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Understanding Non-Fungible Token (NFT) Purchase Motivations

Emergent Research Forum (ERF)

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Abstract

The growing popularity of nonfungible tokens (NFTs) has created a new digital collectibles asset class and market. NFTs are unique digital tokens built on blockchain technology that can represent anything from art, property rights, certificates of authentication to sports collectibles. The use of the blockchain provides the framework for digital ownership and brings the notion of scarcity to the digital NFT asset class. With the emerging NFT market and growing consumer base little work has investigated the motivations behind NFT purchases. Thus, in this exploratory study we plan to analyze purchase motivation factors of NFTs by reviewing tweets made on Twitter regarding NBA TopShot. NBA TopShot is one of the largest and most popular NFT platforms for sports collectibles. This research is one of the first to examine the factors explaining NFT purchase motivations and could provide early insights for practitioners and academics interested in exploring NFTs.

Keywords

Non-Fungible Token, NFT, Blockchain, Digital Collectibles.

Introduction

Non-fungible tokens (NFTs) have the opportunity to revolutionize the way people buy and sell digital collectibles. NFTs are a relatively new type of digital asset class, with Google Trend data showing the term NFT having virtually no interest up until January 2021. NFTs are cryptographic assets that use blockchain technology to represent unique ownership of digital goods. NFTs or "crypto collectibles" include digital art, a virtual piece of land, memes, music, digital houses, augmented reality sneakers, sports trading cards or any other digital collectible that is recorded on a blockchain. NFTs are seen as the key to unlock the market for digital collectibles and NFTs have an estimated market cap of over $80 billion by 2025 (Canny, 2022). The increased momentum in NFTs comes as blockchain and cryptocurrencies gain acceptance and popularity throughout the world. Collectors and investors are spending and investing hundreds of thousands of dollars and sometimes millions of dollars on NFTs. For example, in early 2021, a digital art video clip NFT by the artist Beeple sold for $69 million (Bursztynsky 2021). An NFT from the CryptoPunks collection sold for $2 million (Browne 2021). In addition, $208,000 was paid for an NFT of professional basketball player LeBron James' on the NBA TopShot marketplace (Robinson 2021). These high dollar transactions for essentially a series of computerized zeros and ones prompts this paper's investigation into the motivations behind NFT ownership.

Researchers and practitioners are in the early stages investigating NFTs as an application of blockchain technology. Earlier research has examined the role of NFTs to represent both digital goods such as virtual gaming assets, digital artwork and software licenses as well as physical assets such as luxury goods and cars (Griffin 2018). NFTs as digital collectibles are designed to address the collectibles market problems of fraud, counterfeiting and the limited control over secondary transactions (Beck and Müller-Bloch 2017). These early studies on NFTs demonstrate the opportunities presented through NFTs, but they do not develop a comprehensive model reviewing NFT purchase motivations. Unfortunately, in-depth investigations reviewing the design and use of NFTs is missing (Regner, Schweizer and Urbach 2019). The potential of blockchain has been widely discussed in IS academic and practitioner research, yet rigorous

empirical and theory driven research on blockchain remains scarce (Beck and Müller-Bloch 2017). Adoption at an organizational level has been investigated, (Du et al. 2018), however future research at the individual level investigating blockchain application adoption is encouraged (Rossi et al. 2019). Given the growth in NFTs, gaps in the literature and the values being placed on NFTs it is critical that we consider a comprehensive research model that examines the motivations behind NFT ownership. Accordingly, this paper is centered on the following research questions:

- What are the factors affecting the perceived benefits of NFT ownership?
- How do the perceived benefits of NFT ownership impact consumer motivation?

What are NFTs and How do They Work?

Non-fungible tokens or NFTs, are digital tokens that can represent anything from art to sports memorabilia that are recorded on a blockchain. Blockchain technology is a distributed ledger that is regulated through a consensus mechanism and secured with cryptography (Nakamoto 2008). The blockchain digital ledger for the NFTs is similar to the network that is the backbone of bitcoin and other cryptocurrencies. Transactions are securely registered on the data structure or ledger that is distributed across a network of peers that validate the entries using a consensus mechanism. New records are cryptographically linked to existing ones, rendering them virtually immutable.

Blockchain technology provides the means to create, sell, authenticate and exchange NFTs. The belief is that the uniqueness, originality and proof of ownership via the blockchain makes the NFT rare and allows the owner to later sell the item for more money similar to a piece of fine art (Haselton 2021). Blockchain as the underlying technology provides the infrastructure to serve as a trusted third party. The blockchain has the ability to promote confidence among the stakeholders in the transaction where trust may not be easily achieved and reduce uncertainties. The auditability and transparency provided through blockchain technology is now being applied to digital collectibles and thus ensuring the originality of the NFT. Thus, the ability to authenticate NFT ownership, ensure scarcity through blockchain technology is fueling NFT participation by both enthusiasts and investors.

