of regulative bodies and the creation of standards.

### 5.2.1 Entry of Regulative Bodies

The entry of regulative bodies supports and sustains the value regime's expansion as it enables the creation and enforcement of formal rules and regulations that support certain norms and values and models of value creation. In the case of the NFT regime, regulative bodies strengthen the trust and security of transactions and relationships between market actors.

The lack of security hindered the development of NFTs early on, and the entry of regulative bodies helped address this barrier to expansion. For example, experts have told CBS that a major flaw within the NFT space is the lack of regulation (CBS News, Patterson 2022), which explained the decrease in interest for NFTs in 2022 (compared to the rampant growth and interest from 2021). A CBS News article describes scams and hacks happening in the NFT space (Patterson, 2022, para. 3):

> Among a string of incidents, hackers swiped NFTs valued at $2.2 million in January from New York art collector Todd Kramer. A month later at OpenSea – the world's largest NFT market – an estimated $1.7 million worth of NFTs were stolen in an alleged phishing scam. And users of the MetaMask, one of the most popular crypto wallets, routinely report unauthorized transactions. According to Check Point Research, last fall, MetaMask users lost about $500,000 in a targeted phishing attack.

This excerpt gives a few examples of the multiple ongoing frauds which were hindering the expansion of NFTs. The U.S. Department of Justice commented to ABC News that scams and fraud have always been present but that the rapid popularity and hype around NFTs "turbocharged" their amount (Romero, 2022, para. 10). At least partly as a result, the US federal

government started to regulate cryptocurrency, NFTs, and blockchain technologies (Wall Street Journal, Delrahim, 2022). ABC News (Romero, 2022, para. 9-11) describes such efforts:

> In February [2022], the U.S. Secret Service launched a cryptocurrency awareness hub and the Department of Justice announced the first director of its National Cryptocurrency Enforcement Team. […] In March [2022], the DOJ brought its first NFT case when it charged two defendants with executing a million-dollar fraud scheme after they promised investors the benefits of an NFT collection called Frosties, then allegedly shut down the website and transferred away all the money they received from the sale of the tokens. According to the complaint, the defendants were preparing to launch a second set of NFTs that was anticipated to generate approximately $1.5 million in cryptocurrency proceeds.

The recent entry of regulative bodies has already led to the start of eliminating growth-limiting actors in the NFT space. Indeed, the U.S. Department of Justice (DOJ) started to get involved in early 2022 and charged two individuals with fraud and protected future NFT consumers with a second NFT project which was just another fraud scheme (Romero, 2022). This course of action is the DOJ's first NFT case and should help deter fraud and scams within this space. Furthermore, in the mind of influential NFT actors, such as Justin, a prominent lawyer within the NFT space that has worked with leading NFT projects, teams, and artists, the entry of regulative bodies such as the U.S. government has been supporting the expansion of NFTs:

> Overall, I think that laws and more regulation are going to be good. Because the safer you make it for the mainstream, my next-door neighbour, and people willing to participate, the better it is for everyone. […] So if it's going to it [become mainstream], you want regulation to make it safer for everyone to get in. […] With all the dangers and scams, you need regulation for consumer protection. Because we have scams and hacks towards NFTS every single day. We hear about the major ones every other week, but every day multiple people are getting hacked, and scams are happening. So imagine, if you let the masses in, how much that's [the scams ad hacks] going to grow and how bad that's going to be. So absolutely, you want regulation because that'll make it more comfortable. I mean, you already have a lot of the bigger brands in the US getting into NFTs. But maybe you want some of those international brands; maybe you want Nike to move a little bit quicker on whatever they may be planning with RTFKT (a top leading fashion NFT brand acquired by Nike in December 2021) or on their own. Maybe like, Elon, Tesla to get involved in this [NFTs]. […] That's only going to happen with regulation so that they [big companies] know that they're protected, you know, and consumers are protected, and the consumers are not going to sue them.

This interview excerpt elucidates how the entry of regulative bodies within the NFT space can protect and bring security to transactions within the space, supporting models of value creation and sustaining the value regime's growth. More specifically, Justin explains how scams can deter various actors, such as firms and end-consumers, from participating with NFTs because of a lack of consumer protection. Theoretically, I read this as the undermining of economic models, whereas scams contravene institutionalized understandings of value creation within the regime and the legitimacy of existing business models. Regulative bodies can bring consumer protection, which will make the NFT space safer and more comfortable for individuals and firms to interact with NFTs and protect economic models.

Overall, this expansion mechanism is crucial for the continued growth of the regime. Because of the increased security for end consumers, regulations can also ease the participation of various parties in the NFT value regime, supporting the values of openness, malleability, and permissionless. Moreover, the entry of regulative bodies introduces the policing of transgressions, as well as the development of laws, rules, and formal procedures, which creates trust for actors within the regime's economic models.

### 5.2.2 Creation of Standards

The second mechanism is the creation of standards, which supports expansion by creating a common language for market actors within the regime. My analysis shows how standards facilitate the creation and development of various components of the regime, such as the marketplaces that are part of economic models. For instance, NFTs started to gain traction once the Ethereum blockchain created the ERC-721 standard to support the technology (The Verge, M. Clark, 2021). Today, the Ethereum blockchain is the most used network for NFTs and contains over 90% of all NFTs created (Matob News, 2022).

ERC-721 is the name given to the standard of how an NFT should be structured and coded to work on the Ethereum network (Ethereum, 2020a). The ERC-721 standard brought cohesiveness as it enabled anyone interested in NFTs to simply follow one set of rules and guidelines to participate in the NFT ecosystem instead of everyone trying to create NFTs with different codes and guidelines. This cohesiveness brought by the ERC-721 standard helped the creation of new economic models, such as with NFT marketplaces where multiple market actors can interact with each other. For example, the first NFT marketplace on Ethereum, OpenSea, was created in 2017, just after the introduction of ERC-721 as the first NFT standard (Github, Entriken, 2017). The role of standards in supporting a regime's expansion is further explained by Fabian Vogelsteller, the creator of various foundational applications for the Ethereum network:

> But why make standards? It's because they are the building blocks […]. If you have a programmable network, if you have a network where anybody can do anything, now we need to agree on how to do things. Because if we don't, everybody does it the way they want to, and we have a mess. So, we have to agree on certain core components, we have to create on the fact that, for example, we have a token that works in a specific way. So, if you have that token with a function on "how you read the balance" and "how you transfer something," and we agree on that, everybody can now build tokens that will work in different wallets and will work [within the whole blockchain network]. […] Basically, with all these new standards, you're giving people Lego pieces that they're now able to build their own Lego world. And, what has been missing before is exactly those Lego pieces. And the first Lego piece, you know, ERC-20 that everybody's using, led to an explosion of business ideas and NFTs and all of this other stuff. So, think of now if you add a, a third piece, right, or a fourth piece […], how much explosion [of ideas] can happen after that

As Fabian explains, standards are "building blocks" that create a common language or code that creators and users within the value regime can use to create and distribute value in an interoperable manner, allowing different technological components such as tokens (i.e., digital currencies) and virtual wallets to interact with each other seamlessly within the NFT ecosystem. They create consensus on the rules for how certain things should be done. Such consensus supports expansion by fostering cohesiveness and convergence, rather than "a mess" caused by "everybody doing it the way they want to" (Fabian). Indeed, the Ethereum Foundation (2019) emphasized the importance of cohesiveness during a conference for developers, researchers, thinkers, and makers:

> Ethereum, unlike most [other] distributed ledgers [i.e., blockchains], is based on standards […]. Even the "corporate" technology users in the Enterprise Ethereum Alliance build on the Ethereum standards and extend them with their own standards process designed to avoid fragmentation or divergence.

Along with Fabian, the Ethereum Foundation, a not-for-profit that supports the development of the Ethereum blockchain, states the importance of standards as it prevents "fragmentation" and "divergence" within the NFT ecosystem and the entire Ethereum blockchain. Overall, they allow for all market actors to have the same building blocks of reference to create and exchange value harmoniously, leading to an interoperable NFT value regime prompted for expansion. Moreover, standards limit divergence and fragmentation between market actors, as well as allow actors to extend on top of already set standards which leads to the expansion of a cohesive ecosystem. In the next section, I go over the expansion mechanisms leading to the regime's growth that are present within the element of economic models.

