Czech University of Life Sciences Prague

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Bachelor Thesis

Multi - Criteria Decision Making on Investing in Non - Fungible Tokens

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CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

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Business Administration

Thesis title

Multi – Criteria Decision Making on Investing in Non – Fungible Tokens

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Objectives of thesis

The main goal of the thesis is to design and implement/prove the functionality of a multi – criteria decision – making model that includes financial and legislative aspects and to show its effectiveness in evaluating investment opportunities.

Methodology

To achieve the goals established, the work will be divided into two segments: the theoretical and practical components. In the initial phase, encompassing the literature review, an examination of pertinent frameworks and publications by other researchers on NFT will be conducted. Subsequently, in the practical segment, the implementation of decision-making methods will take place. This includes the application of Satyy's AHP (Analytical Hierarchy Process) method, which factors in numerous criteria before arriving at a conclusive decision. Following this, a SWOT analysis will be generated.

Based on the planned procedures, a conclusion will be drawn.

The proposed extent of the thesis

30-40

Keywords

NFT, investments, law, decision making, SWOT.

Recommended information sources

Beckman, M. 2021. The Comprehensive Guide to NFTs, Digital Artwork, and Blockchain Technology. 1st edition. Skyhorse. 160 p. ISBN 9781510768420.

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Declaration

I declare that I have worked on my bachelor thesis titled "Comparative NFT Analysis " by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break any copyrights.

In Prague on _____

Acknowledgement:

I express my sincere gratitude to my thesis supervisor, **doc. Ing. Tomáš Macák, Ph.D.,** for his invaluable advice, guidance, and unwavering support throughout the completion of this thesis. I am grateful for the time he invested in correcting my work and steering my thoughts in the right direction. Learning from such an exceptional teacher and qualified specialist has been a privilege, and I appreciate his contributions to my academic journey.

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Multi - Criteria Decision Making on Investing in Non - Fungible Tokens

Abstract

This thesis endeavors to provide a comprehensive understanding of Non-Fungible Tokens (NFTs) by exploring the perceptions of individuals across various age groups within the NFT market. The primary objectives involve investigating whether individuals perceive the NFT trend as an opportunity or harbor resistance. Additionally, the research delves into the decision-making processes concerning NFTs from diverse perspectives.

The methodological approach integrates the Analytic Hierarchy Process (AHP) to conduct a multicriteria analysis. This analysis encompasses various factors related to the acquisition of NFTs, offering a nuanced perspective on their evaluation. An online survey, employing the computer-Assisted Web Interviewing (CAWI) method, serves as the primary tool to unravel the reasons behind individuals' engagement in the NFT market. The aim was to secure a minimum of 200 responses, facilitating the identification of correlations between NFT utilization and age while capturing the overall perceptions of participants. The questionnaire, comprising 11 questions with both single and multiple-choice answers, was designed to elicit diverse insights.

In tandem, the AHP method is applied to evaluate and assess multicriteria decision-making, specifically focusing on the top four NFT options. This comprehensive methodology, combining survey insights and AHP analysis, contributes to a holistic understanding of the intricacies surrounding NFTs, shedding light on their diverse appeal and the factors influencing decision-making within this dynamic digital landscape.

Keywords: NFT, investments, law, decision making, SWOT.

Vícekriteriální rozhodování o investování do non-fungible tokenů

Abstrakt

Tato práce se snaží poskytnout komplexní pochopení nezáměnných žetonů (NFT) zkoumáním vnímání jednotlivců v různých věkových skupinách na trhu s NFT. Primární cíle zahrnují zkoumání toho, zda jednotlivci vnímají trend NFT jako příležitost, nebo se v nich skrývá odpor. Kromě toho se výzkum zabývá rozhodovacími procesy týkajícími se NFT z různých úhlů pohledu.

Metodický přístup zahrnuje analytický hierarchický proces (AHP) k provedení multikriteriální analýzy. Tato analýza zahrnuje různé faktory související s pořízením NFT a nabízí diferencovaný pohled na jejich hodnocení. Jako primární nástroj k odhalení důvodů zapojení jednotlivců do trhu s NFT slouží online průzkum využívající metodu počítačem asistovaného webového dotazování (CAWI). Cílem bylo získat minimálně 200 odpovědí, což by usnadnilo identifikaci souvislostí mezi využíváním NFT a věkem a zároveň zachytilo celkové vnímání účastníků. Dotazník, který obsahoval 11 otázek s možností výběru jedné i více odpovědí, byl navržen tak, aby umožnil získat různé poznatky.

Současně byla použita metoda AHP k vyhodnocení a posouzení vícekriteriálního rozhodování, konkrétně se zaměřením na čtyři nejlepší možnosti NFT. Tato komplexní metodika kombinující poznatky z průzkumu a analýzu AHP přispívá k ucelenému pochopení složitostí týkajících se NFT, osvětluje jejich různorodou přitažlivost a faktory ovlivňující rozhodování v tomto dynamickém digitálním prostředí.

Klíčová slova: NFT, investice, zákon, rozhodování, SWOT.

Table of Content

List of Figures:

List of Tables:

List of Figures

List of Formulas

Introduction

It is difficult to think what life would be like in the world we live in today without computers and communication networks, which link not just computers but also people from every corner of the globe. Activities that used to take place solely in a real environment have shifted to taking place in front of a computer monitor or a display on a mobile phone, where an artificial environment has been constructed, but which often attempts to mirror the actual world. This environment, which is referred to as virtual, is shaped not just by the people who work and communicate inside it but also by those who utilize it. People use, manufacture, sell, and purchase things in the actual world, and these items may take on a wide variety of shapes, values, and other characteristics. Yet, the operations described above are also carried out in the virtual environment. Even here, things are made, they are sold and purchased, and the prices are frequently mind-boggling; nonetheless, civil law does not recognize virtual items as legitimate property. The fact that the problem of virtual ownership is so poorly mapped served as the impetus for the author of this bachelor's thesis to begin writing in the first place. The section entitled "Theoretical Considerations" of the Bachelor's Thesis on Virtual Ownership is separated from the section entitled "Practical Considerations". Nowiski and Kozma (2017), The objective of the theoretical section is to provide a definition of virtual commodities and to investigate the connection between virtual ownership and property rights in accordance with existing legal norms. In accordance with civil law, it also seeks to characterize virtual objects as actual things. In the first chapter of the theoretical section, a literature search is conducted with the purpose of presenting and characterizing virtual items and habitats that are usual for these things. The environments that are typical for these things are also shown. In addition to this, this section of the thesis discusses the most well-known and widely used virtual items, in addition to the category of virtual things for which it is feasible to demonstrate exclusive ownership. The concept of property rights, the rights that belong to the owner, and the several ways to get property rights are discussed in the second chapter of the book. The investigation of the link between property rights and virtual things is the primary subject of this paper. The overarching goal is to determine whether or not virtual things may be obtained in line with the legal norms that are already in place. In the third chapter, the definition of the item in the legal

sense and the fundamental traits that describe it are the primary topics of discussion. In this chapter, a comparison is made between the features of a thing in the legal sense and the characteristics of a virtual thing. The purpose of this comparison is to determine whether or not virtual things may be deemed to be things according to civil law.

The second section of the bachelor's thesis consists of a practical component, the purpose of which is to investigate the ways in which people in the Czech Republic understand ownership of virtual property and how this institution safeguards itself. In order to get the information that was required, a quantitative research approach in the form of a questionnaire survey was selected as the technique of investigation. After the graphical processing and assessment of the data gleaned from the study inquiry, the information is presented in tabular form. The modern technologies allow people to purchase different assets which are not even seen or doesn’t have a physical essence. A non-fungible token (NFT) is something that is based on a blockchain mechanism and contains a unique identifying information and special codes.

New technologies, like the Internet, have made it possible for businesses to sell the same product in several different ways and to monetize the value supplied in several different ways, such as direct sales, advertising, or a freemium model (Nowiski and Kozma, 2017). According to Nowiski and Kozma (2017), business models may be viewed as crucial moderators that determine whether an innovative technology succeeds or fails. On the other hand, novel technology could be the primary force behind the development of new business models (Nowiski and Kozma, 2017).

1 Objectives and Methodology

1.1 Objectives

The thesis aims to elucidate the intricacies of Non-Fungible Tokens (NFTs) and explore the diverse perceptions of individuals across various age groups towards the NFT market. It seeks to understand whether individuals perceive the NFT trend as an opportunity or express resistance. Furthermore, the research delves into the decision-making processes concerning NFTs from different perspectives. Another goal of the thesis is to prove the functionality of a multi – criteria decision – making model that includes financial and legislative aspects and to show its effectiveness in evaluation investment opportunities.

1.2 Methodology

The primary methodological approach employed by the author to elucidate the reasons behind individuals' engagement in the NFT market is an online survey, utilizing the computer-Assisted Web Interviewing (CAWI) method. The objective was to secure a minimum of 200 responses, aiming to discern correlations between the utilization of NFTs and age, while also gauging people's overall perceptions of NFTs. The questionnaire, comprising 11 questions with both single and multiple-choice answers, sought to capture diverse insights into the participants' perspectives.

In addition, the author employed the Analytic Hierarchy Process (AHP) method to conduct an evaluation and assessment of multicriteria decision-making specifically concerning the top four NFT options. Finally, the SWOT analysis is demonstrated to reveal all sights of NFT’s

2 Theoretical Part

This chapter is dedicated to the theoretical part of the NFT, its meaning, the way it has been developing and became of the recognized movements after all. There is a shortage of literature review on NFT, particularly on analysis of NFT, however, the author has gained the knowledge from internet sources, research papers, magazines, and articles, to get a better understanding.

2.1 The meaning of NFT

The blockchain technology has enabled new paths of development for the digital information, transaction, and the rest of the interactions which either have financial or non-financial objective to be secure and transparent. Due to the immutable and allotted ledger that allows you to keep a track of any items which have a tangible or intangible essence. Today, people call it cryptocurrency, however, there are many more products that belong to it.

However, the meaning of NFT and its definition is perfectly described by the Robyn Conti and John Schmidt (2021).

"An NFT is a digital asset that represents real-world objects like art, music, in-game items, and videos. They are bought and sold online, frequently with cryptocurrency, and they are generally encoded with the same underlying software as many cryptos."

(Conti, R and Schmidt, J. 2021).

In essence, they are records of data packets; more precisely, they are records of certificates on a blockchain. However, during the past 20 years, several academics have examined and speculated about digital assets, and blockchain models have been explored since the 1980s and have undergone careful analysis since the launch of Bitcoin in 2008. The first cryptocurrency that has been created in 2008, by Satoshi Nakamoto and his popular paper about the blockchain technology. However, the identity of Nakamoto and his group were anonymous, and the intentions of this paper were confusing. Still, there have been numerous attempts to create a

digital currency in 80's and 90's, however, due to the lack of accessibility to the Internet for most of the global population, it was rather worthless.

One of the examples of the first cryptocurrency was "Blinded Cash", created by David Chaum. Chaum based his experiment with the system that encrypts data and enables to transfer an information, tokens from one person to another. The system was based on cryptography[1], where Chaum gained his professional reputation for his professional contribution to the cryptography field. His system of encryption has been tested by (Sharma, 2022) and he guaranteed safety and authenticity. In today's world, this system is simply called "Blockchain". The author will cover this part further as a part of the literature review.

NFT is associated with the range of assets that seems to address an issue with digital artifacts. NFT considers a combination of digital artwork and digital stamp of ownership, which are immutable.

The first data of NFT was introduced in 2014, however, it was not that prominently recognized until 2017. The NFTs are the codes which have unique characteristics and are presented by strings of metadata. If an item is fungible, it could be easily exchanged for another item, more of a rare matter, not unlike monetary currency (Mirriam – Webster, 2021). Additionally, if the item is not fungible however, is unique, it barely could be copied. On decentralized networks, a token often offers a mechanism to digitally record and transfer value without the use of reliable third parties (Sunyaev et al., 2021; Treiblmaier, 2021)

NFT is absolutely different in comparison to a cryptocurrency such as Bitcoin, especially considering its intrinsic values. NFT is distinctive enough to be non-fungible, especially not transferable as like – for – like, which makes it unique and identified by something special (Wang et al., 2021).

[1] Cryptography is the study of secure communications techniques that allow only the sender and intended recipient of a message to view its contents. The term is derived from the Greek word kryptos, which means hidden.

Ayers (2021) describes the NFT is “the power to shape the nature of ownership”, among different industries and aspects of live. He claims that, even a unique and informative thesis, could be a subject of NFT. The gaming industry is one of the best-known sectors, where NFT is prominent, thus, he concludes that digital industries have benefited from NFT’s essence the most.

Dean (2022) claims that NFT as an example, is used as an item of avatars. However, NFT have its places in sports as well, for example trading cards like NBA Top Shots).

