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FACTORS EFFECTING PURCHASE INTENTION IN BLOCKCHAIN AND NFT (NON-FUNGIBLE TOKEN) TECHNOLOGIES*

BLOKZİNCİR VE NFT (NİTELİKLİ FİKRİ TAPU) TEKNOLOJİLERİNDE SATIN ALMA NİYETİNİ ETKİLEYEN FAKTÖRLER

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Abstract

Digitalization began to find a place in every industry faster than expected with COVID-19 pandemic. Although terms such as Blockchain, NFT, Web 3.0, and Metaverse, which entered our lives with digitalization, are still very new, they will create a paradigm shift from standard business models. Blockchain technologies, especially NFTs, are creating a new opportunity for brands and creative industries as the frontrunner of digitalization with the innovative approach that is driven by scarcity, a new medium to connect with fans, and decentralized distribution power. This paper aims to examine the effects of perceived value – with its predecessors scarcity, ownership & uniqueness – and trust in blockchain on the purchase intention of NFTs, considering the technology adoption. In this regard, data was collected via questionnaire from NFT owners with different nations in Discord channels using convenience sampling technique. SEM was performed as statistical analysis, and the results indicated technology adoption is a significant variable on trust in blockchain, which has a direct effect on purchase intention. On the hand, even though scarcity and ownership were positively associated with perceived value, this construct had no statistically significant effect on purchase intention.

Keywords: NFT, Blockchain, Scarcity, Purchase Intention, Technology Adoption
JEL Classification: C83, D9, M31, O39

* The study is based on the first author's M.A. thesis in Istanbul Bilgi University entitled "Blockchain, Non-Fungible Tokens, Web3, Metaverse: Opportunities for Brands"

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Öz

Dijitalleşme, COVID-19 pandemisi ile birlikte tüm sektörlerde beklenenden daha hızlı yer bulmaya başladı. Dijitalleşme ile hayatımıza giren blokzincir, NFT, Web 3.0, Metaverse gibi kavramlar henüz çok yeni olsa da, standart iş modellerinde paradigma kayması yaratacağı öngörülmektedir. Blokzincir teknolojileri, özellikle de NFT'ler, kıtlık, hayranlarla bağlantı kurmak için yeni bir ortam ve merkezi olmayan dağıtım gücü tarafından yönlendirilen yenilikçi yaklaşımla dijitalleşmenin öncüsü olarak markalar ve yaratıcı endüstriler için yeni bir fırsat yaratmaktadır. Bu çalışma, kıtlık, mülkiyet ve benzersizlik gibi kavramların algılanan değer üzerindeki etkisini, ayrıca algılanan değer ve blokzincire olan güvenin de, teknoloji adaptasyonu göz önünde bulundurularak NFT'lerin satın alma niyeti üzerindeki etkilerini incelemeyi amaçlamaktadır. Bu bağlamda, Discord kanallarında farklı uluslara sahip NFT sahiplerinden kolayda örnekleme tekniği kullanılarak anket yoluyla veriler toplanmıştır. Yapısal eşitlik modellemesi analizi sonucunda, teknoloji adaptasyonunun, blokzincire olan güvende önemli bir değişken olduğu ve güvenin de satın alma niyeti üzerinde doğrudan bir etkisinin olduğu ortaya çıkmıştır. Öte yandan, kıtlık ve sahiplik algılanan değerle pozitif olarak ilişkili olsa da, bu yapının satın alma niyeti üzerinde istatistiksel olarak anlamlı bir etkisi bulunamamıştır.

Anahtar Kelimeler: NFT, Blokzincir, Kıtlık, Satın Alma Niyeti, Teknoloji Adaptasyonu
JEL Sınıflandırması: C83, D9, M31, O39

1. Introduction

The paradigm shift that came with digitalization experienced a much faster adoption to the restrictions brought by COVID-19 pandemic. Along with digitalization, marketing moved away from the brick-mortar approach and started to maximize the power of new technologies and platforms. Although it may seem like the subject of the economy in the last few decades, blockchain technology is also leading the restructuring of digitalization in all other areas. Blockchain technology can be defined as a fully distributed technology where events and logs are stored and transferred between networks in an encrypted manner (Risius & Spohrer, 2017).

Moreover, Blockchain technology is the foundation of how cryptocurrencies function. Blockchain was seen as Bitcoin's ledger at; first, and it later became one of the core terms for fintech as a decentralized approach. According to Laroiya (2020) blockchain is an "open, digital, and decentralized ledger with the ability to record and execute transactions between two parties instantaneously, without the need for a centralized authority such as a bank, in a verifiable and immutable manner". Cryptocurrencies leverage encryption techniques, cryptography and two keys, public and private in order to transfer the data securely (Abramova & Böhme, 2016). Cryptocurrencies like Bitcoin, Ethereum and BAT run on blockchain technology, which is one of the causes blockchain technology is more thoroughly known (Liu et al, 2016).

