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PR1-T3 Core Content

Module 2: NFT

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1	2021-1-IE01-KA220-VET-000032943		TrainChain Agreement
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1. Introduction

1.1 NFT: Module Description

This module consists of 6 main sections to help the learners understand more about the world of NFT and how can NFT enhance their business potential. As NFT is a relatively new term and technology the module starts with a general overview on the topic itself and then the material dives deeper: in different sections the learners can understand the potential and challenges of NFTs, what it has to do with Blockchain and it consists of many practical aspects as well: how to create, sell or buy own NFTs and how it can be beneficiary to business as well. To make sure that the learners understand the connection between NFTs and new business opportunities that rise with it, we also included some use cases in the last chapter.

1.2 Module Goals

- Know and understand what is NFT and understand the basic of the market of NFTs,
- Understand what are the current situation of NFT in the market and what are its key challenges and opportunities in general,
- Understand the link between NFT and Blockchain,
- Understand how NFT can be beneficiary for small businesses, entrepreneurs and startups,
- Get to know the general process of how to create, sell and buy NFTs and get familiar with the NFT marketplaces,
- Through use cases the learners can understand how NFT can enhance the business potential of companies in different sectors.

1.3 Learning Objectives

- Create awareness of the huge benefits using NFT and motivate learners to dig more, understand, design and apply such solutions, that will give them ways, first to survive, and then to beat unethical/illegal competition,
- To widen the technological knowledge of the learners thus enable them to keep up with the new digital trends in the world,
- To clarify definition and terms (blockchain, NFT, wallet, cryptocurrency) that can often cause misunderstanding as they become more popular,
- Raise awareness of not just the promising opportunities, but also the challenges and possible business threats that can come with launching and NFT project,
- Help the entrepreneur/SME's leader to design and implement a new way of improving their services and be financially more sustainable and resilient.

1.4 Learning Outcomes

- Understand what is NFT and how it can beneficiary for individuals and for enterprises,
- Understand where using NFTs fit in their business and what advantages and challenges they carry,
- To be able to analyze the challenges and possibilities of NFT within their own respective business model,
- Be able to design a roadmap for implementing NFT in their business based upon the general overview and on use cases from different industries,
- To be able to understand the real-life scenarios vs over-promising proposals when launching an NFT project with external experts,
- Be able to take the initial steps to create/sell/ buy NFTs and understand the basic mechanism of NFTs market.

2. NFT (Non- fungible tokens)

2.1. General overview of NFTs

An NFT (non- fungible tokens) 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 crypto's. The key difference between NFTs and other cryptographic tokens is that NFTs are not fungible – hence the name non-fungible tokens. Fungibility is the property that determines whether or not one item can be interchanged with other items of the same kind with no loss of value.



Source: [informationage.com](https://www.informationage.com)

The NFT consists of digital objects representing a variety of things, including:

- Art,
- GIFs,
- Skins for video games and virtual avatars,
- Collectibles,
- Memes,
- Music,
- Coupons,

- ID files,
- Health records,
- Even tweets and more.

Why NFT became so in fashion now?

Non-fungible tokens are an evolution of the relatively simple concept of cryptocurrencies. Modern finance systems consist of sophisticated trading and loan systems for different asset types, ranging from real estate to lending contracts to artwork. By enabling digital representations of physical assets, NFTs are a step forward in the reinvention of this infrastructure.

To be sure, the idea of digital representations of physical assets is not novel nor is the use of unique identification. However, when these concepts are combined with the benefits of a tamper-resistant blockchain of smart contracts, they become a potent force for change.

Perhaps, the most obvious benefit of NFTs is market efficiency. The conversion of a physical asset into a digital one streamlines processes and removes intermediaries. NFTs representing digital or physical artwork on a blockchain remove the need for agents and allow artists to connect directly with their audiences. They can also improve business processes. For example, an NFT for a wine bottle will make it easier for different actors in a supply chain to interact with it and help track its provenance, production, and sale through the entire process.

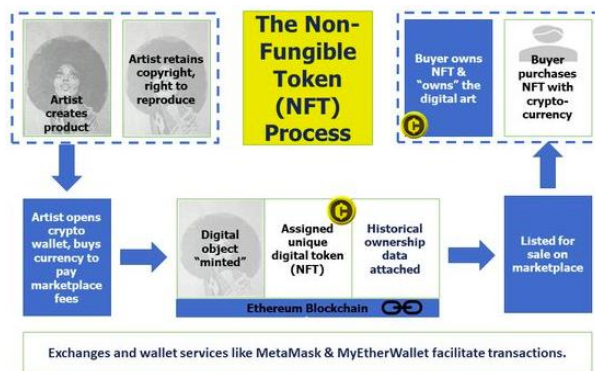
What NFT consists of?

The four key elements and components of NFTs are:

- **Blockchain** — A decentralized ledger across a peer-to-peer network that handles and stores transactions and allows for executing smart contracts. The most popular blockchain platform for NFT projects is Ethereum.