On the other hand, as it has been mentioned above, NFTs nature has taken places in art market and embraces its opportunities of digital ownership. Franceschet et al., (2021) states that “NFT allowed artists to promote their crafts across digital spaces, with the speed and freedom that were previously unknown. However, frequent frauds are confronted among artistic activities are quite a common thing, which leads to negative perception of NFTs (Rosic, 2016).

Dash (2021) suggested that the current implementation of NFT Art does not correlate to its concept behind. It demonstrates that there is some doubt regarding NFTs. It is important to consider the source of the opposition to the innovation in order to completely comprehend the critique.

Consequently, a useful approach to investigate this issue is the decision-making strategy of accepting or rejecting an invention Franceschet et al., (2021). Such a process decides whether technological breakthroughs, like the NFT technology, are successful or unsuccessful, accepted or rejected. Additionally, Laukkanen (2007) illustrate how customer resistance grows with the amount of change an invention necessitates. It is conceivable that the demonstrated rejection and contentious outcomes are results of the substantial shifts needed to adopt NFTs (P. Laukkanen et al., 2008). The acceptance of mobile payment solutions, the role of firm characteristics on blockchain adoption, and the usage of blockchain to improve the sustainability of food production chains have all been studied in previous research on active innovation resistance (Karim, S., et el 2022; Gupta, 2022). Based on their knowledge gained and research, the idea hasn't been used in any situations connected to blockchain technology or the NFT Art market in particular.

Browne (2021) states that NFTs, or non-fungible coins, are only digital collectibles. NFTs, however, are not equivalent to controlled tokens or cryptocurrencies (April and 2021, 2021). There are numerous differences than only semantic ones. It is a distinction that allows for a fresh perspective on fan interaction, and the potential effects on popular culture are enormous (Luckow, 2021). This invention's strength does not lie in the development of a further altcoin or gaming component. Even if they are not gamers or fans, it entails providing new avenues for fans to interact with one another and express admiration for their preferred television series, motion pictures, and sports teams (Innovation Hub, 2021).

2.2 Features of NFTs

There were five main priorities identified by Popescu (2021) that would be directly related to the NFTs, such as:

- Scarcity
- Non-interoperability
- Indivisibility
- Indestructibility
- Verifiability

Further, the author will describe each of the following characteristics separately, for the reader to fully comprehend the ideas of those characteristics, See, Figure – 1.

Conti (2022) defined the main characteristics overall, and this is the “scarcity” of NFTs. Creators of NFTs have the control on how many examples of collectibles to produce, thus by limiting the units of production, they can dictate the price for a certain collectible.

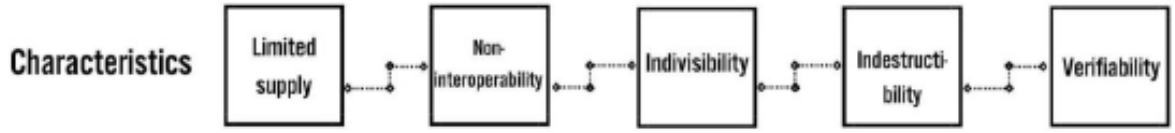
Interoperability is defined as an ability of different systems, devices, applications or products for a proper communication in a proper way, without any additional effort for the potential user. Thus, there are still challenges for NFTs to create a seamless front-face where it could be easily changed (Conti, 2022).

Rollins (2022) paid attention to another characteristic of NFTs that relies on the indivisibility. Because NFT represent a whole item, it is almost impossible to divide such an item into smaller pieces, thus, when someone buys an item, it buys the whole asset.

NFT is also taken as "indestructible" and because of the data which is saved within a blockchain via smart contracts giving the NFTs the right to be immutable. This type of data cannot be removed, deleted, stolen, or replicated (Leech, 2021).

Verification saves all the transaction which have been ever registered via the blockchain. Thus, blockchain's ability stores all the historical transactions for a needed verification. These processes help tracking back an information for a verification of a creator and his historical ownership (et el., Lombard-Platet, 2020).

Figure 1: NFTs characteristics



Source: Popescu, 2021.

2.1.2 NFTs applications

In this chapter the author plans to give a clearer picture and list the applications.

Virtual assets take into account digital assets produced by users themselves, including emails, databases, or files. Virtual assets can also include accounts in online games, e-books, websites, programs, accounts on social networks, bank accounts, and even cryptocurrency. These virtual items are those that the user himself produces, obtains, or purchases. Numerous categories can be used to categorize virtual property.

In Game

Leech (2021) claims that things, or gaming items, are crucial to players because they enable their avatar to level up, get stronger, and engage in user-to-user trades. A person can produce, acquire, or purchase items. Most of a player's time is spent playing video games, which raises

the status of their avatar, their skill level, and, of course, their reputation in the game. The cost of the item in the game is then inversely correlated with the amount of time the player invested in the game to get it.

Axie Infinity, a monster battling game where players collect monsters in the form of NFTs and use them to start battles among players, is a good illustration in the gaming industry. Gamers could also buy property, skin care, and in-game supplies and then re - sell them to make income, introducing a new type of corporation method in the gaming market known as the play to earn methodology. The blockchain gaming industry was valued at over $5 billion in 2021. (Non-Fungible Corporation, 2022).

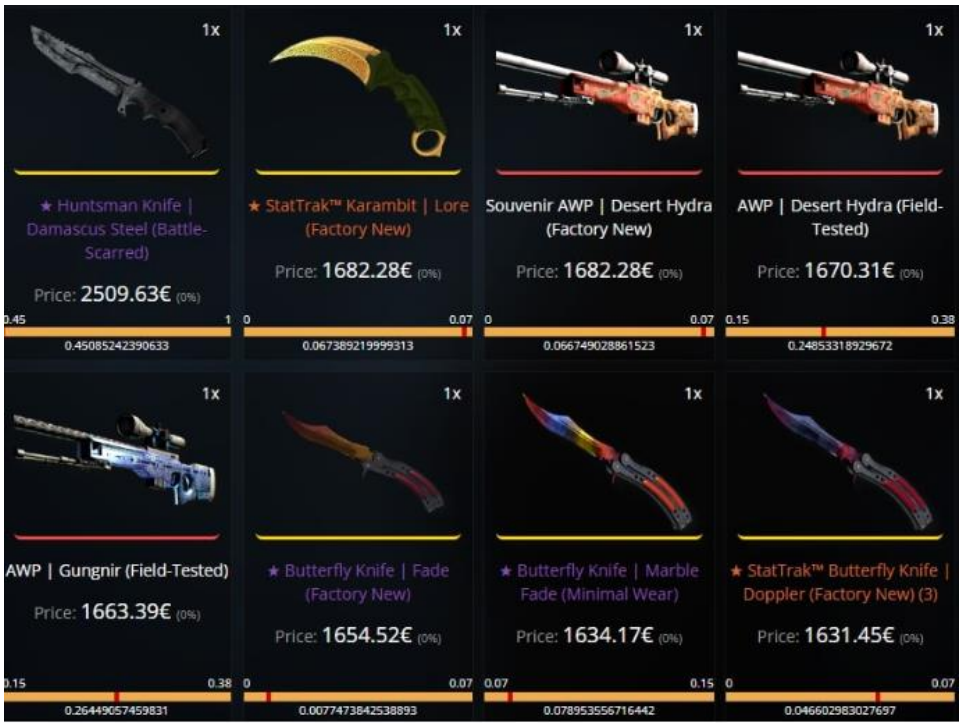
These things are very valuable and may be exchanged for cash. A luminous egg from the online game Entropia Universe sold for $69,000 in 2010, making it one of the most well-known virtual products ever sold and maybe the first to establish the high sales value of virtual goods. The makers of the online game Age of Wulin auctioned off game-related goods in 2011. The most valuable item was a fragment of the original Dragon Slaying Saber, which sold for $16,000 at auction, See, **Picture – 1**.

Picture 1: Original Dragon Slaying Saber in game of "Age of Wulin"

Source: Grunex (2022)

Another popular game is considered to be the “Counter-Strike Global Offensive” and items which are sold on the platform of “Steam” and its community. There are varieties of items ranging from 0,05 USD up to 2 000 000 USD. It depends on the player’s inventory. Some individuals spend thousands of dollars to make them items look better, See, **Picture – 2**.

Picture 2: List of items owned by a player



Source: [skincashier (2022).]

In – Sports

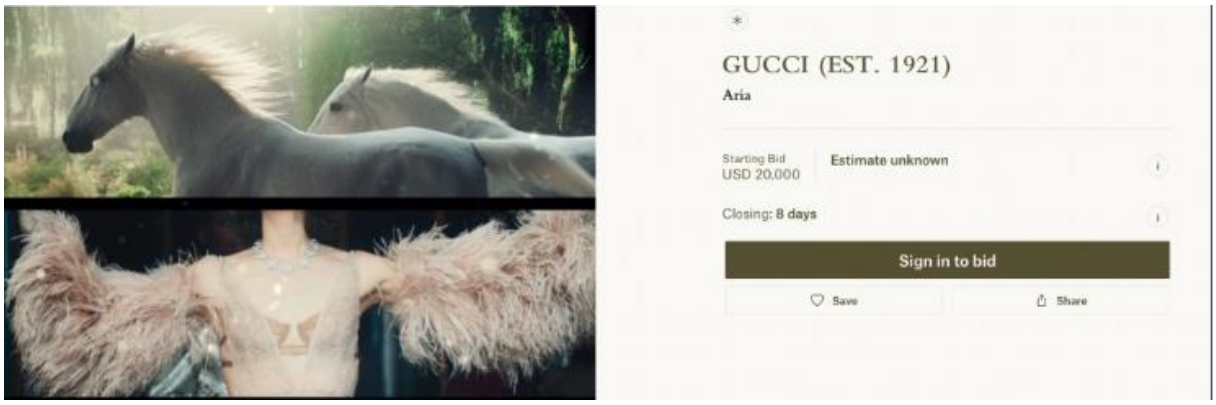
The NFT idea is embedded natural in the sports sector, where it swiftly gained traction and became a successful business (Rehman et al., 2021). NFTs are well-liked because of how transparent they are. For instance, NBA cards have a rating system, and the original owner is advantageous to athletes and spectators than more established monetization strategies like advertising. It's also a unique approach to engage with followers and provide them a memorable experience (Rehman et al., 2021). Since more sportsmen and superstars become active in the NFT industry, there are more items that can be tokenized and sold as NFTs.

Fashion

Fashion is another industry where NFT is present. However, NFT is unlikely to replace the whole fashion industry, still it offers a lucrative potential for luxury fashion brands to use as an extension (Rehman et al., 2021). Fashion companies started to put its attention on the digital NFTs within real things in order to differentiate ownership and retain exclusive. Fashion industry needs to be unique and stand out, thus, NFT is in a sense fits the gap of fashion industry, by its unique ownership, permanency, and royalty acquisition capabilities. Many fashion companies use their internet presence to increase their reach but because they are monetarily out of reach for most people, the desire for fake and imitation of goods is fueled (Rehman et al., 2021). Businesses lose a lot of money due to the fact that people exploiting their brands illegally, there are tons of distribution channels that doesn't scan those brands, thus, the NFT can actually reduce this, if not completely eliminate this problem.

Gucci was the first high-end fashion house to enter the NFT when it sold its renowned NFT Aria line at Christie's in June to commemorate its 100th birthday for $25,000. Technically speaking, it has used NFTs and digital marketing strategies before. It tried out digital fashion in March 2021 by selling a range of AR shoes for $11.99 apiece. The short video Aria NFT, which features a planned collaboration with Balenciaga, is Gucci's first official NFT, marking an important milestone for the illustrious company. The entire profit will be sent to UNICEF USA.

Picture 3: Gucci bids the collection of Aria line



Source: Tryone (2023)

2.3 Psychology behind owning NFT.

Kay (2022) states that NFT has sparked the attraction of fans in the same way as it does with the Nike and its limited edition of sneakers collection. Limiting the supply of something will eventually lead to the new opportunities for people to purchase it for a higher price. Collections of NFTs work in the same way.

Cherry (2022) claims that the fans usually base their purchases on the "Top-down perception[2]" Based on the perception of what you like and find the reasons to justify your initial attraction. Thus, he claims that individual being as an emotional creature, which is not in control of own emotions. Psychologists usually indicate this type of behavior in younger populations with wants and needs, and without any concerns on how much a certain thing costs.

Kominers et el., (2022) states that "Social Proof" as another idea of why people purchase certain things to be able to look like the other "famous" people or just copy the style. People are most likely to wear a certain brand of clothing if they look around and see that this brand is worn by the rest of the people. Consequently, fans purchase NFT's as a show of support for their favorite streamer or e-sports games. The more people are involved in purchasing an NFT, the more value it brings to the product.