## 5.3 Economic Models

Economic models of value creation and distribution ("economic models" for short) comprise business models and market structures that define the creation, delivery, and capture of value by firms (Teece, 2010, p. 172). They are the institutionalized blueprints through which firms within a value regime create and deliver value. My analysis identifies three mechanisms associated with economic models that support the value regime's growth: the creation of modes of value exchange, the creation of methods of value creation and distribution, and the simplification of exchange protocols.

### 5.3.1 New Modes of Value Exchange

The creation of new modes of value exchange refers to novel ways through which the value of NFTs can be extracted. To exemplify this first mechanism, I discuss how the development of platforms connects different market actors. Two types of platforms are discussed. First, exchange platforms facilitate transactions by connecting sellers (e.g., creators, resellers) and buyers, realizing economic value. Second, presentation platforms allow NFT owners to display associated assets (e.g., a digital avatar, a digital piece of art), realizing other types of value (e.g., identity value, linking value). Presentation platforms offer spaces where NFTs can be showcased, valuated, appreciated, and seen by others. I now exemplify both.

First, transactions are facilitated by the creation of exchange platforms. For example, Pavel Kireyev and Peter Evans (2021) explained in their Harvard Business Review article the role of NFT marketplaces, a type of platform:

> NFT platforms are built around the idea that just like physical content, digital content too can be scarce – that is, limited in quantity – and can therefore be meaningfully owned and traded. These platforms leverage blockchain technology to verify the provenance of digital content, similar to how a traditional auction house might verify that a given work of art is in fact the original and not a replica […]. These marketplaces focus predominantly on enabling efficient transactions, often providing payment infrastructure to accept both credit cards and crypto payments in Bitcoin, Ethereum, and occasionally other specialty tokens.

Here, there is an emphasis on the important role of marketplaces, as they enable a multitude of NFT transactions between various market actors. Moreover, Marketplaces are a type of platform where multiple actors can connect and create, trade, buy, and sell NFTs (Kireyev & Evans, 2021; NFT Tech, 2021). In other words, they enable the distribution and exchange of

NFTs by "enabling efficient transactions" and "providing payment infrastructures" to facilitate transactions for users engaging with NFTs. A concrete example is OpenSea, the current biggest NFT platform in the world (The Verge, Brandom, 2022), which facilitates NFT transactions for market actors by being interoperable by accepting most types of digital wallets (e.g., MetaMask, Coinbase, TrustWallet, Formatic, WalletConnect), and adding compatibility with NFTs made on different blockchains (The Block, McSweeney, 2022; Business 2 Community, Younas, 2022).

Second, presentation platforms actualize other types of value held by NFTs, such as identity and linking value. There are different ways through which objects have value for consumers, such as supporting their identity construction (Belk, 1988, 2013) or their connections (or 'linking') with others (Cova, 1997). Yet, for these types of values to be realized, objects need to be seen. It is unlikely that a pair of red sneakers would help make somebody stand out and give them status (Bellezza et al., 2014) if nobody could see these sneakers. In the NFT space, this is alluded to by Ion Rogers, the Chief Experience Officer at Ledger, a security tech company offering protection of digital assets, who mentions that "the reason that NFTs have taken off at the beginning of this year is because we have [spaces to display them]. You know, if you don't have a place to display these things, then it doesn't exist" (Bloomberg, 2021, 8:49).

A clear example of presentation platforms is metaverses, virtual worlds that combine the Internet, virtual reality (VR), and/or augmented reality (AR) (SocialDay, Moretsele, 2022). Early examples of this concept through AR are Snapchat and Instagram filters or games like Pokemon Go, which mix reality with the digital (Moretsele, 2022). For example, Binance, the world's top cryptocurrency exchange, explained in one of their articles (Binance Blog, 2021, para. 17) how NFTs become value carriers as they allow metaverse users to define their selves and relations with others in ways reminiscent of how products and services are used in the offline world (Belk, 1988; 2013):

> NFTs are the bridge to the metaverse, and facilitate identity, community and social experiences in the metaverse. […] NFTs also play an integral role in identity, community and social experiences in metaverses. Holding certain NFT assets can signal a user's support of a project or convey perspectives about the virtual and real world. This allows like-minded individuals holding such NFTs to band into communities that share experiences and create content together. One example of such NFTs are the trending NFT avatars.

The value of NFTs becomes apparent when they can be used by users, in this case through the creation of identity value and linking value. Since NFTs allow for the unique use of digital artifacts, they now increased their potential to provide identity and linking value. Metaverses enable NFTs to be showcased, be seen by others, and can be bestowed utility along with connecting with users by offering identity, status, community, and social experiences. In the same way that the offline economy is orchestrated through the exchange of unique products and services, NFTs become a vital aspect of enabling digital economies within metaverses. The Financial Times (n.d.) explains:

> Non-fungible tokens – records of digital ownership stored in the blockchain – will be the linchpin of the metaverse economy, by enabling authentication of possessions, property and even identity. Since each NFT is secured by a cryptographic key that cannot be deleted, copied or destroyed, it enables the robust, decentralised verification – of one's virtual identity and digital possessions – necessary for metaverse society to succeed and interact with other metaverse societies.

This excerpt emphasizes how the value of NFTs is realized as they become a vital piece in metaverse economies. An example of this development is Decentraland, a metaverse with a market cap of $3.5 billion USD that has 50 000 daily active users and who constantly purchase digital items represented through NFTs, such as virtual clothes and accessories, digital avatars, digital artworks, and virtual land (The Globe and Mail, Subdhan, 2022).

Overall, the creation of modes of value exchange through exchange and presentation platforms is an expansion mechanism that prompts and accelerates the growth of the NFT value regime by facilitating and enabling transactions between market actors and actualizing the value of NFTs.

### 5.3.2 New Methods of Value Creation and Distribution

Next, new methods of value creation and distribution contribute to the expansion of the value regime by connecting the NFT regime with other industries. In this mechanism, firms from many markets found ways to identify and exploit new types of market opportunities because of the affordances of NFTs.

At the heart of the creation of new methods of value creation and distribution is the technology's potential to unleash value within existing markets, as NFTs can support the creation of new types of revenue-making activities. To create and capture value associated with market opportunities more easily identifiable and exploitable because of the affordances of NFTs, market actors have defined new blueprints for value creation and distribution. For example, Kaczynski and Kominers (2021, para. 11) point to the ways in which "NFTs' programmability supports new business and profit models – for example, NFTs have enabled a new type of royalty contract, whereby each time a work is resold, a share of the transaction goes back to the original creator." They expand (2021, para. 6):

> NFTs have fundamentally changed the market for digital assets. Historically there was no way to separate the "owner" of a digital artwork from someone who just saved a copy to their desktop. Markets can't operate without clear property rights: Before someone can buy a good, it has to be clear who has the right to sell it, and once someone does buy, you need to be able to transfer ownership from the seller to the buyer. NFTs solve this problem by giving parties something they can agree represents ownership. In doing so, they make it possible to build markets around new types of transactions – buying and selling products that could never be sold before, or enabling transactions to happen in innovative ways that are more efficient and valuable.

As Kaczynski and Kominers discuss, the affordance of NFTs that allows to identify an owner and separate the real and the copy gave digital artists access to property rights, from which they can now generate value. Prior to this specific and unique use of the technology, digital artists had difficulty selling their work because it was impossible to distinguish an original piece of art from its copy. In addition to digital artists, NFTs also create new avenues for music artists to monetize their products. Enter Blog (2022) discusses:

> Traditionally, music distribution has gone through agents, studios, record labels, record stores, and other third parties in order to reach their audience, and everyone gets a cut of the profit. […] platforms like Soundcloud and Bandcamp have been moving musicians in a DIY direction for years, but NFTs present the most promising development toward supporting indie artists. Selling your music as NFTs involves only one

> other entity beyond seller and buyer: the NFT marketplace you sell it on. Considering the lack of gatekeeping involved, the marketplace hardly acts as a middleman in the traditional sense. Create music any way you choose, mint it [the action of creating an NFT on a blockchain for any type of digital asset/file], and upload. All other barriers are removed. Musicians are able to combine their completely original artistic visions with a way to profit from them directly.