- **Smart contracts** — Programs that execute automatically when predefined conditions are met. [Smart contracts](#) enable parties who do not know each other and decentralized participants to conduct fair exchanges without intermediaries.
- **Blockchain address** — A unique identifier for a user to send and receive assets. It usually consists of a number of alphanumeric characters generated from a pair of public and private keys.
- **Cryptocurrency wallet** — A place where a user can securely keep their coins and tokens. Crypto wallets help to securely exchange and store NFTs. It was originally published on <https://www.apriorit.com/>

The process of NFTs simply explained in in this figure below:



Source: <https://www.datasciencecentral.com>

Although they've been around since 2014, NFTs are gaining notoriety now because they are becoming an increasingly popular way to buy and sell digital artwork. The market for NFTs was worth a staggering \$41 billion in 2021 alone, an amount that is approaching the total value of the entire global fine art market.

NFTs are also generally one of a kind, or at least one of a very limited run, and have unique identifying codes. Essentially, NFTs create digital scarcity. This stands in stark contrast to most digital creations, which are almost always infinite in supply.

Hypothetically, cutting off the supply should raise the value of a given asset, assuming it's in demand.

2.2. State of the Art: Current situation and existing Problems of NFTs



Source: szoftver.hu

Με σχόλια [Μα1]: Figures should have heading e.g. Fig 1.... And be referenced in the text

The excitement for non-fungible tokens (NFTs) took the cryptocurrency industry by storm in 2021, spawning an incredible number of NFT projects. The majority of these collections are now experiencing their first bear market; has the bubble popped and is the hype over?

In financial and cryptocurrency markets, people usually talk about bear or bull markets. A bear market refers to sustained price declines, while prices in a bull market are generally rising. So when Bitcoin and Ether hit their highs in November 2021, followed by consistent price and volume declines since then, they officially entered a bear market. The NFT markets were hardly phased. Rising floor prices and NFT trading volume indicated a decoupling from the market cycles of fungible cryptocurrencies.



Bitcoin and Ethereum, the two most popular cryptocurrency (Source: coingape.com)

Many market participants attribute the mysterious price behavior to the different end users that NFTs appeal to. Because cryptocurrencies have financial implications by default, the communities around fungible tokens such as Bitcoin and Ether are usually quite similar. Tradeable profile pictures and collectibles in the form of NFTs were able to reach a target audience beyond the financial-savvy investors. With less overlap in these communities, the prices were relatively resilient.

Heading into 2022, the NFT market appears to be staying strong. In the past few months in June and July, sales of NFTs hit half a billion dollars, according to the latest data from NonFungible.com. The iconic Bored Ape Yacht Club and CryptoPunks NFT collections led the sales, followed by Doodles, the Sandbox, and Art Blocks, [Insider reported earlier](#).

Many have debated the merits of the digital collectibles. Enthusiasts have said they're the key to unlocking the next phase of the internet, often called the metaverse or Web3. Naysayers, [often called right-clickers](#), say there's little to no value in the digital tokens.

The state of the NFT markets bears strong resemblance to the Initial Coin Offerings (ICOs) of the 2017/18 era. The advantages of the underlying technology are undisputed. From tokenized artworks to digital identities and NFT music tracks, the use cases for non-fungible tokens are diverse. However, throughout the past year, it has also become apparent that the market, like other assets, overheated and sustainability was often left by the wayside.

Speculation took over as dozens of new projects were created daily, diluting the rest of the market, while scammers raked in millions. Fundamentals became irrelevant and the only goal of acquiring an NFT was to sell it at a higher price (also known as flipping). In a general crypto winter, these practices will slowly fade away. Just as some projects from the ICO craze delivered solid products years later (Aave, Filecoin, and Chainlink, to name a few), there will be survivors of the first NFT bear market. Whether it is actually the most traded collections today remains to be seen.

Challenges and opportunities of NFTs

NFTs offer four significant *opportunities* for investors, with a lot of untapped potentials coupled with obstacles to cross.

Environmental impact

Evident enough, an extensive network of computers runs the blockchain infrastructure, which consumes an enormous amount of power. This makes the process considerably costly. Therefore, artists must pay a special fee to “mint” their art before their artworks are encrypted on Ethereum. Some supporters state that the power employed is at the perimeters of power grids and not the best type of electricity. In that case, the carbon footprint of NFTs has to shift toward carbon negative or carbon neutral.

Gaming and Augmented Reality

By now, we don't need to reiterate that NFTs are unique, limited in supply, and can be verified only in the blockchain. This raises questions about the artists creating unique digital assets collected and stored as NFTs on the Ethereum blockchain for gamers. The video game industry, rated at around \$160 billion, is set to grow over \$200 billion by [2023](#). The heightening popularity of NFTs in the gaming industry offers encouraging and profitable prospects for NFT growth and its investors in 2021.

Curation and education

Most of the top shots in the NFT industry have websites that offer the good, the bad, and the ugly, all in one. This certainly doesn't help the collector. Hence, editorial content that

can assist people in comprehending what they are buying, introduce the new artists, depict who they are and what they do would draw a larger number of collectors.

As every story, NFTs has two sides as well. Let's take a closer look, what are the *challenges* that come with NFTs.

Ownership

NFTs prove that you own something that is hosted somewhere, but that does not mean that the underlying asset is truly yours. What NFTs address is that it shows that you made a transaction for a certain digital asset, so it is a verifiable receipt that indicates that you own the asset.