Nevertheless, blockchain technology is not only advantageous for the field of finance. One of the building blocks of the decentralized blockchain architecture, tokenization has enabled digital assets to be instantly transferrable. It can help transmute a wealth of industries, including the creative industry and marketing. These digital asset transfers are realized through advancements such as NFTs (non-fungible token) and smart contracts. NFTs are distinguished from each other by their unique identification codes and metadata.

NFTs, unlike cryptocurrencies, cannot be traded for any counterparty and they are separated from exchangeable tokens with this feature. NFTs make each token unique and irreplaceable. This ensures that digital assets carry a non-transferable identity with their unique tokens. Stored on a blockchain or a distributed ledger, NFTs represent ownership of unique items. The ownership of the items is also stored in blockchain which makes it always accessible and immutable. NFTs can only be owned by one owner at any given time. NFTs can represent everything, both physical and digital, based on a blockchain architecture. Smart contract of token's that are stored in the metadata ensures uniqueness and transparency provided by the technology behind blockchain.

This study first examines how blockchain technology processes, including how blockchain technology is already being used in the broader economy and the marketing implications of NFT. This paper aims to examine the effects of perceived value of NFTs – with its predecessors scarcity, ownership & uniqueness – and trust in blockchain on the purchase intention of NFTs, considering the technology adoption of the NFT investors. In addition, the paper provides further discussion for identifying challenges and highlights opportunities for creative industries and brands.

2. Literature Review

2.1. Blockhain and Bitcoin

Bitcoin has been a trending topic of research in recent years. An anonymous user named Satoshi Nakatomo uploaded an article titled "Bitcoin: A Peer-to-Peer Electronic Cash System" on the P2P Foundation forum in 2008. The article described how blockchain technology, a distributed peer-to-peer connected structure, can be used to solve the problem of transaction orders and avoid the issue called double-spending (Nakamoto, 2008).

As interest in this technology increased, the financial volume revolving over Bitcoin began to attract the attention of the academia. At first studies were made on how Bitcoin technology works and its framework. Zyskind et al. (2015) published one of the first academic papers on Bitcoin's working systematics in 2015, while Zheng et al. (2018) developed a more comprehensive study. Zyskind et al. (2015) highlighted the concept of Bitcoin's peer-to-peer network, as well as reliability and privacy, the researchers stated that technologies created on the blockchain such as Bitcoin could create a paradigm shift in privacy and mentioned about the benefits of decentralized platforms. Zheng at al. (2018) on the other hand, examined the relationship of Bitcoin with stock markets, specifically Dow Jones. In those years, Bitcoin managed to become the center of attention by reaching a capitalization of 10 billion dollars in 2016 (Coindesk, 2016) and the potential of Bitcoin to be substantial of national currencies has also started to be the subject of research (Böhme et al., 2015; Yermack, 2013). As of June 2022, there were more than 2000 cryptocurrencies, with a total market capitalization of $1.25 trillion, and daily transactions around $91.88 billions (Coinmarket, 2022).

In addition to economics and finance, Bitcoin and blockchain technology continued to be the subject of other areas from internet of things (Zhang and Wen, 2015) to smart contracts (Kosba et al., 2016).

Merediz-Sola and Bariviera (2019) found 703 articles written about Bitcoin and blockchain in his bibliometric analysis study to date. As bitcoin is a wide research subject, we keep our scope narrow to provide a brief summary of blockchain systematics, how this technology led to other coins like Ethereum, the structure of smart contracts born with Ethereum, the structure of non-fungible tokens (NFT), and the marketing framework over Web 3.0, which was introduced as a term with blockchain technologies.

2.2. NFT Technologies

Regner et al. (2019) defines NFT as a cryptographically unique, indivisible, irreplaceable and verifiable token representing a given asset, whether digital or physical a blockchain. Each NFT is different from each other, it cannot be merger or divided (Voshmgir, 2018). Although NFTs are created under different blockchain architectures today, 98% of NFTs are created on the Ethereum network (Vujicic, 2018). ERC-721 differs from ERC-20 standards in this sense, adding a function to it determines that each token is non-fungible and therefore unique (Entriken et al., 2018). In this respect, ERC-271 paved the way for the use of NFTs in new areas. Especially in the digital environment, while uniqueness was a topic of discussion in itself and fungible tokens could not solve this problem, non-fungible tokens strengthened the concept of uniqueness in the digital environment. Therefore, it has opened a new door especially for brands and the creator economy. As Fenech (2018) mentioned, the global market value of the collectable economy has reached 200 billion USD with NFTs.