Bassal (2022) brings another important reason as "Prestige" which is a product of rarity. Fans purchase stuff, in order to feel a part of a group and belong to it. By purchasing a certain NFT, users demonstrate their commitment to and contribution to the NFT's economy.

The second reason of involvement is that fans may now take part in activities that provide token holders with special rewards, such as access to exclusive material or even other blockchain games, after purchasing NFTs! You feel privileged as a token holder since you are not a part of the project and because you have access to resources that others do not (Bassal, 2022).

[2] Top-down perception - if we expect something to appear in a certain way, we are more likely to perceive it according to our expectations. Existing schemas, mental frameworks, and concepts often guide perceptual sets.

2.4 Other Users of NFT

Chow (2022) states that not all buyers of NFT are fans, and neither not all fans are ready to buy NFTs. There are two types of NFT owners, fans and speculators. The relationship between the two is very strained. Fans usually do not speculate on NFTs, and speculators usually do not consider themselves as fans. However, when the value of a certain token increases, both groups benefit, hence, both groups promote a successful ecosystem of tokens.

Speculators usually don't care much in what project they are investing money; they only hope that the value will grow with the time. They act like stock market investors by attempting to anticipate future value and profiting from the price differential between purchasing NFTs and reselling them. (Howcroft, 2022).

2.4.1 NFT communities

NFT (non-fungible token) communities are groups of people who are interested in and actively involved in buying, selling, collecting, and creating NFTs. NFTs are unique digital assets that are stored on a blockchain, and they are becoming increasingly popular in the world of art, music, gaming, and other creative industries.

Sharma et el. (2022) lists several NFT communities that exist today, and some of the most prominent ones include:

- OpenSea - a leading NFT marketplace where users can buy, sell, and discover NFTs across multiple platforms.
- Rarible - an NFT platform that allows creators to mint and sell their digital assets directly to their audience.
- Bored Ape Yacht Club - an exclusive NFT community of 10,000 unique digital apes, each with its own distinct traits and personalities.
- CryptoPunks - a collection of 10,000 unique 8-bit characters that were among the first NFTs to gain mainstream attention.

- NBA Top Shot - an NFT platform that allows users to collect and trade officially licensed NBA highlights.
- Axie Infinity - a blockchain-based game where players can buy, breed, and battle creatures called Axies, with each Axie represented by an NFT.

These are just a few examples of the many NFT communities that exist today, and each has its own unique characteristics, culture, and values.

According to the study conducted by Harrison and Laberge (2002), advancements such as the NFT technologies do not absolutely express themselves but are, nonetheless, produced and accepted by humans and their contact with one another. Thus, it is worthwhile to investigate the groups that are a part of the NFT Art ecosystem and how they develop. Those who are unhappy with current system should disengage from it and work toward creating a future for themselves that is superior towards the current, according to Selsky and Smith (1994). This constitutes the driving force behind the emergence and development of new societies. Studies of online community has identified four vital aspects: people, purpose, policies, and software. These components are becoming more important as NFT groups engage digitally (Harrisson & Laberge, 2002). These aspects may be broken down into two categories: socializing and usefulness. People, purpose, and policies are the 3 major parts that pertain to sociability. They are related via their common identity, intelligence, and morality, as well as the limits that they have set. Usability is a sub-attribute of software that specifies the environment in which communities congregate, such as the platform on which they engage in conversation. It is vital to have both sociability and usefulness in order to engage with one another since location is the place where socialization meets with usefulness, which refers to the people who are using a platform (de Souza & Preece, 2004). This category is supported by academics in the context of NFTs since they assert that groups and indeed informative and users usually exchange on channels like as Twitter, Reddit, and Discord are essential when interacting with NFTs (Bsteh & Vermeylen, 2021).

These platforms are not only connected to NFT Art, but they also provide a venue for the sharing of thoughts and data, in addition to the ability to have an impact on the interaction surrounding various NFT Art works and, therefore, its worth. According to Kapoor's findings, the worth of an NFT painting is now mostly decided by "the perception of purchasers," which comes about as a result of the popularity of the artist and the general marketing that surrounds the NFT itself (Kapoor et al., 2022, p. 2). This is not conceivable without the interaction of the fundamental components that have been discussed before. The Newfoundland and Labrador Territories meme known as "disaster girl" is an excellent illustration of how influential such communities can be (Picture - 4).

Picture 4: Disaster girl

Source: (Fazio, M., 2021)

The initial individual to try to sell this NFT meme, who was not the original originator of the meme, did not get much attention and was ultimately unsuccessful in selling it (Fazio, 2021). When the original originator of the shot (the father of the girl in the image below) supplied the exact same meme, it quickly became popular and ultimately fetched a price of $495'000 when it was sold on Foundation. This demonstrates how the underlying software can assure 'usability,'

and it also shows how 'sociability' on such platforms may be shown visually. There are many applications and joining rules in place here.

Producers, owners, sellers, and buyers are the typical categories that are used to classify members inside the conventional art market of NFT (Renneboog, Spaenjers, 2011). In a similar manner, players in the NFT marketplace will manufacture, purchase, collectors, or sellers of NFTs (Wilson et al., 2021). Once they've made their first sale of an NFT, the producers of these items often go on to becoming purchasers or collectors of many other art forms (Bsteh & Vermeylen, 2021; Sharma et al., 2022). When we take a closer look at the creators themselves, we may categorize them as either early stage or veteran NFT developers. As shown in Figure 10, the patterns of behavior shown by NFT producers regarding the acquisition of information about various facets of the NFT Art market are rather varied (Sharma et al., 2022). The collecting of information during the persuasion stage plays a major role in the decision-making process regarding innovation. This finding is connected to the active innovation resistance hypothesis (Talke & Heidenreich, 2014). In addition, the ease of accessing and obtaining information is a significant factor in the development of information barriers (Talke & Heidenreich, 2014). Due to the fact that NFT producers exhibit varying patterns of behavior, it is important to have an understanding of the information that is shared among them. Initial phase NFT producers have a tendency primarily depend on their social contacts and newspaper articles, but experienced NFT creators are far more likely to interact to their colleagues throughout the industry and benefit from each other (Sharma et al., 2022).

The NFT Art community has a reputation for being welcoming and kind to newcomers, which is shown in a variety of various ways. One notable illustration of this is the common practice of purchasing newcomers' non-traditional financial instruments (NFTs) with the purpose of assisting them in getting started (Bsteh & Vermeylen, 2021; Sharma et al., 2022). In addition, certain communities provide opportunity to take part in Q&A sessions and events, as well as possibilities to collaborate on the development of NFT projects and share information (Sharma et al., 2022). As a result, communities across a variety of platforms have become the epicenter of information gathering and dissemination.

2.5 Legal Implications of NFTs

NFTs, like other tokens, create various legal issues. Since NFTs use smart contracts to operate, some of these issues are comparable to those that might occur while doing a transaction utilizing them.

Howcroft (2022) highlighted the questions of how and where such questions of illegal activities would be solved. Determining where a litigation might be brought and what law standards (if there is any in regards of NFT) can apply is a challenge because of the anonymity or pseudonymity of blockchain and the absence of conflict of law clauses. Everyone can observe how an NFT was generated and linked to the underlying right or asset when it is established on a public blockchain like Ethereum. The wallet address and associated metadata of the NFT owner or author can be seen, but they are insufficient to identify the person in real life.

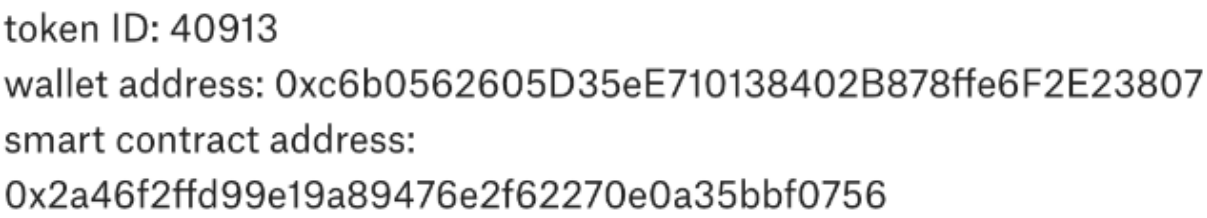
George (2022) claims that the form requirements itself could give rise to some issues. Smart contracts that handle ownership and transferability for NFTs allow them to function. It might be difficult to comply with form requirements in smart contracts when the law requires that a transaction be carried out in a written form with the parties' signatures. The issues with NFTs are quite comparable to the issues with form requirements brought on by the usage of smart contracts. It is important to remember that persons using smart contracts to process operations on blockchains must therefore comply with the law; these contracts are not exempt from the rule of law and must follow it.

Another problem is that all aspects of the NFT can be expressed in a contract. For instance, smart contracts can't be used to fulfill a commercial clause introduced by an NFT seller that forbids buyers from utilizing the underlying work of art for commercial gain. These sorts of terms cannot be analyzed and hence cannot be operated by smart contracts, even though smart contracts are intelligent to the point where they are self-enforcing. Accordingly, conventional processes as demand notices and lawsuits must be utilized if the seller wants to enforce such a commitment on the client.

2.5.1 Copyrights and law issues

The technical features and the standard used in NFTs, namely ERC – 721[3] standard has to be mentioned in that chapter. This standard deals with the mapping of the digital content which is usually transferred. This digital content is presented by ID of the token, See, the **Picture – 4.**

Picture 5: Token's ID



Source: medium.com (2023)

However, there is a need to distinguish between two paths, on-chain and off-chain of NFTs. The inner content and its metadata are uploaded directly in the blockchain, in on-chain NFTs. Therefore, both are placed on blockchain and hence, are transparent. There are not stored in any other hosts so there isn't any risk of being hacked or inability to find such a data (mostly transactions) on the host. However, on-chain NFTs do not have enough advantages to be extensively employed and well-liked because of one significant hurdle, namely storage limitations. and uploading charges.

Moreover, NFT it-self is not complied with any standards. It is a digital content which is supported only by contract, which could by linked with the standards of the contract because of completion of metadata which is written in the blockchain. So, technically, NFT is a metadata which presents an underlying work and pointing where is it located, or just tokenized version of the work.

[3] ERC-721 is a free, open standard that describes how to build non-fungible or unique tokens on the Ethereum blockchain. While most tokens are fungible (every token is the same as every other token), ERC-721 tokens are all unique.

However, Blazer (2006) a non-existent setting is used for the creation and storage of virtual objects, which are then placed in a simulated environment. Because of this, it is feasible to assert that these objects would not exist in the physical realm, that they do not have an essence that is made of material, and that it is not possible to touch them. In addition to these features, he was marked by a great number of other qualities, such as:

- Exclusivity
- Permanence
- Interconnectedness
- Secondary market
- User value.

Exclusivity – stands for the ownership of another person, except the person who is the owner, in other words, the thing can be owned by only one person at a given time.

Permanence - a good example is e-mail and the messages stored in it. These messages will persist for weeks or months (unless intentionally deleted), even though the email account is only used for a few minutes a day.

Interconnectedness - explains this feature using the example of two websites, one of which on

3.2 Decision Making methods

Multi-criteria decision-making methodologies are implemented to address decision-making challenges when managers are faced with selecting from a multitude of possibilities, guided by pre-established criteria. Decision-making situations are often characterized by particular traits. The objective of this task is to classify all of the choices, determine the highest-rated alternative which satisfies all specified criteria, and eliminate the lowest-rated or inefficient alternatives. There are two distinct groups that may be identified in the field of decision-making based on multiple criteria.

- Multi-criteria analysis of variants
- Multi-criteria optimality

The determination of permissible variations in multiple-criteria evaluation is contingent upon a predefined set of conditions that these variants should satisfy. This approach is typically employed in contexts involving significant judgments, when selecting of a technique to facilitate decision-making necessitate meticulous deliberation (Kaliszewski, I., 2016).

Multi-criteria analysis of variants

Multi-criteria variant assessment is often used in practical applications. The aim is to get a positive outcome from the values of the criteria. The aforementioned strategies have the advantage of being universally applicable, easily comprehensible, and requiring little cognitive effort from the individual making the choice (Christos, D. and Ortner, R., 2022). According to Christos et al. (2022), the categorization of multiple factor assessment may be delineated as follows.

- techniques for calculating criterion weights.
- techniques for evaluating variations across many criteria.

The initial stage in conducting a multi-criteria evaluation of variations involves the determination of the weights assigned to each criterion. According to Fotr et al. (2015), the significance of a criteria increases in proportion to its weight. The ultimate outcome is notably impacted by the chosen weighting methodology. It is necessary to assign numerical differentiation to specific criteria based on their relative significance. The process of assigning weights is subjective and may be based on many methodologies. The aforementioned approaches are categorized based on their ability to convey either ordinal or cardinal information.