This excerpt explains how NFTs offer music artists the possibility to directly monetize their assets, bypassing intermediaries. Loyal to the core value of a permissionless space, Enter Blog mentions how this reduces gatekeeping behaviour and maximizes revenues for product owners. This echoes the sentiment of digital artists, who similarly have discussed how NFTs have created new market opportunities for their art by allowing them to bypass traditional gatekeepers such as studios and art galleries (Creative Bloq, Dean, 2022; Vice, Schiavone, 2021).

Overall, this expansion mechanism offers new methods for market actors within different industries to monetize, such as bypassing various third-party intermediaries and enabling direct monetization. This leads to the regime's expansion as various industries connect with the NFT value regime.

### 5.3.3 Simplification of Exchange Mechanisms

Last, the third expansion mechanism within economic models is the simplification of exchange mechanisms, which refers to "the process of making something less complicated and therefore easier to do or understand" (Cambridge University Press, n.d.-b). For the NFT regime, this mechanism allows for greater ease of transaction.

Arguably, NFTs are only at the early adopters' stage (Park et al., 2022). Simplification sustains the expansion of the value regime as it facilitates a movement from the innovators and early adopters' stage to the early majority (Park et al., 2022) by tackling certain factors that can limit mass adoption. Hisham Khan (The Defiant, 2021), CEO and founder of Aldrin, a company focused on simplifying digital asset transactions on blockchains, along with more than half of the people interviewed for this study, mentioned the complexity of the NFT space as a main limiting factor for growth. For example, when asked about the limitations within the NFT space and how to solve them, Fabian, the creator of a fundamental standard for the current biggest NFT blockchain, Ethereum, said:

> One of the biggest problems we have in blockchain is the transaction fees problem. So, if you want to interact on a blockchain, you do have to pay a transaction fee. That means that the biggest barrier of entry that most people have that want to interact with blockchains is "oh, I want to do something. I now generated [created] this address on Metamask (i.e., the biggest digital wallet provider for the Ethereum blockchain). That was easy, quick click. But now I need ether [digital currency], or whatever native token that [blockchain] network requires [to pay transaction fees]. And that's exactly where they [users and consumers] get stuck. So, I have to go to an exchange, sign up, make a credit card payment or have to transfer money to an exchange, do a KYC [know your customer, a process of identity verification]; all of these complex steps just to interact with that network. And by having this barrier of entry, you make it really hard for most people to even start interacting with Blockchain in the first place. Because it's now five steps required to even do anything. […] If we want to have a better user experience in blockchain, we do have to have more complex interactions [for service providers/firms]; there's no way that you keep it as simple as before, […] if it gets more user friendly, obviously internal complexity rises.

Fabian discusses two important barriers to the adoption of NFTs. First, NFT exchanges have seen increased transaction costs (what are referred to as "gas fees"), which impedes scalability for a mass audience. Second, the increased complexity of economic exchange often leads to poor user experience and the need for high and specialized knowledge to navigate transactions.

A method for the simplification of exchange mechanisms is by transferring the complexity to the service providers' side. For example, firms have integrated methods to buy NFTs on a platform with credit cards and other regular payment methods, allowing end-users to skip the various complex steps originally required to transact in the NFT space (The Defiant, Khan, 2021). NFT marketplaces such as Nifty Gateway and NBA Top Shot have incorporated these methods into their platform, which simplified distribution and exchange. At least according to NFT commentators, such as Kaczynski and Kominers (Harvard Business Review, 2021), this type of simplification seems to have helped unlock the value of NFTs. They explained how "NBA Top Shot has benefited tremendously from submerging most of the underlying crypto structure in its NFT market and enabling users to purchase [NFTs] in fiat (i.e., government-issued currency such as the USD or EURO) with credit cards, rather than requiring people to transact in cryptocurrency" (2021, para. 31).

This snippet further emphasizes how simplification enables and sustains the value regime's expansion by eliminating hurdles and limitations associated with economic exchange that arise within the NFT space. Overall, my findings identify eight expansion mechanisms detailed in Figure 6. I now discuss the main contributions of this study, potential limits to the expansion of a value regime, the managerial implications of the findings, the limitations of this study, and I propose potential future research avenues.

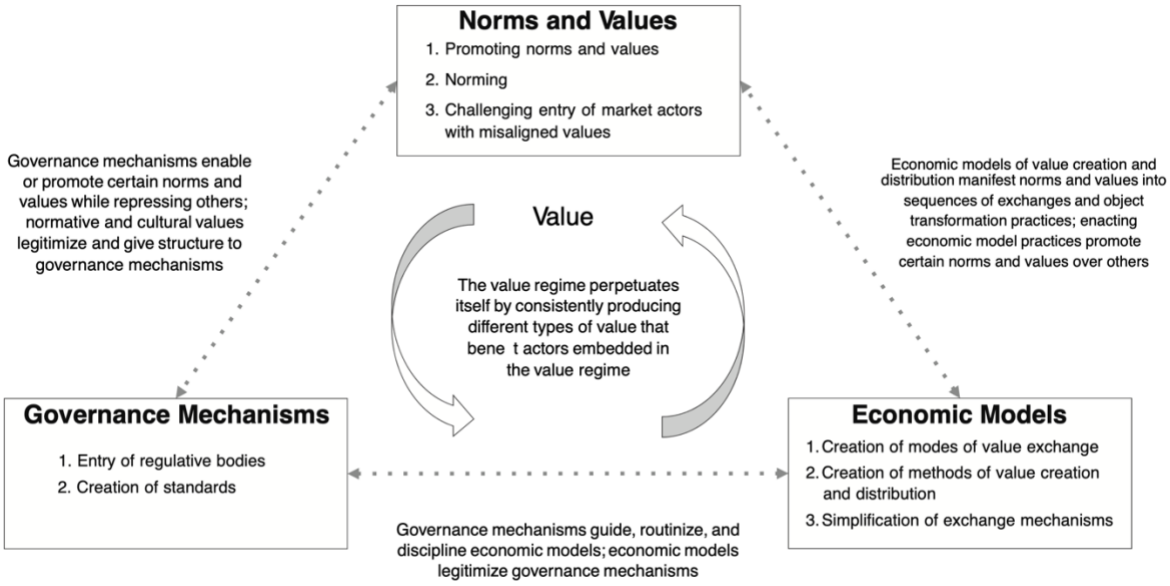
Table 2: Summary of all 8 Expansion Mechanisms

| Expansion Mechanism | Definition | Example |
|---|---|---|
| **Norms and Values:**<br><br>1. Promoting norms and values | The diffusion of norms and values central to a value regime's expansion. | Key actors have used their influence, legitimacy, and popularity to promote and diffuse norms central to the NFT value regime's expansion, such as the malleability of the NFT space. |
| 2. Norming | The negotiations between value regime insiders to select norms and values for the regime. The negotiations between regime actors and their responses to internal challenges can ensure expansion when expansionary values are prioritized. | The success of similar-but-competing NFT projects (Bored Ape Yacht Club [BAYC] vs Cryptopunks [CP]) led to arguments as each promoted different values. BAYC ended as the most successful brand since it promoted openness, a dominant value within the NFT space. CP, which chose closedness, ended up being bought by BAYC. |
| 3. Challenging entry of market actors with misaligned values | The protection of dominant values from regime outsiders who want to enter the value regime but promote discordant values that may impede on expansion. | Facebook, now named Meta, was called out by various individuals within the NFT space for going against values present within the value regime, such as the open and permissionless NFT space versus the closed and permissioned-only Meta platform. |
| **Governance Mechanisms:**<br><br>1. Entry of regulative bodies | The entry of regulative bodies enables the creation and enforcement of formal rules and regulations that support certain norms and values and models of value creation. | Regulative bodies strengthen the trust and security of transactions and relationships between market actors by enforcing punitive measures onto individuals with fraud schemes and scams in the NFT market. |
| 2. Creation of standards | Standards become a common language for market actors within a value regime. They are the building blocks that favors the development of various components of a regime. | NFTs started gaining traction when the NFT standard, which proposed how an NFT should be structured and coded to work on the Ethereum network, was created in 2017. |
| **Economic Models**:<br><br>1. Creation of modes of value exchange | Novel ways through which value can be extracted such as through the development of platforms that connect different market actors. | The creation of metaverses, a type of platform where NFTs can be showcased, valuated, appreciated, and seen by others. |
| 2. Creation of methods of value creation and distribution | Firms from various markets identifying ways to exploit new types of market opportunities, leading them to connect with the NFT value regime. | The art industry changed when NFTs allowed artists to bypass third parties such as studios, stores, or agents, and sell directly to consumers. Today, NFTs present artists with a new way to monetize. |
| 3. Simplification of exchange mechanisms | The process of making transactions less complicated and therefore make the value regime easier to participate in. | NBA Top Shots adding regular payment methods to buy NFTs (e.g., credit card), instead of regular NFT payment methods that accepts only cryptocurrency. |