NFTs, which became popular in the gaming world, later began to be utilized in different fields from finance to loans, from digital arts to music. Although NFTs seem to be valid only in their own ecosystems, their use is increasing in real world assets as well. NFTs have the efficiency to provide usage from driver licenses that require verification to academic degrees, and can also easily represent scopes such as voting rights, tickets, any types of access right, supply chain management. NFTs also offer a solution to represent physical goods in digital space (Regnar et. al, 2019).

In the art world, probably the most known digital artist with the moniker Beeple's "5000 Everydays" was sold at 69.3 million USD through Christie's auction, the purely digital artwork made Beeple the third most expensive living artist. This sale created a mainstream impact, paving the way for many other industries and brands to work on NFTs. Valeonti et al., (2021) claims that many industries from sports to real estate endeavored to create a new revenue generation channel by working on crypto collectibles. Although the relationship between blockchain and marketing is the focus due to the subject of the study, academic journals are very limited in this field when compared to the fields of economics, finance, information technologies. Stallone et al. (2021) state that there is a lack for marketing scholars in systematic reviews on Blockchain applications.

Li et. al (2019), further states that no survey has ever been done to examine the relevance of blockchain technologies to marketing specifically. Although many studies focus on different areas, studies have been carried out in the fields of e-commerce (Ismail & Materwale, 2019), online social platforms (Konstantinidis et al., 2019), data marketing technologies (Wu et al., 2019), and advertising (Chen

et al., 2018). Antoniadis et al's (2019) review on supply chain management, payment, marketing management, loyalty programs, digital marketing, reviews, and credential management is one the of the few systematic studies in the field.

2.3. Marketing Framework in NFT

Prior to examine the potential innovations of NFTs in marketing, it may be worthwhile to mention history of internet. Web 1.0 was a read-only environment in which the customer and the information available on the platform did not interact, information and data remained static, and content production was defined as minimized. The second phase of the web, Web 2.0, was an extension of the existing technology. Web 2.0 was a renewed infrastructure that emerged from the original ideas and principles of Web 1.0 as opposed to a new development (Anderson, 2007), in other words, Web 2.0 offered a read-only structure. Web 2.0, being both readable and writable, was an environment where the user could also participate, write or modify content, collaborate with each other. The idea of more structured internet is eventualized with Web 3.0. Data itself becomes more valuable by combining data characteristics and expanding its availability to consumers (Tarrant et al., 2011). Web 3.0 is able to improve data structure, more accessibility of mobile focused internet, increase creativity and innovation, enhance customers' experience and provide more in-depth relationship (Aghei et al., 2012). When all advancements offered by Web 3.0 are combined, a more autonomous structure emerges. Offering more contextual and individualized experiences along with autonomy will also be a keystone for brands. For example, in the Web 3.0 ecosystem, the searches to be made on the search engine may be specific to the person, while the ads and the content consumed on the internet will also be dynamically encountered by the user. Web 3.0 will allow both efficiency in time spent on the Web and better personalized experiences due to larger data that will be available (Sabbagh et al., 2011).

The consumed and produced information will be customized, while the authenticity of the information and the product will be a priority for customers. In this respect, NFTs will have the ability to act autonomously to verify authenticity. Based on the blockchain programmable infrastructure, NFTs can represent in a digital realm anything that is both physical or digital (Popescu, 2021). The innovation provided by ERC-721 tokens, the distributed ledger system for non-fungible assets, can be extended to physical assets (Chevet, 2018). At this point, NFTs are spawning the most exciting infrastructure relying on the theme of Proof-of-Asset.

We can examine the main characteristics of NFTs as subcategories that can help us understand how they can be a marketing drive.

2.3.1. Technology Adoption

Technology acceptance model (TAM), introduced for the first time in 1989 by the study of Davis et al., has been a key study for the adoption of new technologies. TAM is defined as a consumer

motivation under perceived ease of use, perceived usefulness, and attitude toward using. Perceived usefulness and perceived ease of use are effects that trigger the customer to return and make a possible purchase (Koufaris, 2002). Despite the effects of perceived usefulness, online consumer behavior and that online shopping adoption is different from an organization's technology adoption concept. The hype created by blockchain has led to promising developments in finance, supply chain, health and tourism, including marketing (Rajab et al.,2020). However, when we examine technology adoption in the field of blockchain, we see that research is limited. Detailed studies on the applications of blockchain in the field of marketing are not enough (Ghose, 2018).