Ordinal information is derived from the sequential arrangement of distinct alternatives, so enabling the determination of their proportional superiority. This is accomplished via the use of various techniques, such as the ordering method or Fuller's approach. Cardinal information pertains to the degree of significance between different variants, such as the scoring system or Saaty's approach (Tilo, S., 2015).

Scoring method

The different criteria are arranged in a hierarchical sequence, with each criterion assigned an associated significance, ranging from the most significant to the least significant. The summation of each point is subsequently followed by their division with the total, using the same methodology as the scoring system. It is necessary to ensure that the sum of the weights assigned to all criterion equals one. The weight, denoted as ***vi***, assigned to the ***i-th*** criterion is derived based on the value ***bi*** associated with that criterion. It fulfills two primary purposes. The use of benefits is advantageous in scenarios where measuring outcomes objectively is challenging, and it can also be used to integrate the results of many evaluation approaches in order to provide a thorough comparison. The equation for this method is as follows:

Formula: 1 Scoring method calculation

$$v_i = \frac{b_i}{\sum_{i=1}^{n} b_i}, i = 1, \dots, n$$

- vi… criterion weight
- bi ... point evaluation of the i-th criterion
- n … number of criteria

Borda Count

The technique referred to as the "Add-'em-up" approach is well known by the name of its creator, Jean-Charles de Borda, a renowned French mathematician.

This approach involves the conversion of the assessors' raw scores into rankings. This converter presents the sequence in which each judge has listed the participating ensembles, rather than only providing point totals. Subsequently, the aforementioned rankings are aggregated, and the participant who attains the lowest cumulative score is awarded the first position, while the person with the subsequent lowest score is assigned the second position, and so forth. In most

cases, ties are resolved by considering the total Raw Scores first, followed by a preset sequence of captions established by the event organizers.

Figure 2: Borda count method.

Number of Tasters	Ranking of A	Ranking of B	Ranking of C
4	1st	2nd	3rd
2	3rd	1st	2nd
1	2nd	3rd	1st
2	1st	3rd	2nd
0	2nd	1st	3rd
4	3rd	2nd	1st

Source: (Ryo, I. and Kazumasa, O., 2017)

AHP method or Saaty's method

Through this approach, we ascertain not only the preference between pairs of criteria (indicating the selection of the more favored criterion) but also quantify the extent of this preference. Saaty introduced a point scale to convey the magnitude of this preference, as detailed in Table – 1 (Saaty, T. L., 2008).

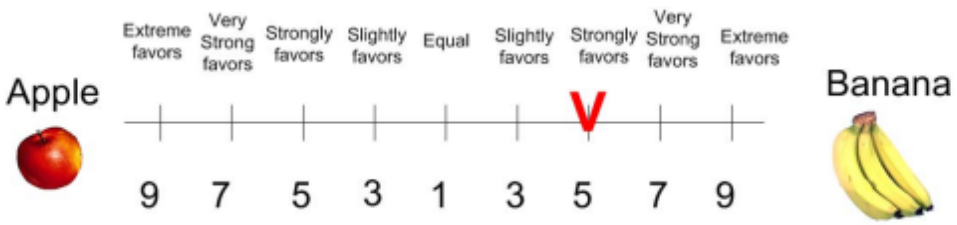
Table 1: Saaty's method

Number	Description
1	This statement denotes a state of equivalence between two variables.
3	The first criterion exhibits a marginally superior condition compared to the subsequent one.
5	The first criterion has more significance in comparison to the second criterion.
7	The first criterion has much more importance compared to the second criterion.
9	The primacy of the first criteria surpasses that of the second.
2,4,6,8	When the situation requires a compromise.

Source: Own processing.

There is a pair – way comparison of the when comparing two different criteria. First, the decision maker should prefer, what is the most valuable criteria for him, out of two, and compare each one of them. An illustration is seen below, how the criteria look like:

Figure 3: Comparison of different criteria



Source: Brunelli et. el (2014).

Quantitative hierarchical decision-making strategies play a crucial role in the realm of managerial expertise. In contemporary times, there exists an increasing focus on the utilization of analytical and quantitative methodologies, driven by the desire of several executives to circumvent the reliance on subjective intuition or emotional factors when making pivotal selections. According to Brunelli (2014), the Analytical Hierarchy Process (AHP) is regarded as a valuable methodology for decision-making. The Analytic Hierarchy Process (AHP) methodology may be seen as a method for decomposing a complex issue into smaller components by establishing a hierarchical framework. The technique proposed by Saaty is used at every tier of the hierarchical framework. Quantitative qualities are assigned to various elements in order to denote their respective levels of significance.

The first phase involves constructing the primary tier of the hierarchy, that acts as the focal point for the review and analysis process. The identification of the second level, including the fundamental criteria, and the subsequent determination of the third straight, denoting a compilation of potential solutions for addressing the specified issue, are crucial. In instances when the decision-making job presents more complexity, it is possible to deconstruct the hierarchy into four distinct stages. Within the hierarchy of criteria for evaluation, there are individual criteria that occupy an intermediate position among the overarching criteria and the

more specific versions. According to Brunelli (2014), every element of the hierarchy exhibit interrelatedness. The structure of hierarchy exhibits increased branches as the complexity of the decision-making task intensifies. The analysis of an easy issue involves a hierarchical structure consisting of three levels. The determination of weights is often carried out using the Saaty approach. This phenomenon is often denoted as a quantitative pairwise comparison in scholarly literature. The fundamental concept behind this methodology is the examination of pairs of criteria via the use of the Saaty matrix.

The final evaluation of variants is determined according to the following relationship:

$$H^j = \sum_{i=1}^{n} v_i . u_i^j , j = 1,2, \dots m$$

In this context, the following variables are defined:

-***Hj*** - represents the overall assessment of the j-th variation.

- ***vi*** - denotes the weight assigned to the i-th criterion.

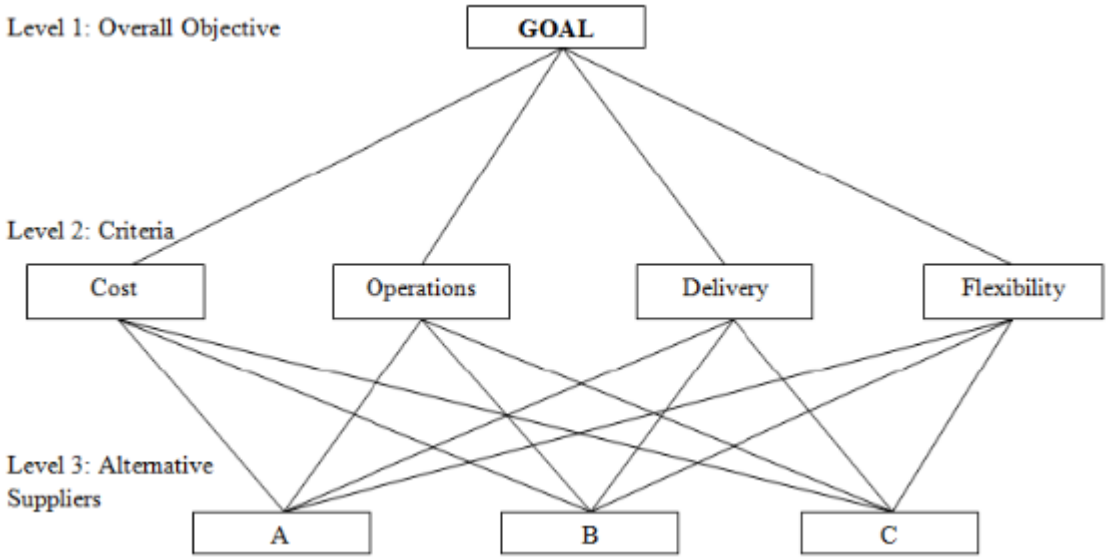
- ***uij*** - represents the partial evaluation of the j-th variant in relation to the i-th criterion.

- ***n*** - refers to the total number of evaluation criteria.

- ***m*** - indicates the total number of variants.

According to Saaty and Vargas (2012), the version that receives the greatest rating is regarded as the best compromise option. The Analytic Hierarchy Process (AHP) technique is thoroughly expounded upon in the application section of the thesis.

Figure 4: Hierarchical structure of AHP.



Source: (Saaty, T.L., 1982).

The analytical hierarchy approach has both advantages and disadvantages. The ease of use for decision-makers might be seen as a potential benefit. The individual responsible for making decisions might use a vocal scale as a means of conveying his or her preferences. An additional advantage of this approach lies in its versatility, since it may be used to a wide range of decision-making challenges. It is important to additionally take into account the limitation that it requires a substantial amount of data.

n

3 Empirical Part

The outcomes of quantitative research are presented in the practical part of the bachelor's thesis, which comes immediately after the theoretical section. The CAWI[4] approach was used in this investigation, which was carried out in the form of a questionnaire survey. The Google Forms web application was used to develop the questionnaire that was distributed.

3.1 The aim of the questionnaire

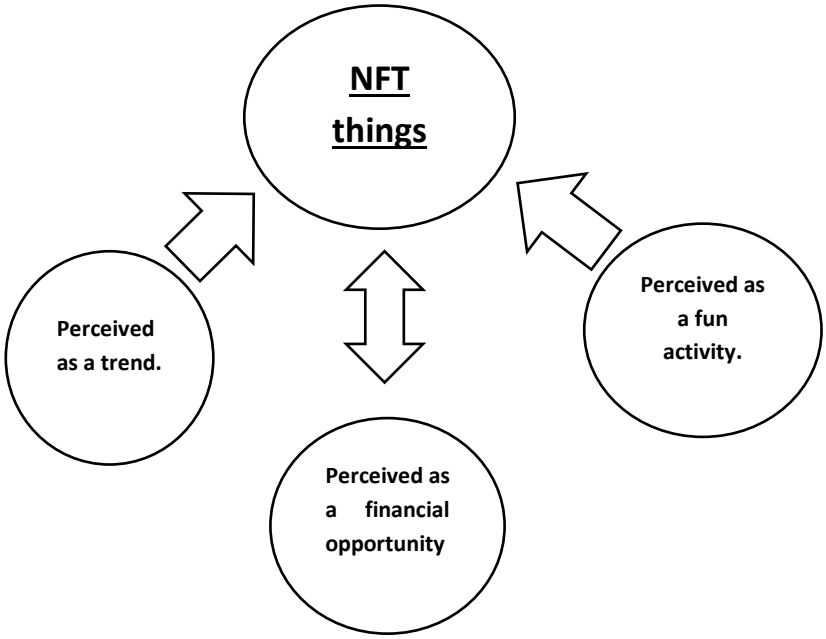
In the practical phase of the research inquiry, the goal is to determine whether people are aware of what NFT represents and how this institution defends itself. This will be accomplished by conducting an evaluation of the information.

The questionnaire was made public on the social networking site Facebook, and it was also sent through the e-mailing service and the application known as WhatsApp. During the dates of January 20 and March 2023, participants had the opportunity to respond to the questionnaire. Over this period, a total of ***154*** individuals responded to the questionnaire. The questionnaire was completed anonymously by the respondents, and they were not required to provide any personal information about themselves, including their age, gender, greatest level of education, employment, or location of residence. Eleven questions made up the questionnaire, and one of them was meant to be answered in free form. The questions were on determining how to identify virtual things, elaborating on the qualities that define those things, discussing the environment in which virtual things are placed, and discussing how to safeguard virtual things. The next section of the work will be devoted to the presentation of the findings obtained from the examination of the research, as well as an analysis of those findings.

The research approach is fully based on a qualitative manner. The CAWI tool would help the author to identify the dependencies between the age and reasons of usage of NFT things. However, the illustration of the practical part is seen below, See, **Figure – 2.**

[4] Computer-assisted web interviewing

Figure 5: Illustration of practical part, how people perceive it.



Source: self-generated.

The author tries to conduct a more in-depth analysis of the responses provided by the participants. The study does not anticipate any findings, and consequently, it is prepared to deal with results and outcomes that were not anticipated. The openness is a crucial motivator of the study despite the fact that the research does not have any expectations of its own.

Ethical principles

This study is a replication of the research that was done by Bryman and Bell (2011), in which they established specific guidelines and parameters for their research. The questions were designed in such a manner that participants would feel comfortable giving honest responses. Both anonymity and privacy were taken into consideration as well.

Collection of Material:

Due to the fact that Bryman and Bell had previously conducted research of this kind, it was decided that the collection of materials and data would be a secondary strategy (2011). Yet, the data was considered main since the author was principally responsible for collecting the data.

The term "primary data" refers to the sort of data that is gathered, observed, and analyzed by the author of the study on his or her own initiative.