The actual NFTs - as in the actual digital artwork - are, ideally, stored on a decentralized file-sharing system such as IPFS, FileCoin or Storj, but they can also be stored on a central server such as AWS as it is often too expensive to store a large JPG, GIF, Video or MP3 decentralized. Instead, often just the web address of where the artwork is stored, is stored on the blockchain. If the items are hosted on a centralized location, the entity that runs that server can simply delete the item, even if you paid millions of dollars for it.

A token is a smart contract pointing to the location of that web address on the blockchain (that points to the server that stores your asset), which is stored in a digital wallet. As the web address is on the blockchain, that cannot be changed, but someone can remove the asset from the server making your immutable and expensive web address return a '404 not found'. Unless your expensive artwork is stored on a decentralized storage system, you might own a receipt of a certain asset, but you certainly do not possess it, and the owner of the server where it is stored [actually controls it](#) and can delete it if wanted.

Centralization in a Decentralized Ecosystem

Therefore, it would be wise to use one of the well-known marketplaces such as OpenSea, but even that is no guarantee for success. While OpenSea uses the IPFS, since it is a centralized exchange, they also control the keys, similar to any centralized crypto exchange. If OpenSea decides to remove or freeze the digital asset because of a

copyright infringement or other reason, your NFT [becomes worthless](#), and this has happened already more than once.

For example, at the end of 2021, OpenSea stepped in to block the sale of stolen, expensive NFTs from collector Todd Kramer, a well-known art gallery owner, reportedly worth \$2.2 million. Using a phishing attack, the NFTs were stolen from his hot wallet - a wallet connected to the internet. While it might be nice for Todd that the thief cannot resell his NFTs, it raises [important questions about the decentralization](#) of these NFTs.

Security challenges

If it is stored on decentralized storage, only the user who holds the NFT should be able to access it and control it. To make matters worse, most NFTs - the pointers to where the asset is stored - are stored on a centralized exchange, which is similar to your crypto stored on a centralized exchange, and this means that if the exchange gets hacked, you can lose your valuable NFTs.

If the NFT is on your decentralized wallet and is on a hot wallet connected to the internet, you are responsible for the security. As Todd Kramer discovered, if you are hacked due to a phishing scam, you can still lose your NFTs. To make matters worse, NFTs are stored on a blockchain. This can be Ethereum, Solana, EOS or any of the other few dozen blockchains that enable NFTs. These blockchains are kept secure by decentralized miners or stakes, the administrators, and the more administrators, the more secure a blockchain becomes as it becomes harder to perform a so-called 51% attack.

This is an attack where a group of miners hold more than 50% of the network's hashing rate, and as they control the majority, they can reverse transactions that were completed while the group were in control. Meaning they could double-spend tokens, which is the entire promise that blockchains aims to prevent. Blockchains that become the victim to a 51% attack will probably not live very long, and if your NFTs are stored on such a blockchain, your NFTs might become completely worthless. Of course, most of the NFTs reside on Ethereum, which has a broad adoption and is truly decentralised due to its age. However, this comes at a cost as Ethereum's gas fees, the price that needs to be paid to record a transaction, has gone through the roof, which makes the network prone to inequality to the extent that many organizations have tried to prevent in Web 2.0.

There are also other chains used for NFTs which will be cheaper to use, but these might be more centralized and, therefore, have weaker security. This all means that for NFTs to achieve mass adoption, transaction costs need to go down, ideally to zero or close to zero, while decentralization needs to go up to ensure that an NFT purchased today for \$10.000 is still holds value in the future.

Scams and Copyright issues

Unfortunately, that is not all, there are also plenty of scams and copyright infringements, or some call it satire or art in itself, of famous and expensive NFT collectibles such as the Bored Ape Yacht Club. One example is the Phunky Ape Yacht Club (or PAYC) which simply flipped the right-facing Bored Apes to face left and resold them, making around \$1.8 million in the process.



The **Bored Ape Yacht Club** is a collection of 10000 unique Bored Ape NFTs— unique digital collectibles living on the Ethereum blockchain. (source: <https://jinculturecommerce.com>)

PAYC has since been banned from centralized markets such as OpenSea, Raible and Mintable, which again shows the power these centralized markets have by creating a seamless trading experience for the masses.

Suppose you are lucky, and all works fine. In that case, you are still not yet out of the woods because it might very well be that the NFT you bought does not come with the right IP or copyrights, potentially preventing you from monetizing it and only using it as a nice image to view in your wallet or virtual home, which everyone else can do as well. In fact, most NFTs sold in 2021 did not come with any copyright or IP, meaning that you cannot monetize the NFT, which is a crucial component for a vibrant economy.

The collection of the Bored Ape Yacht Club does as we discussed, resulting in a vibrant community and steep prices, but most collectibles don't, and all you have is a pointer towards an item stored somewhere, which is not a sustainable solution if NFTs are meant to achieve mass adoption.

Tech Issues

NFTs are contributing to a global silicon chip shortage [5]. In addition, some buyers of NFTs aren't aware of where their art is digitally stored. If it's on a private server that crashes, the token will become worthless. It's doubtful that so many resources should be used for something that adds dubious value to the human experience. Until the serious problems with NFTs are fixed, visit a local art gallery and support your local artist.