According to the Chainanalysis Global Crypto Adoption Report, between Q2 2021 and the end of 2021, has seen growth by over 881% and over 2300% compared to Q3 2019 in terms of global adoption of cryptocurrencies. While the adoption of cryptocurrencies is increasing rapidly, the complexity involved in blockchain can degrade the purchasing experience. As Mire (2019) states, "currently, user experience friction and security concerns impede adoption at the consumer level. People have difficulty keeping their email secure, let alone digital bearer assets accessed with novel interfaces, like blockchain tokens." Therefore, it may take a regular customer base to adopt blockchain technologies. Thus the following hypothesis is formulated:

H_1: *Technology adoption has a positive effect on trust blockchain technology.*

2.3.2. Perceived Scarcity

Supply-demand, one of the basic concepts of economy, reveals the concept of scarcity. When demand outstrips supply and supply stays the same, prices rise and causes scarcity. Hicks, while explaining scarcity, states that less supply will cause the price to rise (1959). The scarcity of the products affects how the customer perceives the product and decision making processes (Suri et al., 2007). Scarce goods can increase the feeling of being unique of the customer and can influence the purchase intention. When these circumstances occur, it helps to create an optimal purchasing environment for customers (Lynn, 1991). On the other hand, Gierl et al. (2008) show that scarcity is sold in limited numbers rather than in a limited time can yield a better result. In addition, Brannon and Brock (2001) state in their article that the concept of scarcity can be more effective in products that can be more original from a customer perspective, rather than common goods.

Scarcity, along with pricing, is a critical cue for customers' purchase behavior (Wu & Hsing, 2006). Based on the studies of Monroe and Krishnan (1985) and the model of Lynn (1991), Wu and Hsing (2006) suggest scarcity-expensiveness-desirability concept can also create other perceived benefits for customers, especially the concepts of scarcity and expensiveness will also increase the sense of perceived uniqueness and perceived ownership for the customer.

A limited number of NFT sales, early accesses, and physical collection sales to be opened only to people who have NFTs prove to us that scarcity can be a marketing drive in the digital world. Since NFTs are all unique, there is a limited supply in the value chain. Also each unique token will have its

pricing, it creates a digital scarcity as drives the human sense of urgency for a particular commodity. Thus the following hypothesis is formulated:

H_2: *Perceived scarcity has a positive effect on perceived value.*

2.3.3 Perceived Ownership

The emotional connection that customers have with the goods or services they buy or use is called ownership (Shu & Peck, 2011). Psychological ownership has value-enhancing consequences, which stem from an association of a good with the self-and/or categorization of the good as "mine" (Morewedge et al., 2021). Belk (1998), on the other hand, argues that ownership is a simple psychological motif stemming from a sense of self-expression that stems from the customer's instinct to have control or mastery over any object or product in their environment. Ownership strengthens the bond between the brand and the customer and thus has a direct impact on perceived value (Shu & Peck, 2011). As it evolves into a digitally focused brand-customer environment, technology-driven ecosystem redefines the concept of ownership. Changing consumption habits also caused a paradigm shift in the concept of ownership, creating opportunities for the term of ownership to be protected by different methods. In modern capitalist societies, the concept of consumption has evolved, shifting from owning a product to temporary ownership to use the product with access-based models in shared goods (Rifkin, 2001). Even though digital goods have increased their role of importance in the modern world (Bardhi & Eckhardt, 2012), majority of the people still find owning a digital good unstable, fast-changing, and transient (Petrelli & Withttaker, 2010), also Reb and Connolly (2007) fail to exert a strong connection of legal ownership to feeling physical ownership.

Morewedge et al. (2021) reveal that trends can change the marketing framework in three areas: growth of the sharing economy, digitization of goods and services, and expansion of personal data. According to this study, sharing economy creates a participative concept through technology which allows the customer to have temporary ownership rights on any product or service rather than having complete control over it. Although Keinan and Kivetz (2010) admit that the sharing economy reduces the sense of physical ownership, it can help customer access products or services, due to lower costs and higher accessibility, that customers normally may not be able to access or afford, thus argues perceived ownership in modern societies would not have strong effect on perceived value. Since digitization is demanded more and more by customers day by day (Morewedge et al., 2021), the access based consumption model surpasses the physical consumption in many domains such as subscription-based models in magazines, maps, news, and television, music etc. (Eckhardt et al., 2019).

From the perspective of perceived ownership, subscription-based models may decrease the sense of ownership. Atasoy and Morewedge (2018) supports this theory, as the sense of ownership is less in digital, customers pay relatively smaller fees, unlike physical products. Although consumers may have permanent access to digital goods, they may not feel ownership (Bagga et al., 2019). On the other hand, Pierce and Jussila (2010) state although there is a decrease in the sense of perceived ownership

in product specifics, the chance to show that the customer owns the product and to show that they belong to specific communities through social media platforms or community groups can replace physical perceived ownership across the brand. Consumers can feel psychological ownership for the community itself, as well as for their contributions to furthering the cause and formation of these groups, such as posts, comments, and virtual objects (Morewedge et al., 2021), and digitization offers consumers customized experiences and direct control in the experience. Berger et al. (2014) further state that digital consumption can strengthen ownership by combining with the social identity built by the customer.