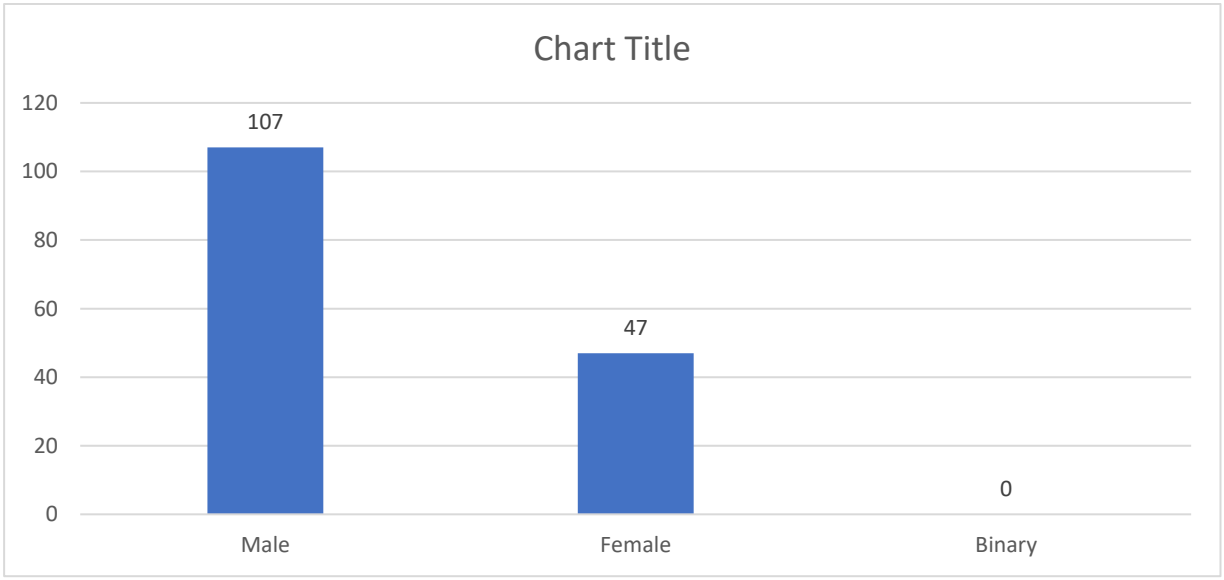
Size of the sampling:

The size of sampling group was planned to get 200 responses, however, the author eventually managed to get 154 responses, which is around 77 %.

3.2 The outcome

In the following chapters, the author will depict the result of a survey. To start off, the sampling group was divided into two genders.

Figure 6: What is your gender?

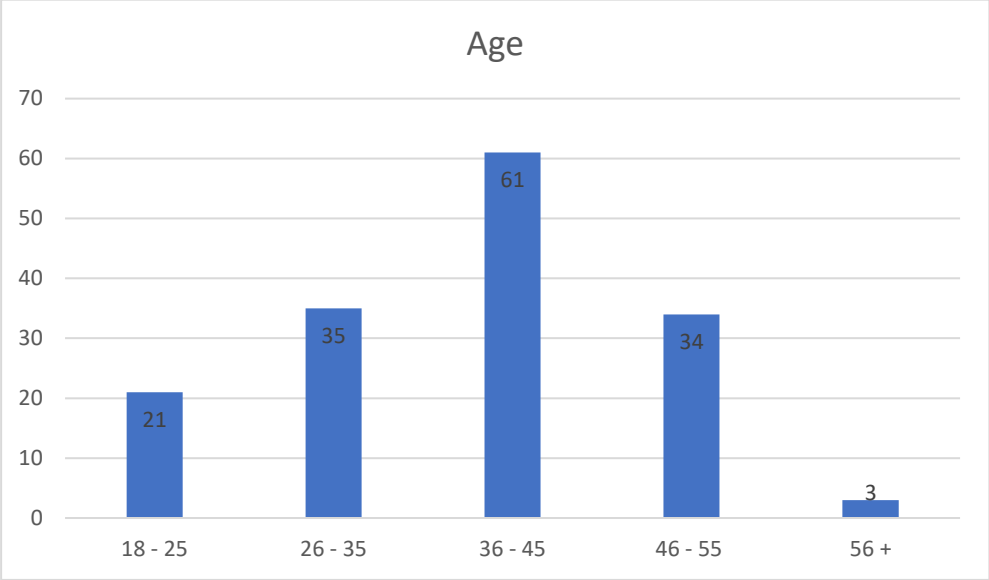


Source: Own processing.

The **Figure – 3** detects the data of male (69 %) participation and female (31 % participation). Males seem to be dominating the NFT market more rather than female.

The next question regards the age of the sampling group, to which an author paid close attention due to co – independency test, See, **Figure – 2.** The figure demonstrates that the mostly revealed age is between 36 – 46 (40 %) followed by 26 – 35 (23 %).

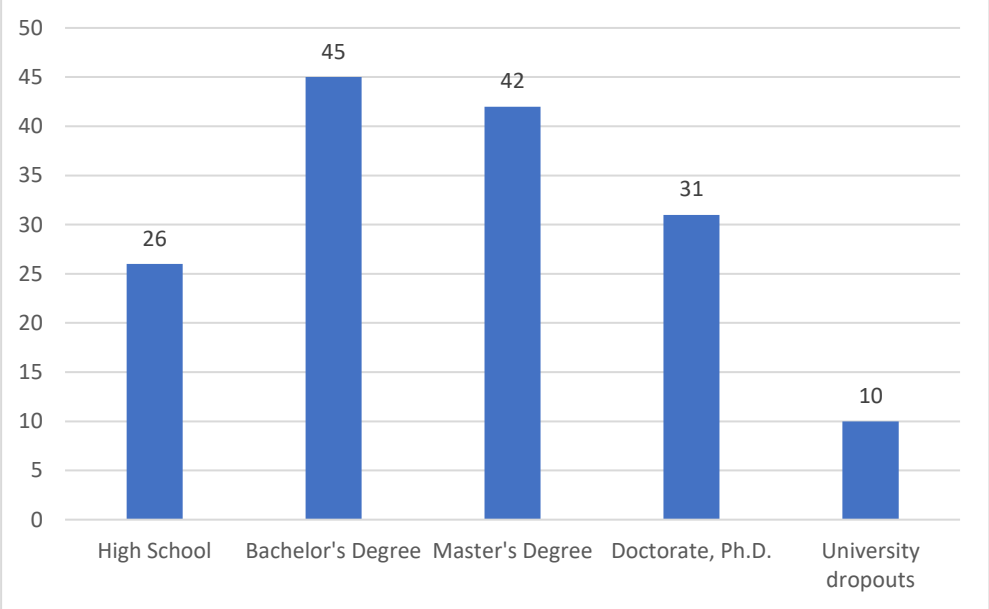
Figure 7: How old are you?



Source: Own processing.

The following question concerned the educational background of participants. See, **Figure – 5**.

Figure 8: What is your educational background?

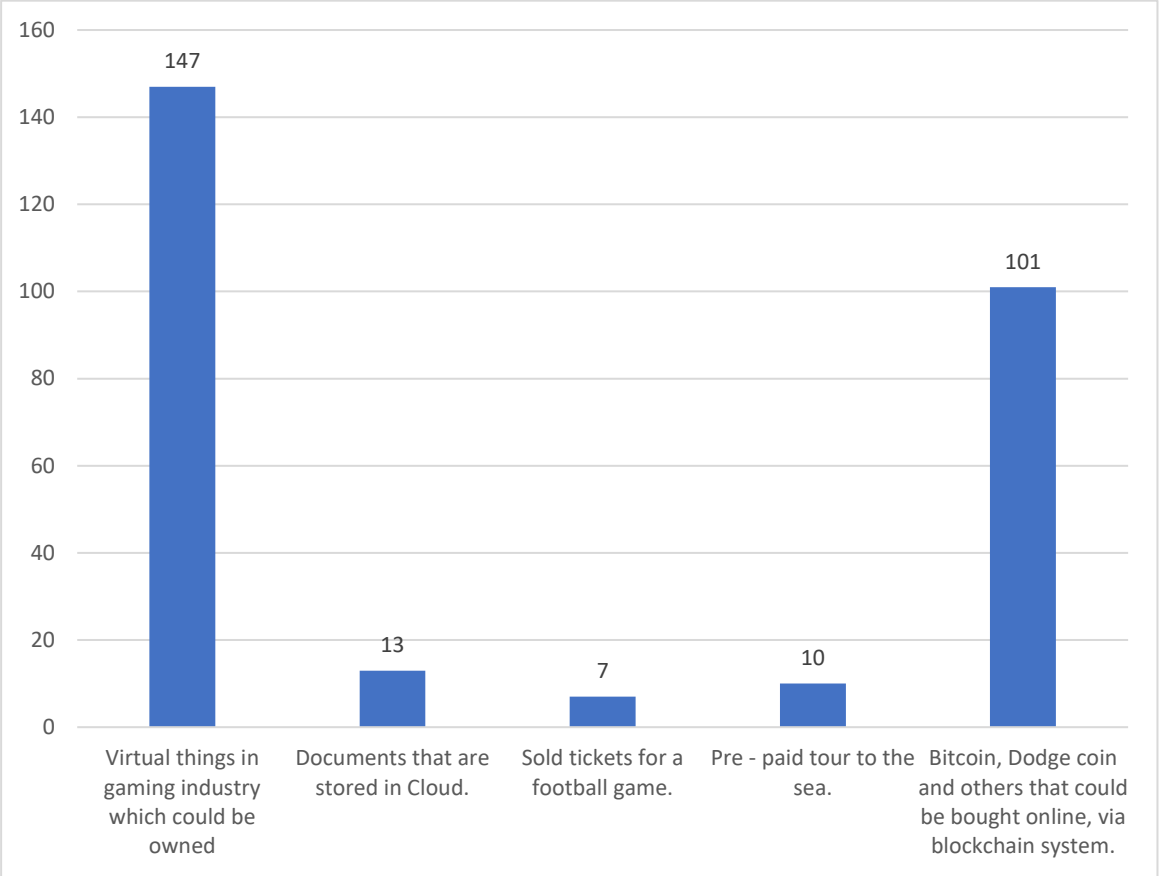


Source: Own processing.

Most of the participants had bachelor's degree (29 %) followed by master's degree (27 %) and Ph.D (31 %). The group also consisted of "High schoolers" (17 %) and people who dropped out of university (6 %).

The next question was related to NFT and its meaning. The participants could pick more than 1 answer. It would help the author to see, whether the sampling group has an idea of what an NFT is.

Figure 9: Do you know anything about NFT (Non - Fungible Tokens)?

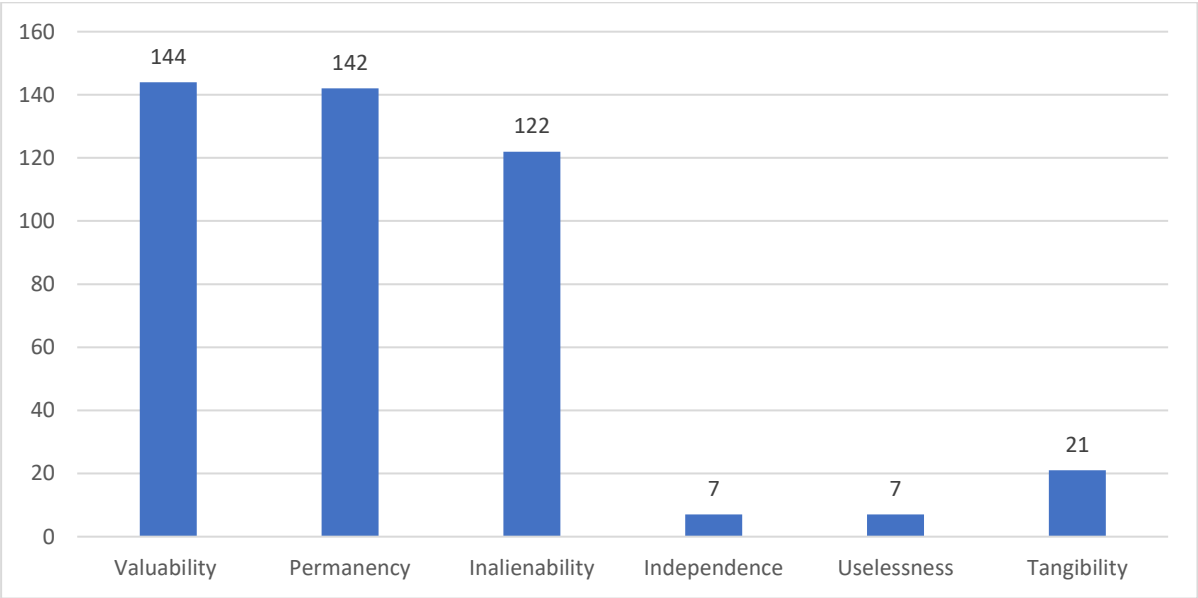


Source: Own processing, Excel.

Out of 154 participants, most of them were right. Majority has selected the correct answers (95 %) and (66 %) respectively.