2.3. Blockchain and NFTs

Just as blockchain brought fungibility to the digital space, and allowed us to exchange value like-for-like in the form of cryptocurrencies, blockchain now brings non-fungibility to the digital space in the form of NFTs. It's blockchain's immutability, dependability, transparency and decentralization that create new opportunities for the seamless trading, exchanging and sharing of digital representations of any kind of assets, and for many businesses, this is likely to spur new blockchain-based innovation.

It is important to remember that blockchain is a piece of software that functions as a ledger distributed across nodes of a communications network. What distinguishes it from other online databases or trading platforms is its immutability: we can [trade digital assets peer to peer](#), and no one can alter or undo those transactions without a majority of the network's approval. That's a big plus over the Internet.

At one end of the spectrum of digital assets are cryptocurrencies like bitcoin used in payment networks such as the Bitcoin blockchain. Bitcoins are fungible: that is, one bitcoin is equal in value and function to every other bitcoin. So if you have a contract involving bitcoin, you could replace one bitcoin with another bitcoin without breaking the terms of your agreement.

At the other end of the spectrum are NFTs: each token represents a thing of singular value. In a contract, you couldn't replace an Andrew Wyeth painting with Mike Winkelmann art and expect no one to notice. NFTs span a range of unique assets—not just collectibles but birth and death certificates, deeds to property, and the identities of objects on the Internet of Things.

2.4. Benefits of NFTs for your business

Benefits in general

According to Dr. Casuel Pitts, Forbes expert, NFTs are a big deal because they could change how we do business and how businesses interact with each other. As an experienced professional he concluded that many companies are using NFTs for crowdfunding and NFTs have become a major player to raising capital—especially for small business.

Right now, the biggest problem with NFTs is that they're not compatible with the current financial system. If consumers want to buy an NFT, they most likely have to use a cryptocurrency. This means that many businesses are going to have to start adjusting their financial processes before they can sell their NFTs for cash. However, this is only temporary. In time, as it is expected there will be more and more companies that accept a variety of payment options. This also means that NFTs could be useful in developing countries where people don't trust traditional banks or financial institutions.

As experts say, many businesses will likely have some sort of NFT model added to their portfolio, and likely to start building out an NFT division.

The best way to get involved in the NFT space is to get educated, then actually start a pilot project at the market to build experience. The challenge that all enterprises will likely face is that your first few NFTs probably won't go as planned—however, the key is to keep building and keep creating different campaigns.

But let's see the major benefit of NFTs for startups, SMEs and for individual entrepreneurs:

Drive attention to your brand

Although the NFT hype began in 2018, projects that create non-fungible tokens still receive clickbait headlines in the media and recognizability among the target audience. Some companies launch an NFT initiative for marketing purposes or to improve the value of their services and business. Either way, you can achieve significant brand promotion and increase your chances of attracting new customers.

Bring transparency to your product lifecycle

Businesses already leverage blockchains to ensure the reliability of supply chain data. NFTs can also be used as digital footprints to track products through their entire lifecycle and help you prove the authenticity of products to win your customers' trust.

Gain additional revenue

A series of NFT items can be a source of extra profit. For example, you can sell digital art based on your brand logo, products or services, and mascots. When selling such NFTs, some businesses provide buyers with discounts or free products to encourage sales. Or you can sell brand-related NFTs as tickets to special community meetings.

Secure data and transactions

NFTs inherit the blockchain's ability to store records and data securely, yet ensure its transparency. You can leverage the uniqueness of each token to guarantee data immutability and record accuracy.

Attract investments

You can use NFTs to gather funds for launching new projects. The Antara movie is a groundbreaking example of using NFTs for crowdfunding in the film industry. In January

2022, the Antara producers announced a pre-sale of the Antara Movie NFT, which will be the first NFT that allows buyers to partly own the rights to a Hollywood film.

Building a strong community

NFTs are also a great way to build a solid base of loyal customers. NFTs can benefit your business by giving access to community Discord channels where fans can communicate and keep up to date with company news. Some projects/companies may even provide free giveaways here to make the NFT purchases all the more appealing.

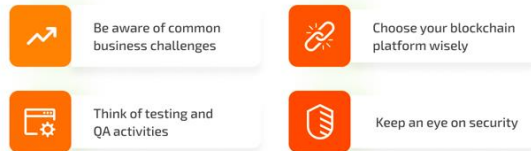
You can join forces with a solid influencer to further build a strong community. However, to make this partnership work, you must figure out how to present your NFT asset best before deciding which perks to include to entice customers, like merchandise or exclusive discounts.

Raising funds

Rather than approaching traditional banks for funding and investments, you can receive decentralized transactions across the globe through NFTs—faster and more securely than ever before. To drive attention from investors, you will need to sell NFTs of your firm's shares and ensure your digital logo is appealing.

What to consider before you starting your NFT project?

If it all sounds good to you, you may launch your first NFT project. But also, here is a list what you should consider before jumping right in. Once you come up with your NFT business ideas, it's essential to research all possible pitfalls. The use of NFTs is still in its infancy in many industries. Therefore, you have to be aware of possible challenges and the peculiarities of developing solutions that use non-fungible tokens. In particular, as a blockchain-based technology, NFTs inherit some security and scalability concerns.