# Chapter 6: Discussion

This study offers a model for understanding how a value regime emerges and expands for a nascent technology. My analysis identifies a total of eight expansion mechanisms, which are summarized in Figure 6. More specifically, for norms and values, I first propose that the expansion of a value regime is supported by a specific set of expansionary values. For the NFT value regime, I identify openness, malleability, and permissionless as key values. Then, my analysis suggests three mechanisms of expansion. The first expansion mechanism I uncover is the promotion of norms and values, which refers to the dissemination of certain norms and values that support the expansion of a regime (e.g., openness or a permissionless environment). The second expansion mechanism I uncover is resolving internal challenges through norming, which refers to selecting and prioritizing certain norms and values that support expansion. It resolves internal challenges by selecting dominant norms and values, especially between conflicting ones. The third expansionary mechanism is challenging the entry of market actors with misaligned values, which protects dominant norms and values of expansion from actors outside the focal value regime that want to enter the regime but could undermine dominant values that support expansion.

Figure 6: Value Regime Elements and Expansion Mechanisms




Updated from Gollnhofer et al. (2019).

Next, I present two mechanisms of expansion associated with governance mechanisms. First, the entry of regulative bodies supports and sustains a value regime's growth through the creation of formal rules, laws, and regulations, which institutionalizes trust and security for market actors within the regime. Second, the creation of standards brings unification within the value regime, which facilitates the creation and development of various components of the value regime, such as marketplaces and other infrastructures.

Finally, I find three expansion mechanisms for economic models. First, the creation of new modes of value exchange is a mechanism of expansion that facilitates transactions between regime-insiders and actualizes the full value of an object (i.e., product or service). Second, the creation of new methods of value creation and distribution refers to the development of new business models and revenue-making processes. This leads to the connection of the NFT value regime with other industries that create and adopt these new methods, consequently prompting the regime's expansion. Third, the simplification of exchange mechanisms refers to decomplicating complexities associated with economic exchange, especially for end-users. This mechanism decreases the effort required for many end-users and general consumers to enter and participate in a value regime (i.e., enables mass adoption).

By answering how an emerging value regime for a nascent technology expands, this study offers two main contributions. First, it extends understandings of value regimes by pinpointing various mechanisms of expansion which can lead to its growth. This differs from previous research that focused on the transformation of an existing value regime or the change in an object's meaning and value as it moves from one value regime to another (Corvellec & Hultman, 2014; Crossley & Picard, 2014; Gollnhofer et al., 2019; Jamieson, 1999; Levy et al., 2016; Murakami, 2016; Valk, 2020). Second, I expand the conceptualization of value regimes as an analytical tool and broaden the scope in which it can be used. Indeed, while previous work developed a framework of value regimes and proved they are composed of three interrelated elements (Gollnhofer et al., 2019, Levy et al., 2016), I added the expansionary dynamics to each element, which can widen the useability of the value regime concept to understand not only the transformation or alignment within an industry, but also enables to analyze emerging industries and markets. With this said, there are potential drawbacks that may limit the expansion of a value regime which I explore further.

## 6.1 Potential Limits to Expansion

Based on existing work on value regimes of different types (Geels, 2002; Gollnhofer et al., 2019; Levy et al., 2016), I hypothesize that tensions between value regime elements might limit the expansion of a value regime. I identify three sets of tensions that relate to norms and values, economic models, and governance mechanisms.

First, tensions between the norms and values and economic models can arise. For example, this can happen when some dominant norms and values, such as the ones prompting and helping sustain the regime's expansion, go against a firm's business models. In Gollnhofer et al.'s study (2019), tensions arose between German consumers and German food retailers because the key value of sustainability of some consumers conflicted with retailers' business models that favored selling the freshest food possible at the expense of perfectly edible food with slight blemishes (Gollnhofer et al., 2019; Jasper, 2011; Kozinets & Handelman, 2004). In the eyes of consumers, German food retailers' approach to marketing fresh products created an unsustainable amount of waste, causing tensions. In contrast to Gollnhofer et al.'s (2019) context, where tensions can serve as the origin for the transformation of a value regime, I suggest that tensions between norms and values and economic models can limit the growth of an emerging and expanding value regime. For example, findings show how openness is a key expansionary value of the NFT value regime, and how tensions arose between the CryptoPunks

(CP) NFT project creators and the CP NFT owners who did not own any intellectual property (IP) rights of their NFTs. These tensions led to a decrease in CP's success (Dale, 2021) and various CP owners stating their discontentment with CP creators' closedness. It is possible that such tensions, if they would not have been resolved during the Bored Ape Yacht Club versus CryptoPunks value conflict, might have reverberated across the value regime, impeding growth. Handling tensions between norms and values and economic models is therefore of utmost importance for market actors who want to ensure the overall growth of the value regime through successful economic models that align with the regime's values.

Second, tensions can arise between the norms and values and governance mechanisms element. For example, Levy et al. (2016) explored the transformation that happened within the coffee value regime following tensions rising from society's norms and values linked to sustainability not aligning with the standards of production by major coffee firms. This led non-governmental organizations (NGOs) to intervene and push these values forth in the market. These tensions disturbed the alignment between norms and values and governance mechanisms, and led to the transformation of the value regime to realign the elements. For example, firms adopted new standards of sustainable production, which were encoded into governance mechanisms through certifications of sustainability. Within a nascent value regime, these tensions can also limit the expansion of a value regime. My findings showed that openness, malleability and permissionless are dominant values of expansion that support new creative uses. This, though, can lead to tensions if the rules and regulations proposed and put in place by market actors within governance mechanisms (i.e., government) are perceived as restricting the uses of a technology, which might negatively affect dominant norms and values. Managing tensions between emerging norms and values and transforming governance mechanisms as a value regime expands should thus be of interest to market actors who want to ensure its growth.

Lastly, tensions can arise between economic models and governance mechanisms, especially within emerging value regimes which may lack formal rules and regulations. For example, Geels (2002) studied the evolution of the steamboat. Within his context, he explains how Britain dominated the shipping industry in the 18th century and controlled the types of ships used for navigation and trade. The laws, rules, and regulations imposed by the British empire promoted large and wide ships, restricting other types of boats such as the steamboat. This caused tensions since the governance mechanisms impeded the creation of economic models that would have made steamboats profitable, limiting the expansion of the value of steamboats. It took nearly 70 years for the British government to update their laws and regulations and promote the use of steamships, resolving tensions between governance mechanisms and economic models, which led to increased value for steamboats and steamships. Hence, negotiating tensions that can appear between governance mechanisms and economic models is crucial for market actors for whom laws and regulations might impede the valuation of their products or services and the institutionalization of certain business models.

## 6.2 Managerial Implications

My findings can provide strategic recommendations for managers to capitalize on the expansion of a value regime, which should lead them to become more competitive and improve their revenues.