Morewedge et al. (2021) explore the effects of the concept of expansion of data on perceived ownership as the third trend where the sense of ownership decreases due to the retention of customer data by third-party applications, but with the Web 3.0 and blockchain technologies customers can take control and distribution of their own data again. Blockchain, Ethereum, and decentralized autonomous organizations can use smart contracts to give brands back control of their data to customers, which can increase perceived ownership (Zyskind et al., 2015).

We can see that the theories we exemplified above match the Web 3.0 marketing framework that NFTs potentially offer. The digitization of goods may have tremendous potential with the adoption of technology. While technological developments change consumption models and the concept of physical ownership, this change can create an opportunity rather than a threat for brands, and the decline of ownership in digital-based consumption can be repaired with blockchain technology. Due to the nature of NFTs being signed by a unique contract, it helps to confirm the ownership of the, which will accrue to a single owner of the material object in the physical world. Thus the following hypothesis is stated:

H_3: *Perceived ownership has a positive effect on perceived value.*

2.3.4 Perceived Uniqueness

Considering the fact that scarcity can directly affect uniqueness, the adoption of uniqueness to the marketing framework has been studied in different theories: Brock's (1968) commodity theory, Loomes and Sugden's (1982) regret theory and Brehm's (1966) reactant theory. Netemeyer et al. (2004) define uniqueness as the ability of a brand to distinguish itself easily from competing brands and to be preferred. Unless a brand achieve a strategy that can differentiate, it will have little influence on the purchase intention, in which positive brand experience engages consumers' senses and engages them through emotions, thoughts, and sensations that will help creating brand-specific connections and experiences (Keller, 1998). Customers prefer products over other brands to meet their experience, uniqueness, knowledge and needs (Simonson and Nowlis, 2000). Uniqueness satisfies the distinctiveness need of customers and directly affects their positive thoughts about the product (Cheema & Kaikati, 2010).

Uniqueness, when combined with scarcity, can have a positive impact on the perceived value of the product. Perceived uniqueness makes it easier for customers to make choices by lowering their cognitive burden, and therefore perceived value increases (Dhar & Sherman, 1996). Also uniqueness is among the strongest determinants of price premium (Aaker, 1996). The uniqueness debate, especially on digital goods, has been one of the hot topics of academic topics before NFTs. Atasoy & Morewedge (2018) revealed that digital goods may have less perceived uniqueness than physical goods because it can be easily replicated. Contrary to this approach, since NFTs are built to minimize the risk of replication due to its fundamental brought by smart contracts. NFTs offer uniqueness in an unusual form, giving consumers the ability to prove that they are the single owner of the good in any given time (Hofstetter et al., 2022).

When combined with Web 3.0 and NFT framework, perceived uniqueness can be a paradigm shift. That's why, in this study, we examine that products that can be authenticated autonomously through blockchain technology and the concept of being unique from other products with the non-fungible tokens, can create uniqueness by triggering the self-desire of customers, then uniqueness can trigger perceived value of the products. Thus the following hypotheses are formulated:

H_4: *Perceived uniqueness has a positive effect on perceived value.*

H_5: *Trust in blockchain has a positive effect on purchase intention.*

H_6: *Perceived value has a positive effect on purchase intention.*

Based on the literature review, the purchase intention of NFTs can be triggered by increased trust in blockchain technology and perceived value. The conceptual research model is developed considering six hypotheses that is presented in Figure 1.

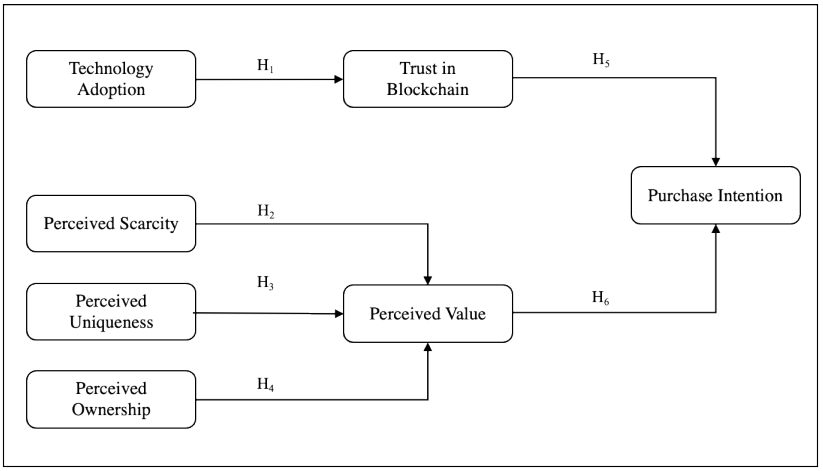

Figure 1: Conceptual Research Model

3. Methodology

3.1. Instrument

In this study, validated instruments that are frequently used in literature were adapted into multi-item questionnaire to test the proposed research model. Perceived scarcity was adapted from Swami and Khairnar (2003), perceived uniqueness measurement was based on the study of Franke and Schreier (2008). Perceived ownership was derived from the study of Pierce et al. (2003). Perceived value was adapted from Teas and Agarwal (2000). Trust in blockchain is adapted from Shin (2019). Technology adoption was adapted from the study of Bruque et al. (2008). Finally, purchase intention was adapted from the study of Dodds et al. (1991). In total, excluding the demographic questions, 27-item questionnaire was designed where all the statements were evaluated on Likert's five-point scale ranging from (1) strongly disagree to (5) strongly agree.