What to do before adopting NFTswww.apriorit.comSource: apriorit.com

1. Be aware of common business challenges

Before you turn your idea into an NFT project, make sure to conduct research and know what pitfalls to expect on the business side. Here are three major businesses challenges to keep in mind:

Legal challenges: Do your research regarding the legal definitions of blockchain and NFT in different countries before you start developing and promoting your solution. Some countries severely limit or even forbid the use of crypto-related technologies. Also, pay attention to regions where blockchain-related laws and initiatives are in the discussion stage.

Price assessment challenges: One of the biggest uncertainties regarding NFT projects is the price for tokens. Apart from creativity and uniqueness, you'll also have to take in consideration more practical things like development, marketing, and research expenses as well as what transaction fees to charge.

Intellectual property rights challenges: A huge problem of digital art is that users can take advantage of others' work. And ensuring that artists can only display NFTs they own is challenging. Not to mention that it's impossible to relate NFT markets to traditional property laws. Intellectual property rights in the world of NFTs is still in the gray zone.

Talent shortage: Consider if your in-house development team will need to outsource development to create a reliable NFT product. And since the demand for qualified and

experienced specialists is rising, you should take into account that searching for developers can be challenging.

The best way to overcome these challenges is to consult experienced developers and business analysts who can offer advice regarding various nuances of launching an NFT project.

2. Choose your blockchain platform wisely

The blockchain platform you use is what defines the specifics of the solution you develop and the capabilities of NFT smart contracts. Therefore, it's essential to explore all possibilities and check whether they match your project's needs.

Originally, NFTs were developed on the Ethereum platform. Then, other platforms started gradually offering their own solutions for creating digital tokens. Here are a few of the most popular blockchain platforms for developing NFT projects:

- Ethereum offers the [ERC-721](#) and [ERC-1155](#) token standards,
- TRON has announced their own [NFT standard, called TRC-721](#),
- [Tezos](#) offers the opportunity to build NFT marketplaces using its protocol,
- Cardano provides functionality to [develop NFT projects](#),
- [Solana](#) offers a customizable NFT standard and minting program with ecosystem-wide support,
- Polkadot already has an [NFT infrastructure](#) built into its ecosystem.

3. Think of testing and QA activities

Testing and quality assurance (QA) for blockchain projects can be tricky and requires QA engineers to be aware of common blockchain attack vectors and vulnerabilities. When it comes to NFT solutions, make sure your specialists pay double attention to authorization and performance.

Authorization: It's essential to thoroughly test the authorization process and make sure it can't be tricked by malicious actors. Otherwise, there will be a high risk of [sleepminted tokens](#). Sleepminting is a fraudulent technique that allows hackers to mint an NFT directly to the wallet of its valid creator with permission to reclaim it or pull the token out. Thus, blockchain records will show that the creator minted an NFT and sent it to the scammer.

Performance: Since some non-fungible tokens can be worth millions of dollars, interest in NFT platforms comes along with high expectations for how these platforms look and perform. It's vital to perform stress and load testing of your solution to ensure it can perform flawlessly no matter what.

4. Keep an eye on security

Although the blockchain offers data transparency and immutability, it also might have some [security risks and vulnerabilities](#) you should be aware of. Vulnerabilities can be present in smart contracts, marketplaces, and wallets. To detect and eliminate them, make sure to conduct regular security audits of your solution.

If you're developing an NFT marketplace, make sure to secure it from risks like possible platform compromise that can result in the loss of digital tokens. In early 2022, the Veve NFT Marketplace confirmed they suffered from a cyber attack and had to temporarily shut the platform because of this exploit.

Conclusion

Are you still not sure that your business can benefit from NFTs? How other companies are taking advantages from NFTs? Check out our 2.6. Section that includes several use cases and you will see that using NFTs could be used in wide variety of industries and create hype around any kind of businesses.

2.5. NFT in practice

Creating and selling your NFT

Step 1: Think it through

Before jumping right in, make sure you want to sell your NFT. If you just have the vague idea that you want to make an NFT because seemingly everyone is doing it, there are a few considerations you may want to take into account. The first big one is transaction fees. While the platforms will let you create NFTs for free, selling them could be a different matter.

Most NFTs are sold on the Ethereum blockchain and every transaction on the Ethereum blockchains costs fees that are paid to the miners. These fees are called “gas,” and the amount of gas you need for a transaction (and therefore how much that transaction will cost) can vary significantly. Almost everything you do on the blockchain, from minting an NFT to transferring it to someone else to bidding to purchase one, will cost gas (though there are some ways around this for creating NFTs).

It's also worth noting that paying gas does not 100 percent guarantee your transfer will go through. You can pay more to give yourself a higher chance, but it is never a sure thing. To be clear, most transactions are likely to go through. However, if something does happen and your transaction isn't completed, you won't get the gas fees you paid back.

Then there's the environmental aspect of NFTs. The most popular (and easiest to use) NFT marketplaces mostly run on the Ethereum blockchain, which uses an energy-intensive “proof of work” system (you can read [more about what that means here](#)). While there's debate on whether individually selling NFTs has an effect on the overall energy use of the blockchain, if your NFTs are built on Ethereum, you are making use of a system that has a big carbon footprint.