First, I suggest that firms can utilize the norms and values of a regime to their advantage. For example, in the findings, I presented two projects (i.e., Bored Ape Yacht Club and CryptoPunks) that were in competition. One key aspect that relates to norms and values defined each project: one valued openness versus the other that valued closedness. In the end, the project that reflected the dominant value of openness became the "winner" and even ended up acquiring the project that reflected the value of closedness. I suggest that a key reason this happened is that closedness went against the dominant values of the NFT value regime. Hence, it seems that being able to pinpoint the dominant norms and values within an expanding value regime and choosing to make business decisions in accordance with these values can lead to improved competitiveness.

Second, the expansionary mechanisms for governance mechanisms can similarly be utilized by firms to increase their competitive advantage. My findings show that within an emerging value regime, standards facilitate the creation and development of various components within the regime and support its expansion. I propose that a firm that develops such standards is likely to increase its competitiveness as the firm's standard becomes a building block to the whole ecosystem. For instance, Java, a fundamental programming language in the software development industry, was developed by Sun Microsystems and is to this day one of the top programming languages in the world, giving a competitive advantage to Sun Microsystems within the Internet value regime (Northeastern University Blog, Eastwood, 2020; ZDNet, Hughes, 2021; Stack Overflow, 2020).

Third, certain complexities arise within an emerging value regime that may limit its expansion. Firms can turn increased complexity into an opportunity through mechanisms of simplification. For example, NBA Top Shot created a solution to an unrelenting problem in the NFT space: the many complex steps that end-users need to complete simply to buy an NFT, which caused friction and limited the participation of inexperienced users. NBA Top Shot simplified the transaction process by building fiat onramps, a process that lets anyone purchase NFTs with their credit card. This led the firm to benefit staggeringly in a short time (i.e., NBA Top Shot beta went live in October 2020), being valuated at $2.6 billion USD in March 2021 and reaching $1 billion USD in sales in May 2022 (Forbes, Bambysheva, 2021; Forbes, Beer, 2021; USA Today, Buncaca, 2021; Be In Crypto, Minter, 2022; TechCrunch, Shieber, 2021).

## 6.3 Limitations and Future Research

My research focuses on the nascent technology of NFTs, an object still in its infancy. It would be interesting for future research to examine the expansion of mature value regimes and whether they follow similar or different mechanisms. For example, we could consider the sneaker industry as a mature value regime, yet there is new hype around sneakers and the resell market with exclusive shoes being sold in limited quantity (Dolbec & Parmentier, 2019). Importantly, examining the expansion of mature value regimes should move away from transformation dynamics such as the ones studied by Gollhofener et al. (2019) and Levy et al. (2016) or the revaluation of existing objects (e.g., Ateljevic & Doorne, 2003; Barrett et al., 2016; Corvellec & Hultman, 2014; Crossley & Picard, 2014; Valk, 2020), and rather emphasize how expansionary mechanisms can bestow existing objects with more value.

Furthermore, even though my research context focuses on NFTs, a technological innovation, I did not examine the interrelated technologies linked to it. Just like the internet, which is made of codes, web browsers, servers, networks and so on, NFTs are embedded in a technology cluster, which consists of "one or more distinguishable elements of technology that are perceived as being closely interrelated" (Prescott & Slyke, 1997; Rogers, 1995, p.15). Specifically, NFTs are a type of smart contract (i.e., a program made of a collection of code and data, Ethereum, 2020a) out of many types of smart contracts that all run on a blockchain. There are many types of blockchains, all with different use cases and differences, and it is on those blockchains that cryptocurrencies live. All these interrelated technologies create different fields such as decentralized finance, decentralized identity, and NFTs. Future research could look at the expansion of this technology cluster, inquiring about the impact of the expansion of one piece of the cluster on the other elements, and how expansion happens for the technology cluster as a whole.

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# Appendices

## Appendix A: Glossary of Key Terms

| | |
|---|---|
| Bitcoin | A type of cryptocurrency. |
| Blockchain | A technology that acts like a permanent digital ledger or registry distributed across many computers instead of a central one, where various transactions can be stored. |
| Cryptocurrency (Crypto) | Digital currency maintained by a decentralized system (i.e., blockchain) instead of a centralized authority (i.e., government-issued money maintained by a central bank). |
| Decentralized Finance (DeFi) | A financial ecosystem based on blockchain technology. |
| Digital Wallet | Virtual wallet which can hold cryptocurrencies. |
| ERC-20 | The standard on how cryptocurrencies should be structured and coded to work on the Ethereum blockchain. |
| ERC-721 | The standard on how NFTs should be structured and coded to work on the Ethereum blockchain. |
| Ether (eth) | Digital currency on the Ethereum blockchain. |
| Ethereum | As of 2022, the most used blockchain for creating and transacting NFTs. |
| KYC (Know Your Customer) | A process of identity verification. |
| MetaMask | One of the most popular digital wallets. |
| Metaverse | Virtual worlds that combine the Internet, virtual reality (VR), and/or augmented reality (AR). |
| Non-Fungible Token (NFT) | A unique digital certificate of ownership and authenticity, which is stored on a digital ledger called a blockchain. NFTs can represent unique and collectable digital assets, as well as physical items. Today, we see most NFTs representing virtual goods, such as digital images, gifs, videos, music, virtual land and so on. |
| OpenSea | As of 2022, the current biggest NFT marketplace in the world. |
| Smart Contract | A program consisting of a collection of code and data. |
| Web 2 | The era of the Internet where users access services through servers owned by tech companies that monetize users' data (e.g., Facebook, Twitter, YouTube, Instagram) |
| Web 3 | Newer era of the Internet where users can access services on applications running on a blockchain and own their personal data, without the platforms monetizing from it. |

## Appendix B: Certification of Ethical Acceptability

CERTIFICATION OF ETHICAL ACCEPTABILITY
FOR RESEARCH INVOLVING HUMAN SUBJECTS

| | |
|---|---|
| Name of Applicant: | Steve Assoe |
| Department: | John Molson School of Business\Marketing |
| Agency: | N/A |
| Title of Project: | Non-Fungible Tokens: Redefining our Understanding of Value |
| Certification Number: | 30015242 |

Valid From: July 20, 2021 To: July 19, 2022

The members of the University Human Research Ethics Committee have examined the application for a grant to support the above-named project, and consider the experimental procedures, as outlined by the applicant, to be acceptable on ethical grounds for research involving human subjects.

Dr. Richard DeMont, Chair, University Human Research Ethics Committee

## Appendix C: Interview Guide

*Questions were all adapted to fit the interviewees' field of work and position. *

1. What is the role of platforms in the NFT space?
2. What made you choose to integrate the NFT profile picture feature?
3. There's a big NFT community online, but there are also a lot of people against NFTs. What do you think of both camps?
4. What do you think is "company name" 's role as a platform within the NFT space?
    a. What is the effect "company name" has on the current NFT space?
5. Do you think there are current barriers that limit the NFT space to grow?
6. What do you think is needed for the mass adoption of NFTs?
7. What do you think of the current steps for someone to get into NFTs and start buying any?
8. What is needed for more people to get in the NFT space?
9. Why do you think many firms, businesses, and other entities are investing a lot of money and resources in NFTs?
10. How do you see the transformation of NFTs over time?
11. How has the NFT space evolved over time?
12. Do you think NFT tech will affect many industries? How and why?
13. Why are there platforms that the NFT community loves to use such as Discord or Twitter, but other platforms that they dislike/don't want to use such as Meta (Facebook)?
14. What does a company/platform have to think about when entering the NFT space?
15. Some members of the NFT community "are scared of" big brands from "web2" getting into the NFT & crypto space. Why do you think that is, and how do you think firms should tackle this?
16. Can you briefly describe your role at "company name" and how this interacts with NFTs?
17. How do you see NFTs currently creating value for "company name"?

18. Can you discuss how the integration of different platforms and services (e.g., crypto wallets) was decided on?

19. How do you see "company name" creating value for NFTs and NFT users?

20. Can you briefly describe your role as an adviser to NFT entrepreneurs and Web3 builders?

21. What are key legal concerns for your clients regarding the use of NFTs, generally speaking?

22. What roles do you see law, policy and regulation having in the NFT space?

    a. How have these influenced the use of NFTs?