The next question focused on the typical properties of virtual things, and the research investigation was to find out whether the respondents could identify what characteristic properties virtual things have. The question was: Which of the following characteristics are NFT? Respondents had 6 options to choose from: Valuability (money); Permanence; Inalienability; Independence; Uselessness; Tangibility. Each respondent could choose one or more options.

Figure 10: Which of the following is the common characteristic of the NFT?

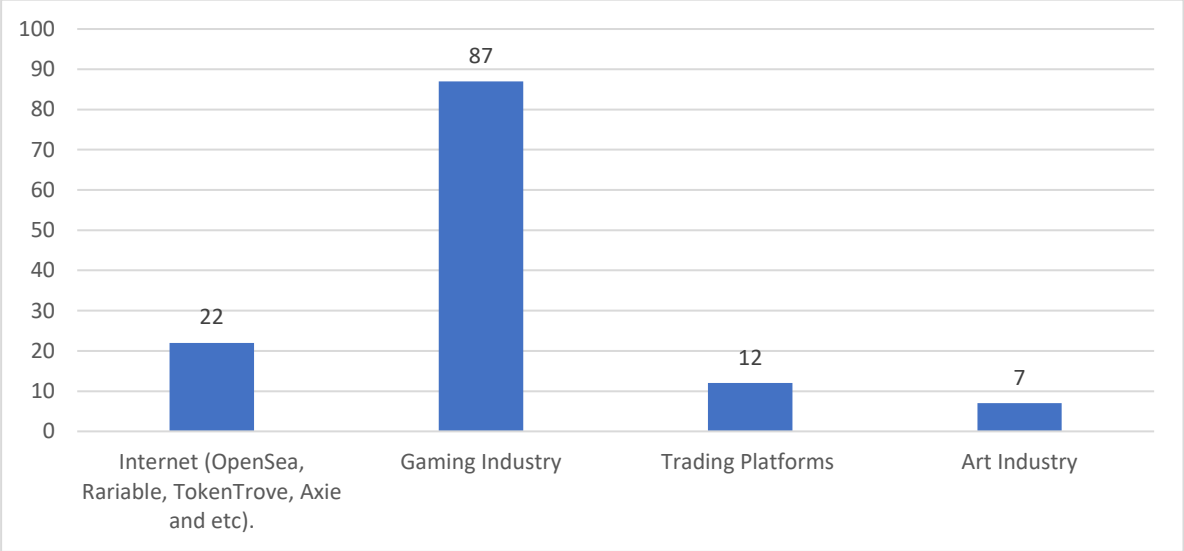


Source: Own processing, Excel.

Most of the participants (94 %) consider "Valuability" as a main characteristic of the NFT, followed by "Permanency" (92 %) and "Inalienability" (79 %). Based on that question, it is clear that participants realize the fact the NFT is valued from a monetary perspective. However, it is slightly strange that participants consider an NFT as "Inalienable" thing. The other factors such as "Independence", "Uselessness" and "Tangibility" were chosen by minority participants. To conclude, most of the participants knew what NFT really represents.

The following question focused on: Where people could encounter the NFT activities the most and where NFT operations run the most, the question was Opened, so the participants could write down their own answers, from the most common of them are the following options.

Figure 11: Where can you most often encounter (NFT) activities in our opinion?

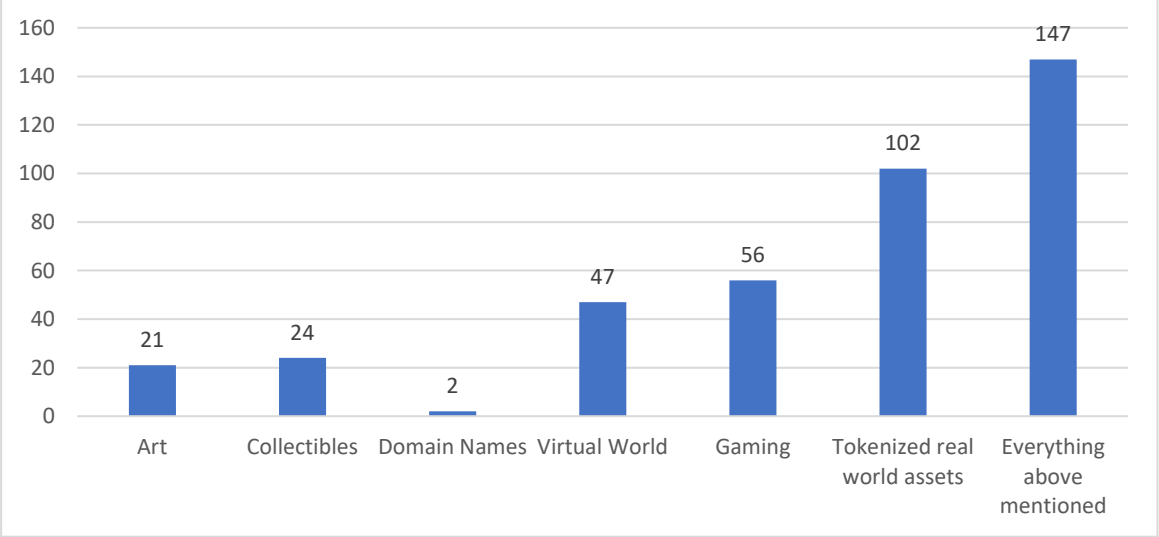


Source: Own processing, Excel.

Based on the answers, Gaming Industry is a favorite. 56 (%) of participants would assign NFT to a gaming industry. Even though, the age groups within a survey were different, the answers are unevenly distributed.

The following question was focused on classification on NFT.

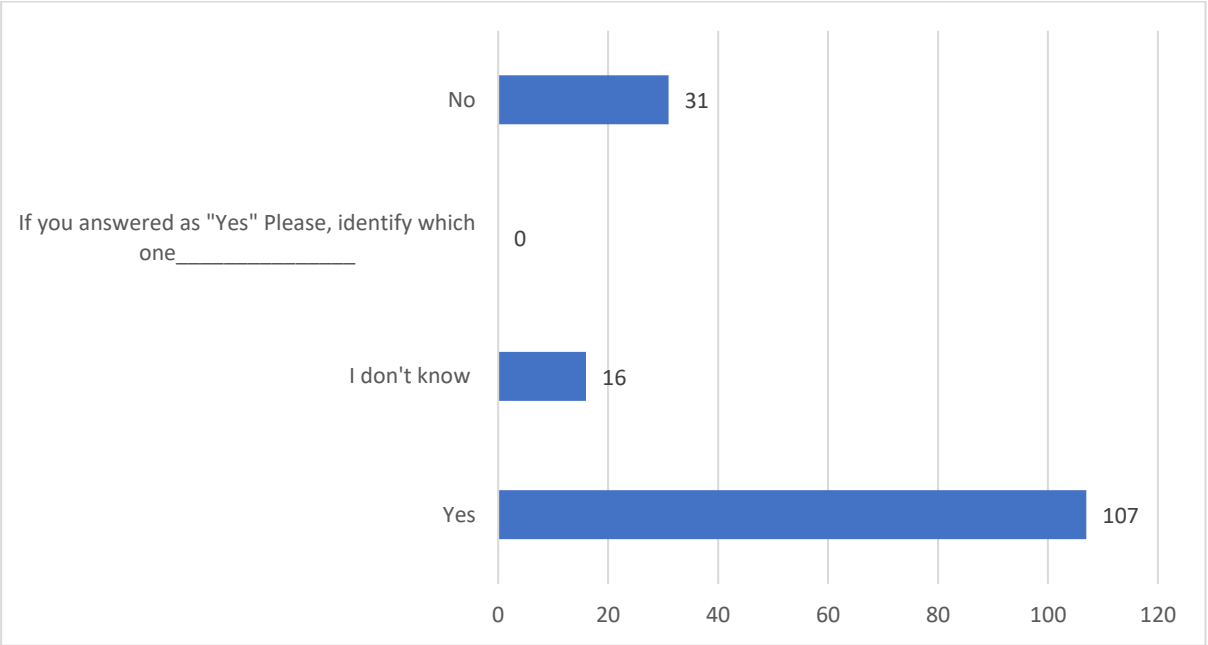
Figure 12: Which of the following would you classify as NFT?



Source: Own processing, Excel.

The next question related to the actual experience of NFT activities, See **Figure – 10**. The author tried to discover what NFT activities were participants involved in.

Figure 13: Have you ever bought any NFT related things?



Source: Own processing, Excel.

Those participants whose answers were “Yes” would further be analyzed. They also identified what their purchases related to, out of the most common, the author has concluded the following **Table – 1**.

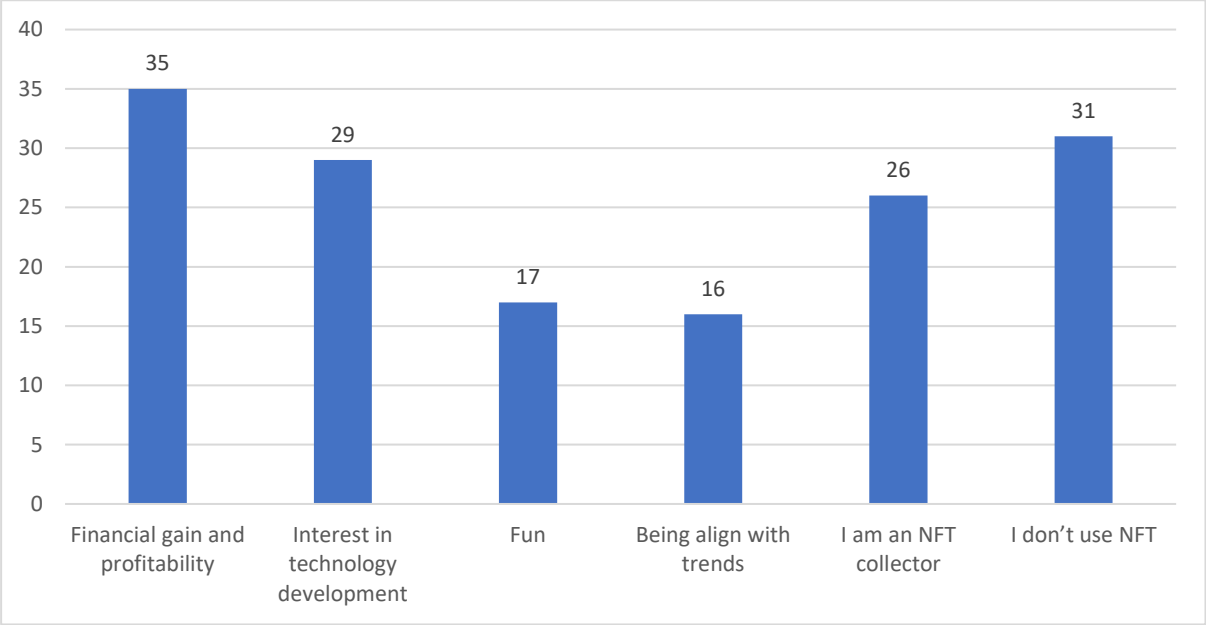
Table 2: Involvement of participants in NFT activities.

Options	Participants	Ratio out of total participants
Inventory for gaming (Tools, cards)	41	27%
Cryptocurrency	26	17%
Currency in online games	21	14%
Accounts in Gaming	6	4%
Art and Music ownership	13	8%

Source: Own processing, based on a survey data.

The Next question, however, see **Figure – 11**, concerned the main reason of usage NFT. All participants had an option to answer the question, even those, who were not directly involved in NFT at all.

Figure 14: Main reason to use NFTs?