Step 2: Choose a platform

There are dozens of platforms that let you sell NFTs across a wide variety of blockchains, so it's almost impossible for any single guide to cover them all, much less tell you which one is the right one for your project. Two of the more popular marketplaces are OpenSea

and Rarible but do know that there are alternatives if neither of these platforms fit what you want to do, like [AtomicHub](#), which uses the Wax blockchain, or the [Solana-based Solsea](#).

Step 3: Create a wallet and connect it the platform

Wallets are the applications you use to store your cryptocurrencies, as well as any NFTs you end up minting or buying. MetaMask's wallet is one of the wallets that's widely supported by Ethereum-based applications like OpenSea, Foundation, and others and can be used either as a Chrome extension or as an IOS/ Android app.

After you've got your wallet set up, you'll want to connect it with the NFT marketplace you plan on using. A word of caution: be careful if you see a request to connect to your wallet when you don't expect it, as scammers could be trying to access your funds or NFTs. As long as you're on a trusted site, you should generally be okay (at least, as long as something isn't very wrong—be sure to check transactions to make sure they're fine). But if an unknown site asks to connect to your wallet, you should probably think twice before accepting.

Step4: Create an NFT

After you've connected your wallet, you'll arrive at the page you use to create an NFT (and if you don't end up there, you can get there by clicking the Create button that both platforms put in the upper right-hand corner).

Before we start creating our NFTs, a word on collections — both platforms support collections, which are pretty much what they sound like. If you want to create a series of NFTs, you can use a collection to do so — on Rarible, you can create one right from the NFT creation screen, which the NFT you're making will be added to. On OpenSea, you'll have to go to your profile picture in the top right, then go to My Collections > Create a collection. We won't cover the exact steps on this section but if you are feeling you want to deep dive in, just simply follow the instructions listed [here](#).

Step5: Sell your NFT

If you do want to sell your NFT, though, you'll have options.

- "Fixed price" is like creating a store listing — you set a price for your NFT, and if someone wants to pay that price, they can just buy it,
- "Open for bids" lets people submit offers to buy your NFT, which you can either accept or reject,
- "Timed auction" is an auction — you can set a minimum price and choose when the auction will start and how long it will last.

If everything's gone well, you'll now have an NFT listed for sale on either Rarible, OpenSea, or both. However, that's not likely to get you very far — because the process is relatively complicated, but the gold rush-esque environment around NFTs has led many to try their hand at making one. If you want your creation to actually sell, you'll likely have to find some way to rise above the noise, either through snazzy marketing or making your art absolutely exceptional (and then probably doing some catchy marketing).

Buying an NFT

NFTs are about self-expression and identity. It was challenging to identify rights and property in the Web2 era because the actual owners of data and platforms are giant tech companies and other enterprises.

With the introduction of Web3, small communities can now form and thrive around shared values. NFTs can be a terrific way to get involved in communities that are important to you while also making a statement about what you believe in. These communities can also help you to learn more about crypto and Web3 in general. One of the obvious benefits of purchasing art is that it lets you financially support artists you like — this is also true for NFTs.

When you buy an NFT, you typically receive some fundamental usage rights, such as the option to share the image online or use it as your profile photo. The pride of ownership comes with holding the NFT, which is recorded on the blockchain.

The steps are relatively easy to get you onwards:

Step 1: Create your wallet

You'll need a cryptocurrency wallet to buy and hold NFTs. MetaMask is a popular choice.

Step 2: Fund your wallet with Ether

Once you've created your wallet, you'll need to buy some ETH. You can either do this directly in MetaMask (just click 'buy' to see available options) or first buy ETH on a crypto exchange and then transfer it to your MetaMask wallet.

Step 3: Browse NFTs on Zerion

Go to [Zerion](#) and connect your MetaMask wallet. After that you'll be able to browse NFTs owned by any address.

Step 4: Buy NFTs on a Marketplace

Once you found on Zerion an NFT you like, you can click one of the links under a token to buy it.

Here are some of the other most popular NFT marketplaces:

- *SuperRare* is a social network for NFTs. Each piece on the platform is unique, and users can buy and sell these original pieces on its website. The platform operates with Ethereum's network, so you'll need to fund your account with Eth tokens to make your purchase.

- *Nifty Gateway* is an NFT marketplace owned by the popular cryptocurrency exchange Gemini. The platform works with popular artists such as Steve Aoki, Grimes, 3LAU and many others to release artwork on the primary marketplace. The company also has a secondary marketplace that allows collectors to resell artwork. You can fund your Nifty account with Ethereum, or you can connect a credit card directly on its website.

- *NBA Top Shot* is a marketplace for licensed NBA collectibles. These digital items are a new take on basketball cards; these digital cards are more interactive than traditional trading cards. For example, the cards have in-game highlights of the featured players.

The highest sold card on NBA Top Shot was a LeBron James Dunk card: the card featured a clip of James dunking on the Houston Rockets and sold for over \$200,000.