23. What is the role of lawmakers, governments, and regulative bodies in the NFT space?

    a. How can they impact/what's their effect on the NFT space?

24. From your understanding, what have been key developments in the regulation of NFTs?

25. How are regulations different between types of firms and services?

    a. How does this affect their activities?

26. How different are regulations between countries?

    a. How does this affect your clients' decisions to operate in such countries?

## Appendix D: SPF


# SUMMARY PROTOCOL FORM (SPF)

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Office of Research – Research Ethics Unit – GM 900 – 514-848-2424 ext. 2425 – mailto:oor.ethics@concordia.ca – www.concordia.ca/offices/oor.html

### IMPORTANT INFORMATION FOR ALL RESEARCHERS

Please take note of the following before completing this form:

- **You must not conduct research involving human participants until you have received your Certification of Ethical Acceptability for Research Involving Human Subjects (Certificate).**
- In order to obtain your Certificate, your study must receive approval from the appropriate committee:
  - Faculty research and student research involving greater than minimal risk are reviewed by the University Human Research Ethics Committee (UHREC).
  - Minimal risk student research is reviewed by the College of Ethics Reviewers (CER)
  - Minimal risk student research conducted exclusively for pedagogical purposes is reviewed at the departmental level. **Do not use this form for such research.** Please use the Abbreviated Summary Protocol Form, available on the Office of Research (OOR) website referenced above, and consult with your academic department for review procedures.

  Note that activities of this nature are considered to be a pedagogical exercise and not research meant to contribute to the body of knowledge of the field. As such, while results may be disseminated in the public domain, they cannot be published in peer reviewed journals or presented at conferences as research findings.
- Research funding will not be released until your Certificate has been issued, and any other required certification (e.g. biohazard, radiation safety) has been obtained. For information about your research funding, please consult:
  - Faculty and staff: OOR
  - Graduate students: School of Graduate Studies
  - Undergraduate students: Financial Aid and Awards Office or the Faculty or Department
- Faculty members are required to submit studies for ethics approval by uploading this form, as well as all supporting documentation, to ConRAD. Access to ConRAD can be found in the MyConcordia portal.
- If necessary, faculty members may complete this form and submit it by e-mail to oor.ethics@concordia.ca along with all supporting documentation.
- Student researchers are asked to submit this form and all supporting documentation by e-mail, except for departmental review. Please note:
  - Handwritten forms will not be accepted.
  - Incomplete or omitted responses may result in delays.
  - This form expands to accommodate your responses.
  - Please ensure that all questions are answered completely (provide as much information as possible) and that samples of all materials are provided.
- Please allow the appropriate amount of time for your study to be reviewed:

- UHREC reviews greater than minimal risk research at the monthly meeting, which is usually scheduled on the second Thursday of each month. You must submit your study by the 1st of the month to be reviewed at that month's meeting. Please confirm the date of the meeting on our webpage/FAQ section or with the staff of the Research Ethics Unit. Expedited reviews conducted by UHREC require a minimum of 8 weeks.
- CER reviews generally require 4 to 6 weeks.

- Research must comply with all applicable laws, regulations, and guidelines, including:
  - The *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*
  - The policies and guidelines of the funding/award agency
  - The *Official Policies of Concordia University*, including the *Policy for the Ethical Review of Research Involving Human Participants, VPRGS-3*.
- The Certificate is valid for one year. In order to maintain their approval and renew their Certificate, it is the researcher's responsibility to submit an Annual Report Form one month before the expiry date that appears on the Certificate. Research must not be conducted under an expired certificate.
- Please note that all changes to an already approved protocol must be submitted for review and approved by the UHREC prior to being implemented. As such, you must submit an amendment request to the OOR.
- In order to ensure that ongoing research is compliant with current best practices and that the documents on file reflects the research activities researchers ate carrying out, complete resubmissions are required every 5 years.
- Please contact the Manager, Research Ethics at 514-848-2424 ext. 2425 if you need more information on the ethics review process or the ethical requirements that apply to your study.

**ADDITIONAL INFORMATION FOR STUDENT RESEARCHERS**

- If your research is part of your faculty supervisor's research, as approved, please have him or her inform the Research Ethics Unit via e-mail that you will be working on the study.
- If your research is an addition to your faculty supervisor's study, please have him or her submit an amendment request, and any revised documents via e-mail. You must not begin your research until the amendment has been approved.

**INSTRUCTIONS FOR COMPLETING THIS FORM**

- Please note that the SPF was designed to prompt reflection on the research project and all its possible implications. Please take the time to consider each question carefully in order to determine if and how it applies to your project.
- Please make sure that you are using the most recent version of the SPF by checking the OOR website.
- Please answer each question completely and provide as much information as possible; if you believe the question is not applicable, enter not applicable and provide justification.
- Do not alter the questions on this form or delete any material. Where questions are followed by a checklist, please answer by checking the applicable boxes.
- The form can be signed and submitted as follows:
  - Faculty research submitted on ConRAD will be considered as signed as per section 16.
  - SPFs for faculty research submitted via the faculty member's official Concordia e-mail address will also be considered as signed as per section 16.
  - Both faculty and student researchers may submit a scanned pdf of the signature page by e-mail. In this case, the full SPF should also be submitted by e-mail in Word or pdf format (not scanned).
  - If you do not have access to a scanner, the signature page may be submitted on paper to the OOR.

**ADDITIONAL DOCUMENTS**

Please submit any additional documents as separate files in Word or PDF format.

**STUDY TITLE:** Non-Fungible Tokens: Redefining our Understanding of Value

## 1. BASIC INFORMATION

**Principal Investigator's Status:**

☐ Concordia faculty

☐ Concordia staff

☐ Visiting scholar

☐ Affiliate researcher

☐ Postdoctoral fellow

☐ PhD Student

☒ Master's student

☐ Undergraduate student

☐ Other (please specify):

**Type of Submission:**

☒ New study

☐ Modification or a resubmission of an approved protocol. Approved study number (e.g. 30001234): _____

**Where will the research be conducted?**

☒ Canada

☐ Another jurisdiction: _____

## 2. STUDY TEAM AND CONTACT INFORMATION

| Role | Name | Department | Phone # | Email Address |
|---|---|---|---|---|
| Principal Investigator | Assoé, Steve | John Molson School of Business, 1450 rue Guy, Montreal (QC) | | stevecheldy@gmail.com |
| Faculty Supervisor (For student research only) | Dolbec, Pierre-Yann | John Molson School of Business, 1450 rue Guy, Montreal (QC) | | Pierre-yann.dolbec@concordia.ca |

### Additional Team Members

**Please provide names of all team members that will be interacting with human participants or handling research data, as well as those authorized to correspond with the OOR on behalf of the PI**

| Role | Name | Department / | Phone # | e-mail address |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

### Committee Members (For research conducted by PhD/Master students):

| Committee Member | Department |
|---|---|
| tbd | |
| | |
| | |
| | |

### Multi-Jurisdictional Research

Does the research involve researchers affiliated with an institution other than Concordia? If so, please complete the following table, including the Concordia researcher's role and description of the activities to be conducted at Concordia. If researchers have multiple institutional affiliations, please include a line for each institution.

*If applicable, please provide a copy of any additional submissions and ethics certification from the collaborating institutions.*

| Researcher's Name | Institutional Affiliation | Role in the research (e.g. principal investigator, co-investigator, collaborator) | Research activities that will be conducted at this specific institution |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

## 3. PROJECT AND FUNDING SOURCES

Please list all sources of funds that will be used for the research. Please note that fellowships or scholarships are not considered research funding for the purposes of this section.

| Funding Source | Project Title* | Award Period† | |
|---|---|---|---|
| | | Start | End |
| | | | |
| | | | |
| | | | |
| | | | |

Notes:
* Please provide the project title as it appears on the Notice of Award or equivalent documentation.
† If you have applied for funding and the decision is still pending, please enter "applied".