The term fungible refers to the interchangeability of each unit of a commodity with other units of the same commodity. A fungible unit can be swapped with the same amount without any gain or loss. Whereas non-fungibility is the opposite as every token is distinguishable and thus also cannot be divided or merged (Voshmgir 2018). For example, cryptocurrencies are fungible, since any Bitcoin is equivalent in value to any other Bitcoin, just like a dollar is equivalent to any other dollar. Non-fungible assets are unique and differentiated from one another. Each NFT built "or minted" on the ERC-721 standard is stored on a blockchain, has a globally unique id, ownership that can be tracked and transferred, is unique and cannot be replicated. NFTs were created for a specific purpose – to represent ownership over digital or physical assets (Entriken et al. 2018). The NFT is therefore unique and can be traced back to its rightful owner with no need for a centralized clearing house keeping records of every transaction. Through ownership, uniqueness and scarcity, users are attaching a value to an NFT. NFTs fall into the age-old debate of what makes some collectibles worthless and other collectibles worth hundreds of millions of dollars, it all comes down to what the marketplace values (Robinson 2021). The attraction to buyers is that NFTs possess characteristics similar to personal property that can be bought, sold, displayed, gifted or destroyed.

The unique characteristics of ownership, scarcity, and trust in the blockchain technology ensuring the authenticity of the digital collectible allows both sellers and purchases to place value on the NFT. Since the beginning of the Internet, the notion of scarcity was considered non-existent since data on the Internet can be freely and easily copied destroying the notion of ownership. NFTs are a formalization of digital ownership rights that distinguishes the digital assets market from the traditional connection between the internet and digital goods. People are buying NFTs out of the belief that they will be able to prove ownership of a virtual item. Each NFT can be viewed as a unique item that nobody else owns. Often the NFT is an image or video, which is publicly available on the Internet, whereas anyone can copy it, store it, and view it, but the certificate of ownership linked to it cannot be copied. The blockchain technology allows the items to be publicly authenticated as a one-of-a-kind.

One of the more popular NFT platforms is NBA Topshot. NBA TopShot allows sport enthusiasts and collectors the ability to purchase, own and sell short video clips showing highlights from the National Basketball Association (NBA) and the Women's National Basketball (WNBA) games called "moments". A

moment is an officially licensed NBA digital collectible that celebrates and displays some of the NBA's most epic highlights from NBA players as a video clip. All moments are limited edition collectibles secured by the blockchain. NBA TopShot launched in late 2020 and a year later the platform reported 1.1 million registered users and over $780 million in sales (Dillet 2021). The majority of sales take place in the site's peer-to-peer marketplace, with the NBA getting a royalty on every sale (CNBC 2021). Each NFT is minted with a limited-edition size with a unique serial number with guaranteed scarcity and protected ownership guaranteed by the blockchain. For the NBA, the venture is another revenue stream, where the NBA receives a cut on each transaction through royalty payments. Dallas Mavericks owner Mark Cuban has said it could become one of the NBA's top-three revenue producing streams (Robinson 2021). As a result of its growing popularity and usage, the NBA TopShot platform will be used to investigate NFT motivations.

Theoretical Foundation and Proposed Research Model

The goal of this Emergent Research Forum (ERF) study is to explore NFT purchase motivations. When investigating information systems usage, one needs to consider the factors driving usage. Earlier research has identified both utilitarian and hedonic factors influencing IS usage (Hu et al. 2011; Kamis et al. 2008). Consumer perceived utilitarian factors of IS usage have been defined as IS usefulness in enhancing efficiency and effectiveness for task performance and goal achievement (Venkatesh et al. 2003). On another hand, hedonic consumer factors of IS usage have been defined as the extent to which the activity of using an information system is enjoyable (Davis et al. 1992). This hedonic factor is reflected in a person's experiential feeling with IS usage such as enjoyment and playfulness (Agarwal and Karahanna 2000). In this regard, studies suggest a positive relationship between user perceptions of utilitarian and hedonic factors and a consumer's motivations to use an IS (Dai et al. 2012). Research has validated the pursuit for utilitarian and hedonic factors as important antecedents of IS usage (Kamis et al. 2008). With the relative infancy of NFT research, the authors aim to investigate NFT motivation through hedonic and utilitarian factors (Table 1). The utilitarian or hedonic nature of a system can be identified by looking at the factors employed to encourage use. From a utilitarian view, NFT platforms are designed to provide an efficient easy to use marketplace via blockchain technology that can provide ownership, scarcity, privacy and financial impact benefits. From a hedonic view, NFT participation satisfies a user's social interaction needs through the NFT online communities. In addition, the activities and content provided by NFTs are often engaging and cognitively playful which may provide competition and escapism opportunities that fit within a hedonic framework. The authors expect the exploratory study to identify the utilitarian and hedonic factors driving NFT consumer motivations.