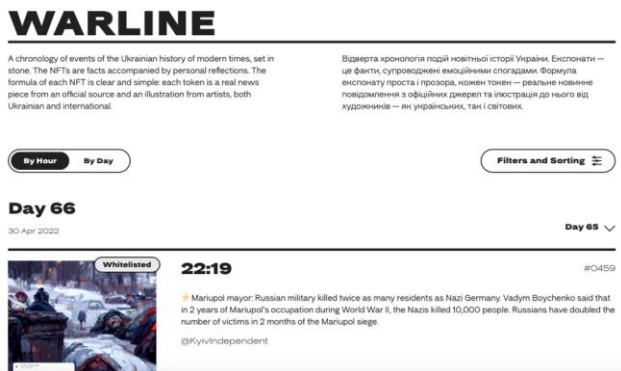
2.6. NFT – Use cases

In this section, you will find several use cases how businesses took advantage from NFTs industry by industry. These use cases may help you and give you some ideas and tips on how to get started with your own NFT project.

Art

Selling and buying digital art is where NFTs started. But not only individual artists and collectors can benefit from digital art. Businesses can as well. Businesses can gain extra profit from creating and selling brand-related NFTs. However, organizations that operate within industries that involve graphic design, like the gaming or entertainment industry, can also create and mint art pieces related to their products. Thus, architecture and interior design firms can mint and sell digital art pieces of their projects, while galleries and museums can make extra profit from selling digital copies of famous paintings and sculptures.

You can also use digital art for raising attention around charity events and various social initiatives launched by your business. For example, NIVEA launched a series of free limited-edition NFT digital art pieces to promote their [The value of touch](#) social project. The Ukrainian Ministry of Digital Transformation even [launched an NFT sale](#) to both fund the fight against Russia and drive attention to Russian war crimes.



Source: <https://metahistory.gallery/collection/warline>

Healthcare

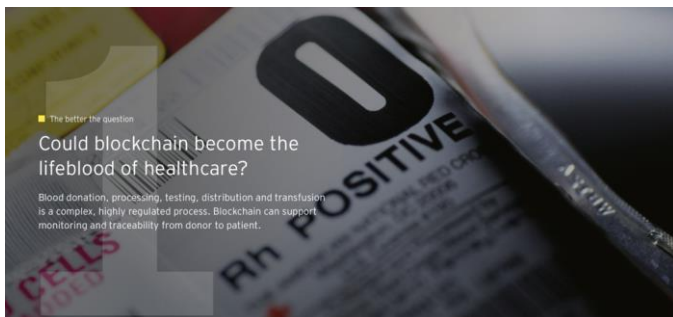
Striving to enhance the protection of personal health information (PHI), healthcare organizations often examine the opportunities of cutting-edge technologies including those based on the blockchain.

Researchers from [Baylor College of Medicine](#) assume that NFTs can help patients more efficiently and securely control their data. They offer the idea of developing NFT digital contracts that will allow people to specify who can access their PHI and track how it's shared.

Such control of personal data could help patients not only keep private information protected but also monetize it. NFTs provide the potential for healthcare organizations and patients to sell data to third parties for research purposes — within the scope of laws and common sense, of course. The parties interested in purchasing such data could be pharmaceutical companies that conduct drug research and artificial intelligence (AI) development companies that need data for training AI models.

Another interesting application of NFTs in healthcare is [tokenized blood](#). The idea is to record all locations in which blood has been between the time of its donation and its arrival in the hospital. Blood tokenization can help to improve the inventory of blood

donations, detect and fix shortages of specific blood types in particular regions, and prevent human errors. [EY Canada](#) is already working with Canadian Blood Services on such a project.



Source: ey.com

Gaming

NFTs are commonly integrated into the gaming industry, and it seems this trend is here to stay. The two most common use cases for NFTs in games are trading in-game characters and items and purchasing exclusive plots.

Trading characters and items: Projects can allow gamers to make money out of their characters by trading or selling these characters as NFTs. Also, customers can receive more control over their characters' looks and virtual items, including the ability to purchase skins from limited-time sales from other players if they miss the sale. For example, [NFT trading of Axie Infinity characters](#) managed to surpass \$4 billion in all-time sales.

Purchasing plots: Some organizations provide opportunities for gamers to purchase plots of land and various virtual real estate items inside video games. [Decentraland](#) allows gamers to buy, sell, and rent land via their official marketplace or the OpenSea platform. Another example is [Axie Infinity](#), which also features digital land and assets. One user spent \$1.5 million dollars worth of cryptocurrency for nine plots of land in this game.

Learning The Basics - Decentraland

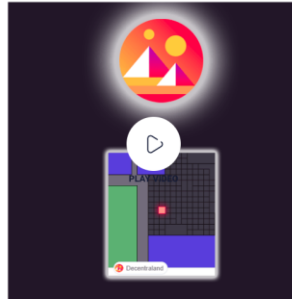
Decentraland Land →

You do not need to own land in order to visit and enjoy Decentraland, however, if you decide you would like to invest and **build in Decentraland**, you should know the following information...

Each land parcel is a **non-fungible token** (NFT, ERC 721) which means it is unique and cannot be forged or duplicated, the same as physical land in real life.