3.2. Sample and Data Collection

The questionnaire consisted of two parts as demographic profile (age, gender, education, occupation, and income level) and construct related statements in the research model. The data was collected via online survey tool, Google Forms, between February and April, 2022. The link of questionnaire was distributed through NFT related online communities and Discord community channels and the statements were self-evaluated by at least one NFT owner. At the beginning of the questionnaire, the participants were asked to agree to data collection and consent, also participation was entirely voluntarily.

In addition, the filter question whether the participant has a crypto wallet was asked in order to create an accurate sample. However, as crypto wallets are also being used as an investment tool, it was hard to assess if the participants were active users of the blockchain technology. After applying the filter question, 345 out of 431 participants had a crypto wallet and out of these, 306 were completed the questionnaire in full. The further analyses were carried out with these suitable 306 respondent's data.

Demographic profile of the sample is represented in Table 1. Accordingly, sample include 108 male (33%), 101 female (35.3%) respondents, in which 97 of them (31.7%) prefer not to state. The sample is highly educated, 98.4% of them is at least bachelor degree student. Age mostly varies between 18 and 59, where majority lies between 25 and 32 years old.

Table 1: Demographic Profile of Sample

		n	%			n	%
Gender	Female	108	33.0%	**Monthly Income**	Up to 4000 TL	62	20.3%
	Male	101	35.3%		4001 to 9000 TL	58	19.0%
	Prefer not to say	97	31.7%		9001 to 15,000 TL	64	20.9%
Education	High School or Below	5	1.6%		15,001 to 25,000 TL	65	21.3%
	Graduate (Bachelor)	84	27.5%		25,001 TL and more	57	18.6%
	Student (Bachelor)	77	25.2%	**Occupation**	Arts & Entertainment	87	28.4%
	Graduate (Masters)	86	28.1%		Marketing	41	13.4%
	Student (Masters)	51	16.7%		Economics / Finance	47	15.4%
	Doctorate Degree	3	1%		Student	77	25.2%
Age Group	18-25	66	21.6%		Business	30	9.8%
	25-32	130	42.6%		Other	24	7.8%
	33-59	97	31.6%				
	60 and above	13	4.2%				

4. Findings

4.1. Measurement Model

Structural equation modeling (SEM) technique was performed to assess the measurement and hypothesized structural model of the research via IBM AMOS v26. Prior to hypotheses testing, the validity and reliability were checked and in this regard confirmatory factor analysis (CFA) steps were followed. The measurement model indicated a good model fit (*$\chi 2(299, N=306)=371.978$ $p<0.01$; CFI=0.980; TLI=0.977 NFI=0.909; RMSEA=0.028, SRMR=0.044*).

Table 2: Measurement Model Results

Constructs	Items	Loading	CR	AVE
Purchase Intention	The probability that I would consider buying this NFT is high.	0.726	0.747	0.496
	The likelihood of purchasing this NFT is high.	0.717		
	I would consider buying this NFT at expected price.	0.669		
Technology Adoption	I intend to increase my use of blockchain technology in the near future.	0.802	0.752	0.505
	I have become familiar with the tools & sources of the technology.	0.677		
	Blockchain is easy-to-use.	0.642		
Perceived Scarcity	I think that this NFT will be sold out soon.	0.836	0.855	0.544
	I feel the limited supply will cause many people to buy.	0.809		
	I think it is difficult to purchase this NFT with a limited supply.	0.740		
	I think that the current supply of this NFT is scarce.	0.668		
	I think limited supply increase the initiative to purchase.	0.610		
Perceived Uniqueness	I feel like products that can be bought by everyone makes it lose its uniqueness.	0.756	0.845	0.522
	Owning this NFT makes me unique.	0.730		
	Being unique is important for me.	0.729		
	I have strong desire for uniqueness.	0.709		
	The limited supply of this NFT makes it unique.	0.688		
Perceived Ownership	I enjoy the feeling of owning a product that represent personal achievement.	0.785	0.829	0.549
	I feel a very high degree of personal ownership of the NFT.	0.783		
	I feel like this my NFT.	0.699		
	I think purchasing the NFT digitally will not decrease the feeling of my ownership.	0.690		
Trust in Blockchain	Blockchain can be relied on to keep its promises.	0.736	0.753	0.505
	Blockchain is a trustworthy service.	0.715		
	I can count on blockchains to protect my privacy.	0.679		
Perceived Value	I intend to buy more from this brand if I own their NFT.	0.804	0.812	0.520
	I am willing to pay higher prices for this limited edition.	0.741		
	Owning this NFT makes me excited .	0.693		
	This NFT is considered to be a good buy.	0.638		