## 4. OTHER CERTIFICATION REQUIREMENTS

a. Will the research take place at the PERFORM Centre?

☐ Yes ☒ No

b. Does the research involve any of the following (check all that apply):

☐ Controlled goods or technology

☐ Hazardous materials or explosives

☐ Biohazardous materials

☐ Human biological specimens

☐ Radioisotopes, lasers, x-ray equipment or magnetic fields

☐ Protected acts (requiring professional certification)

☐ A medical intervention, healthcare intervention or invasive procedures

*Please submit any certification or authorization documents that may be relevant to ethics review for research involving human participants.*

## 5. LAY SUMMARY

Please provide a brief description of the research in everyday language. The summary should make sense to a person with no discipline-specific training and it should not use overly technical terms. Please describe the project and its objectives, including any research questions to be investigated. Please also include the anticipated value or benefits to society of the research. Finally, how will results be disseminated (e.g. thesis, presentations, internet, film, publications)?
Please do not submit the thesis proposal or grant application.

Non-fungible tokens (NFTs) have emerged as the hottest new trend and shaken up the digital, art, and music world. An NFT is a digital certificate stored on a secure distributed database called a blockchain. Each NFT can represent digital items such as art, videos, music, gifs, games, texts, memes, codes, and 3D renders. NFTs are very new, therefore previous research is quite limited, and this study looks into why NFTs are becoming a trend, why are they being accepted in the market, and what is the value people see in NFTs. This is important as it will explain the structure and dynamics of this new and evolving market.

To understand the NFT marketplace and the role and the interaction between NFTs and key players, I plan to conduct in-depth semi-structured interviews with key players in the NFT space including artists, professionals, and consumers. In addition to interviews, I plan to perform a content analysis of the current NFT arena by analyzing websites like niftygateway.com, and collect archival data such as news articles and podcasts as primary sources. This analysis will provide context for the interviews and also help make up for the lack of scholarly literature on the emerging topic.

## 6. RISK LEVEL AND SCHOLARLY REVIEW

As part of the research, will participants be exposed to risk that is greater than minimal?

*Greater than minimal risk means that the probability and magnitude of possible harms and risks implied by participation in the research are greater than those encountered by participants in aspects of their everyday life that relate to the research.*

☐ Yes

☒ No

Has this research received favorable review for scholarly merit?

*Scholarly review is not required for minimal risk research.*

*For faculty research, funding from a granting agency such as CIHR, FQRSC, or CINQ is considered evidence of such review. Please provide the name of the agency.*

*For student research, a successful defense of a thesis or dissertation proposal is considered evidence of such review. Please provide the date of your proposal defense.*

☐ Yes Funding agency or date of defense: _____

☒ No

☐ Not required

If you answered no, please submit a Scholarly Review Form, available on the OOR website. For studies to be conducted at the PERFORM Centre, please submit the Scientific Review Evaluator Worksheet.

## 7. RESEARCH PARTICIPANTS

Will any of the participants be part of the following categories?

*Please only check a box if the category of participant is a target population for this study.*

☐ Minors (individuals under 18 years old)

☐ Individuals with intellectual disabilities

☐ Individuals with cognitive disabilities

☐ Members of Canada's First Nations, Inuit, or Métis peoples

☐ Vulnerable individuals or groups (vulnerability may be caused by limited capacity, or limited access to social goods, such as rights, opportunities and power, and includes individuals or groups whose situation or circumstances make them vulnerable in the context of the research project, or those who live with relatively high levels of risk on a daily basis)

a) Please describe potential participants, including any inclusion or exclusion criteria.

Artists who make NFTs, Artist who think about making NFTs, Professionals within the NFT industry, consumers/buyers of NFTs.

Exclusion criteria:

- Less than 18
- Not an English or French speaker

b) Indicate if participants are a captive population (e.g. prisoners, residents in a center) or are in any kind of conflict of interest relationship with the researcher such as being students, clients, patients or family members. If so, explain how perceived coercion will be addressed in order to ensure that participants do not feel pressure to participate or perceive that they may be penalized for choosing not to participate.

None of the participants will be a captive population or have any kind of conflict of interest with the researcher (me).

c) Please describe in detail how potential participants will be identified, and invited to participate. In addition, please submit all recruitment materials to be used (e.g. poster(s), flyers, cards, advertisement(s), letter(s), telephone, email, and other verbal scripts).

*Note that while the snowball method of recruitment is acceptable, in order to protect the potential participants' right to privacy and confidentiality, the researcher is not permitted to initiate direct contact with a potential participant whose contact information is not publicly available. Rather, recruitment material must be provided by the researcher to their contacts for further dissemination. Those interested would then contact the researcher directly.*

Participants will be approached online through Instagram, Facebook, Twitter (e.g., by direct message on their personal webpage), or by email. I will identify who to contact by how involved individuals are with NFTs: artists that have created and sold NFTs, individuals that have talked on online platforms about NFTs such as online conferences, podcasts, YouTube videos, etc., and professionals that work directly or indirectly with NFTs. Also, I will recruit participants through an informal ask on NFT community channels such as the Nifty discord channel. I will mention that I am conducting a study on their experiences and interactions with NFTs.

I will use purposive sampling by directly contacting specific auction houses and artists to participate.

d) Please provide the anticipated start and end date of the research project.

*Note that recruitment or direct interaction for data gathering purposes with human participants is not permitted until full ethics approval is awarded. Conducting research without valid ethics approval is considered research misconduct. Only UHREC/CER approved versions of research documents can be used.*

Project starts in June 2021 (as soon as reception of approval is received). End date is forecasted to be by August 2022.

e) Please provide a detailed, sequential description of the procedures to be used in this study. Describe all methods that will be used (e.g. fieldwork, surveys interviews, focus groups, standardized testing, video/audio taping), as well as the setting in which the research will take place. In addition, please submit all instruments to be used to gather data, for example questionnaires or interview guides for each type of participant.

Participants will be interviewed. The interviews will be recorded. The interview will be conducted on Zoom or Skype. The consent form will be emailed to the participant prior to the interview. The participant will be asked to read and sign the consent form, and send the signed copy back by email (or mail the signed consent form).

f) Please describe any compensation participants may receive. Indicate the terms for receiving compensation, its value, and what happens to the compensation if a participant withdraws,
Participants will receive compensation: 20$ amazon gift card (gift card will be given even if the participant discontinues or withdraws)

g) Do any of the research procedures require special training, such as medical procedures or conducting interviews on sensitive topics or with vulnerable populations? If so, please indicate who will conduct the procedures, what their qualifications are and whether they have previous experience.

None of the research procedures require special training.

h) When doing research with certain groups of participants (e.g. school children, cultural groups, institutionalized people) and/or in other jurisdictions, organizational /community/governmental permission is sometimes needed. If applicable, please explain how this will be obtained. Include copies of approval letters once obtained.

No research is going to be conducted with groups of participants and/or other jurisdictions where organizational/community/governmental permission is needed.

## 8. INFORMED CONSENT

*Please note that each participant should be provided with a copy of the consent form in addition to the one they sign, which is to be kept by the researcher.*

*Written consent forms and oral consent scripts should follow the consent form template available on the OOR website. Please include all of the information shown in the sample, adapting it as necessary for the research.*

a) Please explain in detail the process for soliciting informed consent from potential participants. In addition, please submit the written consent form.

Send to all interview participants the consent form minimum 3 days prior to the interview. The consent form will be collected at the start or before the interview, either by having the participant sign it and send it back by email. Right before the interview starts, participants will be asked if they understood and have any questions concerning the consent form or the interview as a whole.

b) Please note that written consent is the preferred method for obtaining consent. However, in certain circumstances, oral consent may be appropriate. If oral consent will be used, please submit a consent script and describe how consent will be documented.

*The use of an oral consent procedure needs to be justified and its approval is at the discretion of the applicable ethics committee (either the UHREC or CER). Note that convenience cannot be used as justification.*

Written consent will be obtained.

c) Does the research involve individuals belonging to cultural traditions in which individualized consent may not be appropriate, or in which additional consent, such as group consent or consent from community leaders, may be required? If so, please describe the appropriate format of consent, and how it will be solicited.