Methodology

The next step is to explore Twitter data on NBA TopShot. NBA TopShot was chosen as the IT artifact because it is one of the largest and most popular NFT platforms. The use of tweets mentioning NBA TopShot will be analyzed to produce an NFT motivation model. Given the relative recency and novelty of NFTs, Exploratory Data Analysis (EDA) was deemed an appropriate initial analytical technique. EDA is an approach to summarize data by reviewing the emergent main characteristics and visualize it with proper representations. EDA has been identified as a valuable tool for identifying patterns, trends, correlations or relations among data in order to generate insights or hypotheses (Leek and Peng 2015). Given the length constraints of this ERF paper, a potential model based on a pilot study of 3,000 published tweets collected between March 1, 2022 and April 1, 2022 is included in Figure 1. The author's plan to continue collecting and exploring tweets on NBA TopShot to further refine and develop the model to explain NFT motivations.

Variable	Definition	References
Social Interaction	Social interactions represent the power of relationships and the quantity and quality of socialization that occurs for the user.	Hu et al. (2016)
Competition	Competition is defined as the act of competing where there is some prize or honor.	Dwyer et al. (2018)
Enjoyment	Enjoyment of an activity, similar to the emotional response of pleasure.	Koufaris (2002)
Escapism	Escapism is often defined as temporally getting away from unpleasant situations or thoughts.	Young et al. (2017)

Ease of Use	The degree to which a person believes that using a particular system would be free of effort.	Davis (1989)
Financial Impact	Under an economic perspective, putting a given amount of money at stake, bearing the risk of losing it, but with the chance of returning a larger amount.	Wulfert et al. (2008)
Ownership	Ownership can be demonstrated on a blockchain that can therefore be unique and the NFT can be traced back to its rightful owner with no need for a centralized clearing house keeping records of every transaction.	Haselton (2021)
Scarcity	The notion of scarcity does not exist on the Internet since digital assets can often easily be copied and shared. However, blockchain technology can ensure scarcity for digital assets.	Robinson (2021)
Privacy	Ability to control the acquisition and use of an individual's personal information. Privacy concerns arise in the context of blockchain since, transactions are not anonymous but pseudonymous.	Fabian et al. (2016)

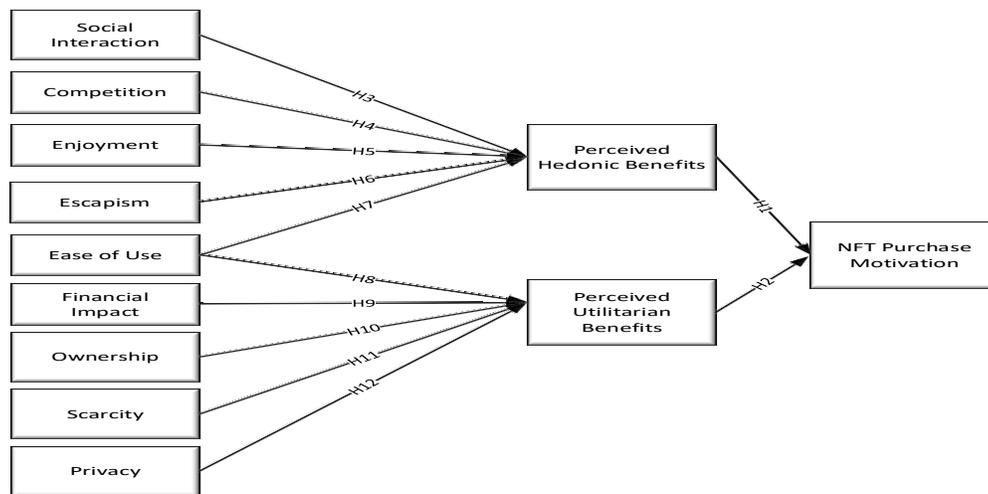**Table 1: Research Model Variables**

Figure 1: NFT Purchase Motivation Exploratory Model

Conclusion

We are just entering the era of the meta-verse and NFTs are an early piece of the digital universe. Our proposed research is designed to explore the factors explaining NFT purchase motivations. At this stage, the contributions of the paper are conceptual; however, the anticipated findings are expected to provide valuable NFT purchase motivation insights for both practitioner and academic communities.

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