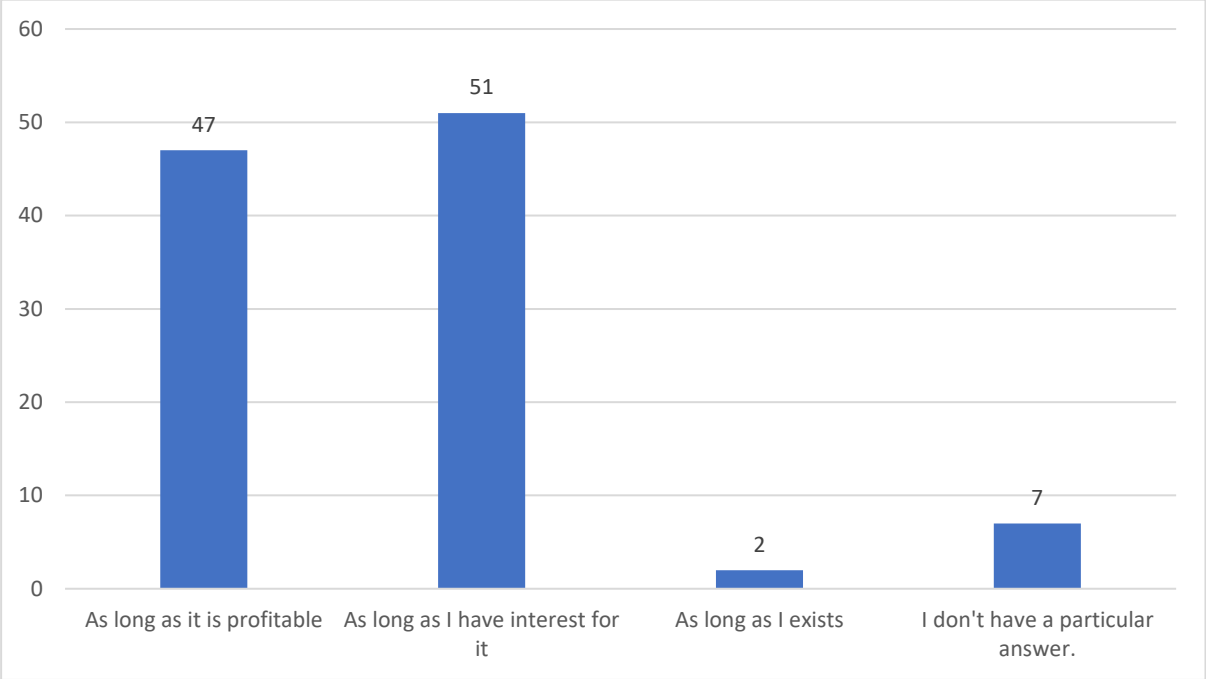


Source: Own processing, Excel.

Most of the participants would be involved in NFT due to "Financial gains" (23 %) followed by "Interest in Technology development" (19 %). Overall, there were 107 participants who somehow dealt with NFT and had a certain type of experience. There were also (17 %) who call themselves as "NFT collectors", which might somehow be the same as a "Fun" reason of having an NFT. Nevertheless, majority of participants think that it is being profitable.

The following question dealt with "How long are the participants who are somehow involved with the NFT (107) experience, planning to use it? Most of the participants are involved in the NFT because they have a certain level of interest (33 %). Followed by the profitability reason of keeping him/herself involved in NFT activities. Only (1 %) of participants will be involved in NFT as long as it exists, and the rest (5 %) didn't have a particular answer, see **Figure – 12.**

Figure 15: How long are you planning to be involved in NFT?



Source: Own processing, Excel.

3.3 The Decision Making Methods

The part illustrates decision-making models concerning NFTs by engaging with an individual extensively involved in collecting NFT artworks. Drawing from this participant's experiences, rankings were assigned across various criteria. Referring to the NFT report from 2022, the study specifically focuses on four primary NFTs that have witnessed significant growth, using them as examples for evaluation.

- Tokens
- Cryptocurrency
- Skins, rare digital items in games.
- NFT arts, pictures, music, sound.

Based on the expertise experience, the following criteria were selected:

- Cost of acquisition

The expense associated with getting ownership of a distinct digital asset, represented by a unique token on a blockchain, is often known as the cost of purchasing a Non-Fungible Token (NFT). The cost in question comprises the remuneration provided to the originator or current proprietor of the non-fungible token (NFT), and may also encompass supplementary expenditures like as transaction fees, gas costs (related to blockchain transactions), and platform-specific charges imposed by NFT markets.

- Profitability, ROI

The concept of profitability in relation to Non-Fungible Tokens (NFTs) pertains to the capacity for financial advancement or return on investment that is linked to the possession, exchange, or sale of these distinct digital assets. The profitability of non-fungible tokens (NFTs) is subject to the effect of many variables, including market movements, the reputation of the creator, as well as the scarcity and rarity of the NFTs.

- Rareness

The rarity of a Non-Fungible Token (NFT) pertains to the degree of distinctiveness or limited availability linked to a certain digital asset represented by the token. Within the realm of non-fungible tokens (NFTs), the attribute of rarity has significant importance since it exerts a substantial influence on the perceived worth and attractiveness of a given digital asset. Various factors contribute to the scarcity of non-fungible tokens (NFTs), including limited editions, unique attributes, and other relevant elements.

- Legislative process

The legislative process involved in obtaining or dealing with NFTs (Non-Fungible Tokens) typically revolves around legal frameworks that address digital assets, intellectual property rights, and blockchain technology.

- Trust

Trust in NFTs (Non-Fungible Tokens) is a critical aspect of their adoption and utilization within the digital ecosystem. Trust is established through various factors that assure participants in the NFT space about the legitimacy, security, and reliability of these unique digital assets.

3.3.1 Criteria Aspect of NFT

The following Table – 3, represents the criteria aspects that is assigned to each NFT type.

Table 3: Criteria of each NFT

Criteria	Tokens	Cryptocurrency	Skins, rare digital items in games	NFT arts, pictures, music, sound
Cost of acquisition	Expensive	Expensive	Moderately expensive	Expensive
Profitability, ROI	Moderate	High	Relatively moderate	High
Rareness	Diverse	Diverse	Very Diverse	Rare
Legislative process	Very hard	Easy	Easy	Hard
Trust	High trust	Moderate	Suspicious	High trust

Source: Own processing.

The first matrix is the Prioritization matrix. The expert prioritized the following types of NFT accordingly. The first place is taken by Rareness, the second place is taken by "Legislative process", the third place is taken by Profitability of NFT (ROI – Return on Investments), the four place is "Trust" and the fifth place if the "Cost of Acquisition".

Table 4: Prioritization Matrix

Priortization Matrix	Cost of acquisition	Profitability, ROI	Rareness	Legislative process	Trust	Final Score	Rating
Cost of acquisition	1,00	0,20	0,20	0,33	0,33	0,05	5,00
Profitability, ROI	5,00	1,00	0,20	0,33	3,00	0,15	3,00
Rareness	5,00	5,00	1,00	7,00	5,00	0,51	1,00
Legislative process	3,00	3,00	0,14	1,00	5,00	0,21	2,00
Trust	3,00	0,33	0,20	0,20	1,00	0,08	4,00
Total	17,00	9,53	1,74	8,87	14,33	1,00	

Source: Own processing.

Furthe, the expert prioritized among the criteria. The Criteria "Cost of acquisition was prioritized across all types of NFT's.

Table 5: Cost of Acquisition

Cost of acquisition	Tokens	Cryptocurrency	Skins, rare digital items in games.	NFT arts, pictures, music, sound.	Final Score	Rating
Tokens	1,00	0,20	0,33	0,14	0,058	4,00
Cryptocurrency	5,00	1,00	3,00	0,33	0,282	2,00
Skins, rare digital items in games.	3,00	0,33	1,00	0,33	0,145	3,00
NFT arts, pictures, music, sound.	7,00	3,00	3,00	1,00	0,515	1,00
Total	16,00	4,53	7,33	1,81	1,00	

Source: Own processing.

In terms of costs, the first and commonly most expensive NFT's are usually prevail in NFT's arts, pictures, music's and etc. Second place is taken by "Cryptocurrency", the third place is taken by "Skins in games, rare digital items", and the four place is taken by "Tokens".

The next criteria which is assessed is Profitability of NFT's, See Table – 6.

Table 6: Profitability

Profitability, ROI	Tokens	Cryptocurrency	Skins, rare digital items in games.	NFT arts, pictures, music, sound.	Final Score	Rating
Tokens	1,00	0,20	0,33	1,00	0,088	4,00
Cryptocurrency	5,00	1,00	5,00	3,00	0,525	1,00
Skins, rare digital items in games.	3,00	0,20	1,00	7,00	0,288	2,00
NFT arts, pictures, music, sound.	1,00	0,33	0,14	1,00	0,099	3,00
Total	10,00	1,73	6,48	12,00	1,000	

Source: Own processing.

In terms of profitability, the first place is taken by “Cryptocurrency”, the second place was taken by “Skins and rare digital items in games”, the third place is taken by “NFT arts and pictures” and the fourth is taken by “Tokens”.

The next criteria is rareness, See Table – 7.

Table 7: Rareness

Rareness	Tokens	Cryptocurrency	Skins, rare digital items in games.	NFT arts, pictures, music, sound.	Final Score	Rating
Tokens	1,00	3,00	3,00	1,00	0,370	1,00
Cryptocurrency	0,33	1,00	5,00	1,00	0,247	3,00
Skins, rare digital items in games.	0,33	0,20	1,00	0,20	0,074	4,00
NFT arts, pictures, music, sound.	1,00	1,00	5,00	1,00	0,309	2,00
Total	2,67	5,20	14,00	3,20	1,000	

Source: Own processing.

The first place from the “Rareness” point of view is taken by “Tokens”, followed by “NFT arts, pictures, music, sound”, the third place is taken by “Cryptocurrency” and the fourth is by “Skins, rare digital items in games”.

The next criteria which was assessed by expert is “Legislative process”. See, Table – 8.

Table 8: Legislative process

Legislative process	Tokens	Cryptocurrency	Skins, rare digital items in games.	NFT arts, pictures, music, sound.	Final Score	Rating
Tokens	1,00	5,00	3,00	5,00	0,491	1,00
Cryptocurrency	0,20	1,00	0,33	0,20	0,067	4,00
Skins, rare digital items in games.	0,33	3,00	1,00	0,33	0,151	3,00
NFT arts, pictures, music, sound.	1,00	5,00	3,00	1,00	0,291	2,00
Total	2,53	14,00	7,33	2,53	1,000	

Source: Own processing.

Based on the assessment, the “Tokens” have taken the first place in terms of Legislative processes. The second place is taken by “NFT arts, pictures, music, sound”, third place was taken by “Skins, rare digital items in games’ and the fourth place is taken by “Cryptocurrency”.

The last criteria to assess is Trust, See Table – 9.

Table 9: Trust

Trust	Tokens	Cryptocurrency	Skins, rare digital items in games.	NFT arts, pictures, music, sound.	Final Score	Rating
Tokens	1,00	1,00	5,00	1,00	0,299	2,00
Cryptocurrency	1,00	1,00	1,00	1,00	0,237	3,00
Skins, rare digital items in games.	0,20	1,00	1,00	0,11	0,103	4,00
NFT arts, pictures, music, sound.	1,00	1,00	9,00	1,00	0,362	1,00
Total	3,20	4,00	16,00	3,11	1,000	

Source: Own processing.

The first place is taken by “NFT arts, pictures, music and sounds” from the perspective of trust. The second place is taken by “Tokens”, the third place is taken by “Cryptocurrency” and the fourth place is taken by “Skin, rare digital items in games”.

3.3.2 Summary of Decision Making

Table – 10 encapsulates the comprehensive evaluation of the final decision, considering key factors such as financial viability, trustworthiness, rareness, cost of acquisition, and legislative processes. After a thorough analysis, the rankings are as follows: "Tokens" secures the top position, trailed by "Cryptocurrency," "NFT arts, pictures, music, and sound," and "Skins, rare digital items in the game."

The top-ranking position of "Tokens" is justified by its inherent characteristics, which demonstrate strong financial potential, a high level of trust within the community, unique rarity, manageable acquisition costs, and adherence to legislative processes. Tokens, often associated with utility and functionality in decentralized ecosystems, tend to exhibit stable financial performance. Moreover, the transparent and secure nature of blockchain technology, on which many tokens are based, enhances trust.

"Cryptocurrency" secures the second position due to its well-established financial presence and widespread adoption. While cryptocurrencies like Bitcoin and Ethereum are recognized as valuable assets, their position is slightly below that of tokens due to the broader utility and purpose of the latter.

"NFT arts, pictures, music, and sound" claim the third spot, highlighting their unique appeal in the digital art and entertainment realm. The financial viability of NFTs in the creative space is notable, although the inherent subjectivity of art and music may introduce certain uncertainties. Despite this, the rarity and exclusivity associated with NFTs in the creative sphere contribute to their overall appeal.

Finally, "Skins, rare digital items in the game" secure the fourth position. While they may offer unique and rare items within gaming environments, their financial potential may be somewhat

limited compared to other categories. Additionally, the subjective nature of gaming preferences and the relatively niche market may influence their standing.

In conclusion, the ranking order reflects a holistic evaluation, considering various dimensions such as financial aspects, trust, rarity, cost of acquisition, and legislative considerations. The chosen sequence underscores the diverse nature of NFTs and the nuanced factors that contribute to their overall attractiveness and suitability for investment.

Table 10: Summary of Evaluation

Summary	Cost of acquisition		Profitability, ROI		Rareness		Legislative process		Trust		**Final Score**
	Weighting	Score	Weighting	Score	Weighting	Score	Weighting	Score	Weighting	Score	
Tokens	0,05	0,06	0,15	0,09	0,51	0,37	0,21	0,49	0,08	0,30	0,33
Cryptocurrency	0,05	0,28	0,15	0,52	0,51	0,25	0,21	0,07	0,08	0,24	0,25
Skins, rare digital items in games.	0,05	0,15	0,15	0,29	0,51	0,07	0,21	0,15	0,08	0,10	0,13
NFT arts, pictures, music, sound.	0,05	0,52	0,15	0,10	0,51	0,31	0,21	0,29	0,08	0,36	0,29

Source: Own processing.