The research does not involve individuals belonging to cultural traditions in which individualized consent may not be appropriate, or in which additional consent, such as group consent or consent from community leaders, may be required.

## 9. DECEPTION

a) Does the research involve any form of deception of participants? If so, please describe the deception, explain why the deception is necessary, and explain how participants will be de-briefed at the end of their participation. If deception is involved, please submit a debriefing script.

*Please note that deception includes giving participants false information, withholding relevant information, and providing information designed to mislead.*

Deception will not be used.

b) If deception is involved, please note that participants must be provided with the opportunity to refuse consent and request the withdrawal of their data once they know the details of the study. This should take place while it is still possible to give participants this option (e.g. prior to de-identification, publication, etc.). Please explain how this will be done and what timeline will be provided to participants for withdrawal of their data. Include a checkbox in the debriefing script so participants can clearly indicate their choice and a section for the participant's signature. Please provide a copy of the debriefing script.

Deception will not be used.

## 10. PARTICIPANT WITHDRAWAL

a) Please explain how participants will be informed that they are free to discontinue their participation at any time without negative consequences.

It will be indicated on the written consent form, and I will mention it to each participant right before the interview starts.

b) Please explain what will happen to the information obtained from a participant if he or she withdraws. For example, will their information be destroyed or excluded from analysis if the participant requests it? Please describe any limits on withdrawing a participant's data, such as a deadline related to publishing data. Note that a clear deadline such as a specific date or timeframe must be provided.

The data will be destroyed. Participants can withdraw from this study up to six months after their interview took place.

## 11. RISKS AND BENEFITS

a) Please identify any foreseeable benefits to participants.

- Contributing to knowledge
- Learning about their interactions within the NFT market
- If the participants want to, they can also receive the final paper

b) Please identify any foreseeable risks to participants, including any physical or psychological discomfort; emotional, social, legal, or political risks; risks to their relationships with others, or to their financial well-being. Please take the time to consider this question and mention any type of risk,
no matter how remote the likelihood of it occurring.

Given the nature of the questions and time commitment required of the participants, it's extremely unlikely that participants will encounter any physical, psychological, or financial risks.

c) Please describe how the risks identified above will be minimized. For example, if individuals who are particularly susceptible to these risks will be excluded from participating, please describe how they will be identified. Furthermore, if there is a chance that researchers will discontinue participants' involvement for their own well-being, please state the criteria that will be used.

As mentioned above, it is extremely unlikely that participants will encounter any physical, psychological, or financial risks. However, all participants will be reminded that they can take a break at any time.

d) Should the risks detailed above be realized, please describe how the situation will be managed. For example, if referrals to appropriate resources are available, please provide a list. If there is a chance that participants will need first aid or medical attention, please describe what arrangements have been made.

All participants will be reminded that they can take a break or withdraw at any time.

## 12. REPORTABLE SITUATIONS AND INCIDENTAL FINDINGS

a) Is there a chance that the research might reveal a situation that would have to be reported to appropriate authorities, such as child abuse or an imminent threat of serious harm to specific individuals? If so, please describe the situation, how it would be handled, and who the proper authorities are.

*Please note that legal requirements apply in such situations. It is the researcher's responsibility to be familiar with the laws in force in the jurisdiction where the research is being conducted.*

Given the nature of the questions and overall study, it is incredibly unlikely that the research might reveal a situation that would have to be reported to any appropriate authorities.

b) Is there a chance that the research might reveal a material incidental finding? If so, please describe how it would be handled.

*Please note that a material incidental finding is an unanticipated discovery made in the course of research but that is outside the scope of the research, such as a previously undiagnosed medical or psychiatric condition that has significant welfare implications for the participant or others.*

It is extremely unlikely that the research might reveal a material incidental finding.

## 13. CONFIDENTIALITY, ACCESS, AND STORAGE

a) Please describe the path of the data from collection to storage to its eventual archiving or disposal, including details on short and long-term storage (format, duration, and location), measures taken to prevent unauthorized access, who will have access, and final destination (including archiving, or destruction).

Zoom/Skype interviews will be recorded locally only. The recordings will be on a password-secured hard drive in a safe at my home. The data will be archived following the same system after the research has been published. I will have sole access to the data. AI transcription services might be used.

b) Please identify the access that the research team will have to participants' identity:

*If you check more than one box, please specify the category of participants it applies to.*

| | Category | Definition | Category of Participant |
|---|---|---|---|
| ☐ | Confidential | The research team will know the participants' real identity, but it will not be disclosed. | |
| ☒ | Participant Choice | Participants will be able to choose which level of disclosure they wish for their real identity. | Artists & professionals |
| ☐ | Disclosed | The research team will know the participants' real identity, and it will be revealed in accordance with their consent. | |
| ☐ | Anonymous | The information provided never had identifiers associated with it, and the risk of identification of individuals is low, or very low. | |
| ☐ | Anonymous results, but identify who participated | The information provided never had identifiers associated with it. The research team knows participants' identity, but it would be impossible to link the information provided to link the participant's identity. | |
| ☐ | Pseudonym | Information provided will be linked to an individual, but that individual will only provide a fictitious name. The research team will not know the real identity of the participant. | |
| ☒ | Coded | Direct identifiers will be removed and replaced with a code on the information provided. Only specific individuals have access to the code, meaning that they can re-identify the participant if necessary. | Consumers |
| ☐ | Indirectly identified | The information provided is not associated with direct identifiers (such as the participant's name), but it is associated with information that can reasonably be expected to identify an individual through a combination of indirect identifiers (such as place of residence, or unique personal characteristics). | |
| ☐ | Other (please describe) | | |

c) Would the revelation of participants' identity be particularly sensitive, for example, because they belong to a stigmatized group? If so, please describe any special measures that will be taken to respect the wishes of the participants regarding the disclosure of their identity.

The revelation of participants' identity would not be particularly sensitive.

d) Please describe what access research participants will have to study results, and any additional information that will be provided to participants post-participation (e.g. resources, etc.).

Participants will have access to the final study. After each interview, I will ask the participants if they want the final study sent to them by email.

e) In some research traditions, such as participatory action research, and research of a socio-political nature, there can be concerns about giving participant groups a "voice". This is especially the case with groups that have been oppressed or whose views have been suppressed in their cultural location. If these concerns are relevant for the current participant groups, please describe how they will be addressed in the project.
*Please note that for the purpose of this evaluation, co-researchers in a participatory research action are considered participants and must consent to participate and provide oral or written consent.*

These concerns are not relevant to this study.

## 14. ADDITIONAL ISSUES

Bearing in mind the ethical guidelines of your academic or professional association, please comment on any other ethical concerns which may arise in the conduct of this research. For example, are there responsibilities to participants beyond the purposes of this study?

There is no other ethical concerns which may arise in the conduct of this research.

## 15. DECLARATION AND SIGNATURE

**Study Title:** Non-Fungible Tokens: Redefining our Understanding of Value

I hereby declare that this Summary Protocol Form accurately describes the research project or scholarly activity that I plan to conduct. I will submit a detailed modification request if I wish to make modifications to this research.

I agree to conduct all activities conducted in relation to the research described in this form in compliance with all applicable laws, regulations, and guidelines, including:

- The *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*
- The policies and guidelines of the funding/award agency
- The *Official Policies of Concordia University*, including the *Policy for the Ethical Review of Research Involving Human Participants, VPRGS-3*.

Principal Investigator Signature:

Date: 2020-05-28

## FACULTY SUPERVISOR STATEMENT (REQUIRED FOR STUDENT PRINCIPAL INVESTIGATORS):

I have read and approved this project. I affirm that it has received the appropriate academic approval, and that the student investigator is aware of the applicable policies and procedures governing the ethical conduct of human participant research at Concordia University. I agree to provide all necessary supervision to the student. I allow release of my nominative information as required by these policies and procedures in relation to this project.

Faculty Supervisor Signature: _____

Date: _____