Anybody can buy, sell or rent land at any time, peer-to-peer on the official Decentraland **Marketplace**, or via **OpenSea**. All transactions are stored on the Ethereum blockchain as true proof of ownership, so when you buy and own that land token, you officially and unquestionably own that piece of land. Every Decentraland land token has unique co-ordinates which represent a specific location on the **Decentraland map**. Proximity to popular areas e.g. roads, plazas, typically determine their value.

If you own and connect adjacent parcels of land on the **map**, then this is referred to as an **Estate**, and permits the owner to build higher.



Source: nftplazas.com

Sports

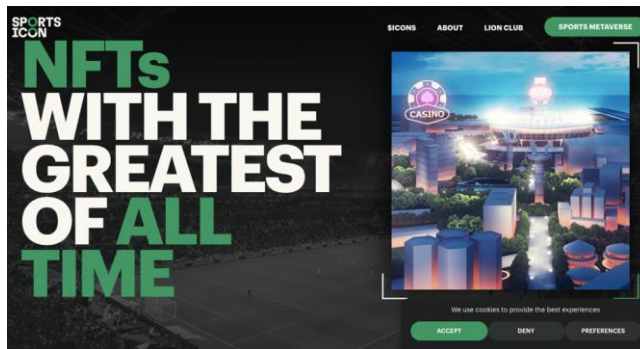
Having a huge fan base around the globe, sports clubs and leagues are also adopting digital tokens to engage the community and make extra profit. Also, digital tokens can be used as rewards in various sports and wellness-related apps. Let's explore a few popular ways to use NFTs in the sports industry.

Memorabilia and collectibles: Video games based on sports tend to let gamers become rightful owners of epic video moments. For example, [Cristiano Ronaldo's unique card](#) from the NFT-based fantasy soccer game Sorare was sold for \$265,275.55 in 2021. Digital memorabilia is so popular that [Deloitte expects](#) NFTs for sports media to generate more than \$2 billion in transactions in 2022. Popular soccer clubs like [Liverpool](#) and [Manchester City](#) have already launched exclusive NFT collections.

Move to earn: Another NFT adoption idea is using digital tokens to motivate people to practice sports. A famous example is the [STEPN](#) app that provides users with NFT sneakers. Such activities as walking, running, and jogging allow users to earn tokens and use them to level up their sneakers and mint new ones. Later, people can lease or sell their digital sneakers on the in-app marketplace.

Improve fans' experience: Sports clubs can use NFTs for engaging their fan community by rewarding them with unique digital artworks for activities like attending games,

purchasing the club's crypto tokens, or participating in various events. Another idea is to offer fans exclusive content about their sports icons. For example, the [SportsIcon](https://sportsicon.com) platform sells videos with famous athletes, packaged as NFTs, where fans can learn insights and untold stories from a sports star's life and career.



Source: sportsicon.com

Automotive

Manufacturers can use NFTs as attached digital tokens for every item they produce and benefit from further resale. Say a vehicle production company minted non-fungible tokens to go with each car. Since manufacturers will receive a percentage from the car's release and resale, they are interested in assembling high-quality and easy-to-maintain vehicles.

Speaking of the car business, famous brands also mint NFT digital art collections. For example, there's [McLaren Racing Collective](https://mclarenracingcollective.com), a platform that encourages fans to collect all 3D car parts in NFT form by the deadline to claim a 3D interactive collectible of one of their legendary cars.



Source: <https://mclarenracingcollective.com>

3. Knowledge Assessment

1. What is NFT stands for?

A: non formal technology

B: non fundable trade

C: non fungible tokens

Feedback: An NFT (non- fungible tokens) is a digital asset that represents real-world objects like art, music, in-game items and videos.

2. Is Blockchain and NFT are the same?

A, True

B, False

Feedback: Blockchain is a part of NFTs, a decentralized ledger across a peer-to-peer network that handles, stores transactions and allows for executing smart contracts. The most popular blockchain platform for NFT projects is Ethereum.

3. What are the main challenges of NFTs?

A, Negative environmental impact

B, Security issues

C, Scams and Copyright issues

D, Requiring too much time and money investment

4. Why NFTs can be beneficiary of your business?

A Raising brand awareness

B Building a strong community

C Motivating to your employees

D Enables you to excel without following the digital trend

E Gain additional revenue

5. Match the challenge with the solution!

A: Being aware of common business challenges

Solution: Do your research regarding the legal definitions of blockchain and NFT in different countries before you start developing and promoting your solution.

B: Choosing the right blockchain platform

Solution: Explore all possibilities and check whether they match your project's needs.

C: Dealing with QA activities

Solution: Test thoroughly the authorization process and make sure it can't be tricked by malicious actors. Also run stress and load test regularly.

D: Security of IT systems

Solution: To detect and eliminate threats, make sure to conduct regular security audits of your solution.

4. Module Summary

NFT is becoming a huge deal in the market and it also helps business to be more profitable, sustainable, resilient and up with new digital trends. This module clarifies what NFT is in general, what are the basic mechanisms and trends in the NFT market in 2022. Also through use cases helps the learner to understand the key problems, challenges and possibilities that NFT can hold for enterprises and how it can be implemented within their own businesses. It provides an overview and steps on how to get started as a creator/buyer/seller on the NFT market.

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