$\chi 2(299, N=306)=371.978$ $p<0.01$; CFI=0.980; TLI=0.977 NFI=0.909; RMSEA=0.028, SRMR=0.044

Convergent and discriminant validity, along with construct reliability, were reported to be significant and satisfactory in the evaluation of the measurement model. According Fornell and Larcker (1981) criterion approach, findings (see Table 2) confirmed convergent validity in which average variance extracted (AVE) were greater than 0.5 cut-off value (only Purchase Intention construct is equal to 0.496), standardized factor loadings of all the items were not less than 0.5 and composite reliability (CR) of constructs were above 0.7.

Table 3: HTMT Analysis Results

	1	2	3	4	5	6	7
1. Purchase Intention							
2. Technology Adoption	0.724						
3. Perceived Scarcity	0.312	0.251					
4. Perceived Uniqueness	0.310	0.312	0.387				
5. Perceived Ownership	0.271	0.285	0.520	0.785			
6. Trust in Blockchain	0.458	0.647	0.399	0.629	0.569		
7. Perceived Value	0.280	0.292	0.749	0.595	0.792	0.480	

Heterotrait-monotrait (HTMT) ratio of correlation results were found to be less than 0.85 (see Table 3) which is an evidence for discriminant validity and indicating distinctiveness between the constructs.

4.2. Structural Model

The following phase of SEM is assessment of the hypothesized structural model, for this reason path analysis was performed. Results of path analysis indicated a good model fit (*χ2(199, N=306)=384.122 p<0.01; CFI=0.937; TLI=0.927 NFI=0.893; RMSEA=0.055, SRMR=0.078*).

Table 4: Structural Model Results

Proposed Hypotheses	β	Std. Error	Std. β	t-value
H_1**:** Technology Adoption ➞Trust in Blockchain	0.899	0.103	0.746	8.729**
H_2**:** Perceived Scarcity ➞Perceived Value	0.394	0.050	0.480	7.825**
H_3**:** Perceived Ownership ➞ Perceived Value	0.510	0.059	0.450	8.628**
H_4**:** Perceived Uniqueness ➞ Perceived Value	-	-	-	*ns*
H_5**:** Trust in Blockchain ➞ Purchase Intention	0.535	0.081	0.550	6.618**
H_6**:** Perceived Value ➞ Purchase Intention	-	-	-	*ns*
χ2(199, N=306)=384.122 p<0.01; CFI=0.937; TLI=0.927 NFI=0.893; RMSEA=0.055, SRMR=0.078				

** *p<0.001, ns: not significant*

According to the findings (see Table 4) perceived scarcity (β=0.480, p<0.001) and perceived ownership (β=0.450, p<0.001) were found to have significant and positive effects on perceived value. On the other hand perceived uniqueness, which was proposed to have an effect, was found as an insignificant variable on perceived value. Results also indicated that trust in blockchain is significantly and positively affected by technology adoption (β=0.746, p<0.001). The dependent variable of the proposed research model, purchase intention, was found to be influenced by trust in blockchain (β=0.550, p<0.001), nevertheless perceived value had an insignificant effect on purchase intention (p>0.05). Overall, as a summary, H_1, H_2, H_3, and H_5, were supported, whereas H_4, and H_6 were rejected.