3.3.3 SWOT Analysis

In this section, the SWOT analysis is presented concerning the participation of NFTs. The Strengths, Weaknesses, Opportunities, and Threats analysis is a method for strategic planning that enables any business to describe the actual condition of things. It is possible to make the acronym "SWOT" by combining the following four words: "strengths, weaknesses, opportunities, and threats." One of the benefits of doing a SWOT analysis is that it allows for a full examination of the individual organization, as well as the industry as a whole. Because NFT does not exist in a vacuum, the development of it must take into consideration both the strengths and the dangers that are associated with the organization. The purpose of the SWOT analysis is to evaluate, from an external perspective, the chances for development as well as the barriers that stand in the way.

Table 11: SWOT analysis

Strengths	Weakness
• **Unique Ownership:** NFTs provide a secure and unique way to establish ownership of digital assets using blockchain technology. • **Decentralization:** NFTs operate on decentralized blockchain networks, reducing the risk of centralized control and censorship. • **Global Accessibility:** NFTs enable artists and creators to reach a global audience without traditional gatekeepers. • **Interoperability:** Many NFT standards (e.g., ERC-721, ERC-1155) allow interoperability across various platforms, enhancing flexibility for creators and users. • **Innovation Hub:** NFTs serve as a hub for innovation, fostering new business models,	• **Environmental Concerns:** The energy consumption associated with blockchain networks, especially Proof of Work (PoW), has raised environmental concerns. • **Lack of Regulation:** The NFT market is still relatively unregulated, leading to issues like copyright infringement and scams. • **Technical Barriers:** Understanding and navigating blockchain technology can be challenging for some users, creating a barrier to entry. • **Scalability Issues:** Some blockchain networks face scalability challenges, leading to slow transaction speeds and higher fees during peak periods.

collaborations, and creative expressions in various industries.	• **Speculative Nature:** The NFT market is susceptible to speculative bubbles, leading to fluctuations in token values and potential market crashes. • **Digital Asset Storage:** Storing digital assets securely poses challenges, as loss of private keys or centralized server vulnerabilities can result in asset loss. •
Opportunities • **Integration with Industries:** NFTs can expand beyond art to various industries like gaming, real estate, and intellectual property rights. • **Smart Contracts:** Integration with smart contracts can automate royalty payments and ensure ongoing compensation for artists. • **Educational Initiatives:** Opportunities exist to educate the public about blockchain and NFTs, potentially increasing adoption. • **Collaboration with Traditional Industries:** Partnerships with traditional industries can bring NFTs into mainstream acceptance, fostering broader adoption.	**Threats** • **Market Saturation:** The rapid influx of NFTs may lead to oversaturation and decreased value for individual tokens. • **Legal Challenges:** Emerging legal challenges, including copyright issues and regulatory uncertainties, pose threats to the NFT market. • **Technological Advances:** The fast-paced evolution of blockchain technology could make existing NFT platforms obsolete if not adapted. • **Regulatory Scrutiny:** Evolving regulations could impact the NFT space, potentially leading to increased scrutiny, compliance challenges, or legal restrictions. • **Carbon Footprint Criticism:** The environmental impact of certain blockchain networks may lead to increased criticism and calls for eco-friendly alternatives.

Source: Own processing.

4 Discussion

The author evaluated the questionary and the answers of participants. The initial plan was to get over 200 answers, however, the author managed to get 154 answers overall. The questionary consisted of 11 questions, with multiple choice answers. Even though the author didn't consider that, so majority of participants were directly involved in NFT market or somehow had an experience with it, the questionnaire helped the author to understand how people of different age, gender, occupation perceive the NFT activities and its marketplace.

Gender discovery:

Based on the results of a survey, there were mostly male who would be involved in NFT activities.

Age discovery:

Most of the participants would be aged between 35 – 46 y.o.

Occupation discovery:

Most of the participants would be majored with bachelor's degree (45) followed by master's degree (42).

Overall evaluation:

Majority participants understood what an NFT represents and most of the participants were directly involved with NFT activities, meaning that, the participants would either own something valuable online (online asset), either in gaming, cryptocurrency, accounts in games or art or music ownership.

Reasoning:

The main reason of owning an NFT within the sampling group is "Profitability" which supports the recent study of Sharma et. el. (2022). Most participants invest their funds to buy rare tokens, pictures, gif – cards, figures in gaming, etc. However, the next reason why participants deal with NFT is either due to "Technological development" or "NFT collectors."

NFT activities:

Most of the participants were engaged in the NFT in a gaming industry overall, including inventory in gaming, accounts in games and currency in online games (67 participants), followed by cryptocurrency activities (26 participants) and Art and Music activities (13 participants).

Length of NFT involvement:

Based on the sampling group and their responses, most of the participants will stick with NFT activities as long as it is an interesting activity (51 participants) however, also majority of participants (47 participants) would stick with it, as long as it is actually profitable for them.

5 Conclusion

This work is dedicated to the topic of “NFT comparative analysis” where the main goal was to understand what NFT represents. There are diverse fields where NFT is present, and its involvement of people depends mainly on a trend of a certain topic.

The theoretical part has covered the main areas where NFT is present, such as gaming industry, fashion, cryptocurrency, sport and etc. Additionally, the author has discovered the legal implications that deal with NFT, legal issues and copyrights, NFT’s advantages and disadvantages overall.

In the Empirical part, the author has gathered the data, based on a conducted survey, where people of different age, gender and occupation were asked ***7*** questions related to an NFT. Based on the gathered results, the author managed to conclude how people perceive NFT activities, whether any of participants had an experience with NFT, and what was the main reason of having such experience. From the gathered data, it is clear that most of the participants understand what NFT captures and where it could be found.

The empirical part also discovered the fact, why sampling group is involved in NFT activities. The main reason behind it was the “Profitability” see, **Chapter – 4.**

Overall, all participants seem to know an exact idea of why they use it. Additionally, based on the sampling group, most of the participants were involved in the gaming industry. Indeed, gaming industry becomes more and more popular that does cover not only young group of population but also mature people who are at their 30’s would still be involved in gaming, that supports the Kohler’s view of gaming industry on how in the near future, even older people would devote their time to online games (Kohler, 2016).

All in all, the author managed to illustrate whether people realize the NFT market nowadays and how do they view NFT things.

In conclusion, the prioritization matrix, expertly crafted and analyzed, provides valuable insights into the hierarchy of considerations within the NFT landscape. The expert's discernment places "Rareness" at the forefront, underscoring its significance as a determining

factor in NFT evaluation. The subsequent prioritization places "Legislative Process" as the second consideration, emphasizing the importance of legal frameworks in shaping NFT decisions.

In terms of costs, the assessment reflects the common understanding that NFTs in the artistic realm tend to be the most expensive, aligning with the notion that the intricacy and uniqueness of digital art contribute to its higher valuation. "Cryptocurrency" secures the second position in terms of cost, acknowledging its prevalence and financial weight in the NFT market.

The profitability perspective places "Cryptocurrency" in the top spot, highlighting its financial prowess within the NFT landscape. "Skins and Rare Digital Items in Games" claim the second position, recognizing the lucrative potential in the gaming sector. Meanwhile, "NFT Arts and Pictures" secure the third position, acknowledging the profitability inherent in the creative realm. "Tokens" follow closely in the fourth position.

From the standpoint of "Rareness," "Tokens" emerge as the leader, underlining their distinctiveness within the NFT market. "NFT Arts, Pictures, Music, and Sound" follow in the second position, emphasizing the unique qualities inherent in creative digital content. "Cryptocurrency" claims the third spot, recognizing its distinctiveness, while "Skins, Rare Digital Items in Games" secure the fourth position.

Considering legislative processes, "Tokens" once again take precedence, showcasing their alignment with legal frameworks. "NFT Arts, Pictures, Music, Sound" follow in the second position, emphasizing the need for legal considerations in the creative realm. "Skins, Rare Digital Items in Games" secure the third spot, while "Cryptocurrency" claims the fourth position.

In matters of trust, "NFT Arts, Pictures, Music, and Sounds" are deemed the most trustworthy, underscoring the significance of creative content in establishing trust. "Tokens" secure the second position, reflecting their credibility within the NFT landscape. "Cryptocurrency" follows in the third position, while "Skin, Rare Digital Items in Games" take the fourth spot.

The comprehensive analysis reveals the dynamic interplay of various factors, providing a nuanced understanding of NFT prioritization. "Tokens" consistently emerge as a strong contender, showcasing their multifaceted appeal across legislative, rareness, and trust perspectives. The hierarchy of considerations underscores the intricate nature of NFT valuation and the diverse elements influencing decision-making within this evolving digital landscape.

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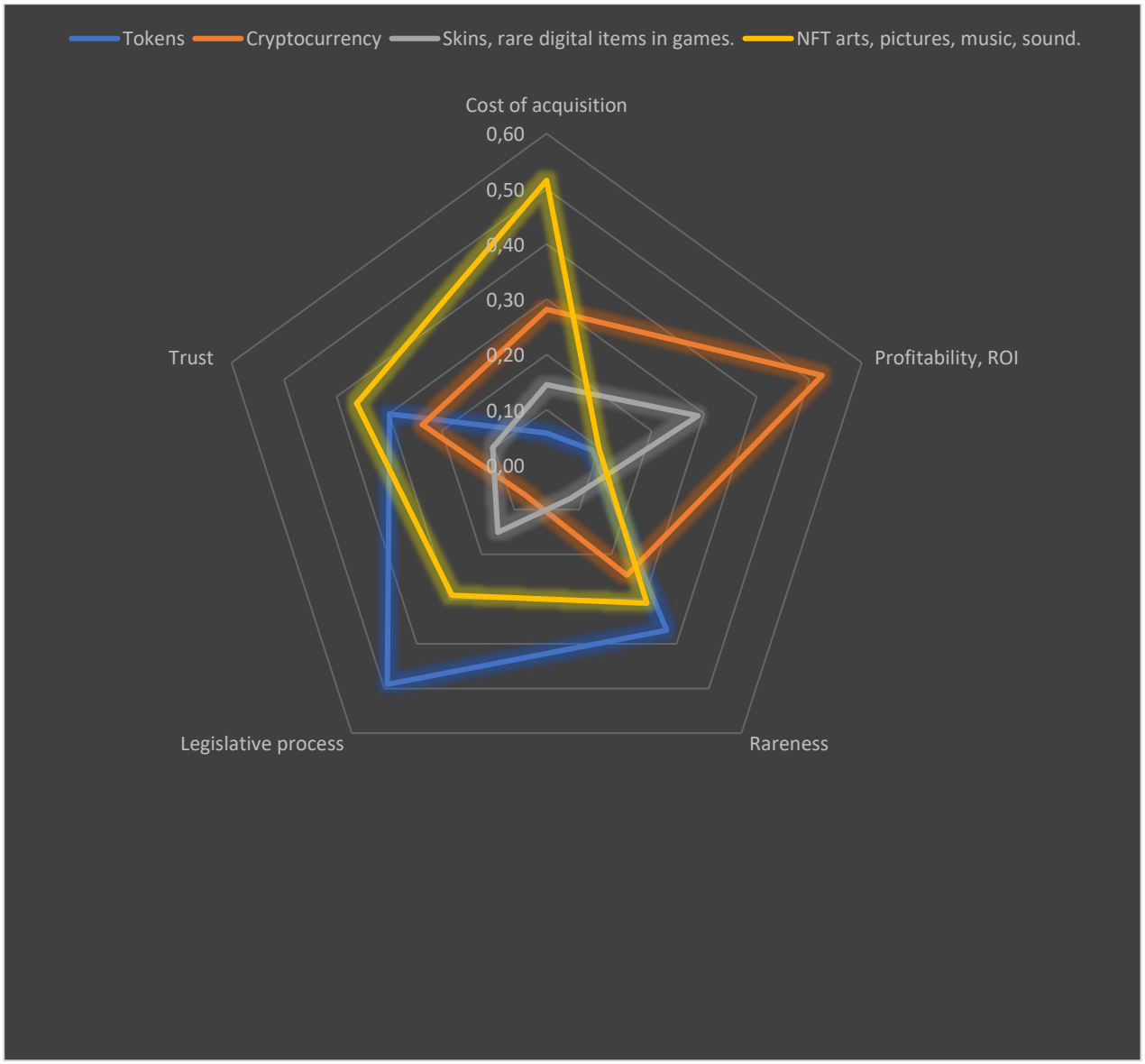
7 Appendix

7.1 Net of final decision



Source: Own processing.