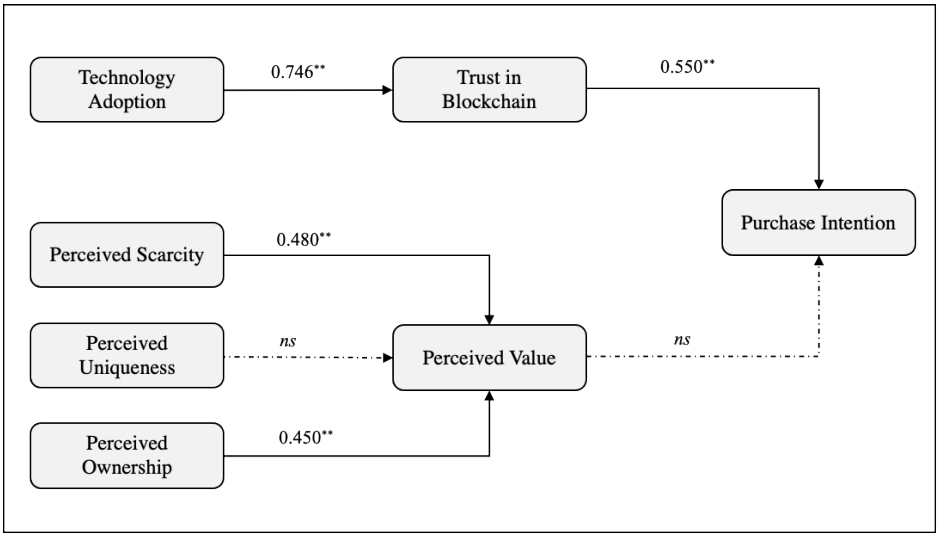

Figure 2: Path Model

5. Discussion and Conclusion

Topics around NFTs have skyrocketed in recent years. NFTs quickly attracted the attention of crypto and blockchain enthusiasts and all industries and brands when their 24-hour volume exceeded an average of $600 million in 2021. In addition to blockchain-specific projects, brands such as Adidas have started to invest heavily in NFTs. Chevet (2018) believes that Blockchain has a significant potential to compete with current business models by giving more power to creators and users. In addition to the scarcity and authenticity of the nature of NFTs, being a user and creative empowered space, NFTs have the chance to be an alternative medium for brands to gain more loyal customers.

The results showed the importance of scarcity as the core function of creative industries, drawing a difference from other industries. The concept of value creation is not always simple in creative value chains as it is in many industrial value chains. This is the case, for example, in the cultural heritage sub-sector. Thus, compared to production based industry like cars and electronics, creative/cultural value chains can have a different form or a behavior (Madudová, 2017).

Furthermore, while perceived scarcity and authenticity proved to impact perceived value substantially, the perceived value was not significantly important to purchase intent. The results showed that buyers would not buy NFTs because of their value but instead because of their scarcity and authentication. Since NFTs are intangible products, their perceived value may be more difficult for the customer to perceive, unlike physical products.

Consumers will be more motivated to touch the product before purchasing to detect certain feature information (Peck & Shu, 2009). Many previous studies have examined the effects of physical touch

on purchase intention and revealed the positive effect between them. Peck's study also supports this. Although NFTs gradually begin to merge with physical product acquisitions, as in the case of Adidas, NFT strategies that combine such digital and physical worlds support the hypothesis in this study and do not provide sufficient evidence as they are not redundant.

NFTs have potential for brands both in the digital world and with digital-physical use cases that are slowly starting to emerge. However, both the findings in other articles and our findings show that the NFT space has many challenges to tackle. This study showed that technology adoption and the concept of trust in Blockchain are more critical as Blockchain is emerging as a new medium for customers. NFTs provide new use cases for blockchain technology and have the potential to improve existing blockchain systems by simplifying them (Regner et al., 2019). Usability measures the users' effectiveness, efficiency, and satisfaction when testing a specific product/design (Wang et al., 2021). As mentioned in the study, due to the complex structure and pre-mature nature of Blockchain, therefore NFTs, it is possible to say that adaptation will be the most challenging part of it. A simpler framework or systematic would possibly open the doors for broader adaptation, but it seems to be limited. However, it will continue to be a question mark for brands because it is a non-mature technology, adaptation is limited for now, development costs are high, and physical-digital connection cannot be fully provided. While it is possible to say that early adopter brands will gain customer and prestige gain opportunities, we can predict that many brands will closely follow the developments and develop blockchain-specific strategies.

As emphasized many times in the study, the concepts of blockchain and NFT are new to the world. Academically, research on these issues remains limited. Most of the limited academic research is related to the history of technology and technical structure, and there is not enough information about the marketing implications. Therefore, the results obtained in this study may not provide validation empirically. Since our research also addresses a specific model in terms of its structure, certain points and research areas may not have been evaluated well enough and may have been limited for a general analysis. In addition, even though we try to address customer experience in our research, legal implementations, technical infrastructure, and operational frameworks for businesses may have not been studied deeply enough. As studies on the subject increase, more meaningful business frameworks will be created.

As Dowlin concludes, NFTs appear to be a distinct and exciting new asset class (2021). While blockchain technology may not offer silver bullet or silver platter solutions for all contemporary marketing problems, it does have shortcomings and potential negative consequences (Treiblmaier, 2019). Therefore, we believe that future research on this subject will offer exciting outcomes and learnings.

Author Contribution

CONTRIBUTION RATE	EXPLANATION	CONTRIBUTORS
Idea or Notion	Form the research idea or hypothesis	Hüseyin EKİZLER Furkan KILIÇASLAN
Literature Review	Review the literature required for the study	Furkan KILIÇASLAN
Research Design	Designing method, scale, and pattern for the study	Hüseyin EKİZLER Furkan KILIÇASLAN
Data Collecting and Processing	Collecting, organizing, and reporting data	Hüseyin EKİZLER Furkan KILIÇASLAN
Discussion and Interpretation	Taking responsibility in evaluating and finalizing the findings	Hüseyin EKİZLER Furkan KILIÇASLAN

Conflict of Interest

No conflict of interest was reported by the authors.

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Resume

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