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NFT Financialisation and Utility: An Overview

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Research and Insights

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Key Takeaways

- The utility of NFTs is growing, with use cases expanding into industries such as, but not limited to, the metaverse, gaming, fashion, entertainment, and DeFi. This results in an increased potential to make money from NFTs.
- However, the illiquidity of NFTs is a significant obstacle to people being able to unlock the value of their NFTs.
- NFT financialisation could potentially achieve greater liquidity. The current landscape comprises fractionalisation, lending, rental, pricing, and aggregators.
    - **Fractionalisation:** Splitting an NFT into smaller fungible and identical pieces.
    - **Lending:** Using NFTs as collateral for taking out loans.
    - **Rental:** Lenders rent out their NFTs and receive income, while renters get to use these NFTs without actually owning them.
    - **Pricing:** This supports all liquidity solutions by trying to enable accurate and continuous pricing for NFTs.
    - **Aggregators:** These facilitate easier comparison of NFT prices across different marketplaces and potentially lower gas fees by combining multiple trades into one transaction.

1. The NFT Liquidity Problem

1.1 Expanding NFT Use Cases

Although NFTs (non-fungible tokens) have not been immune to the current crypto winter, as seen in the 98% drop in trading volume YTD, some observers are optimistic about the industry's growth potential. For instance, a report from Nansen cites expectations of a 33.7% compound annual growth rate in total market cap over the next eight years to US$230B, driven by expanding use cases (i.e., **utility**) of NFTs across multiple industries.

The word 'fungible' means 'replaceable by another identical item' or 'mutually interchangeable'. A **non-fungible** token is a **unique and non-interchangeable** unit of data stored on the blockchain.

A common misconception is that NFT is just digital art. However, NFTs have a much broader scope in utility than that, extending to sectors such as, but not limited to, the metaverse, DeFi, gaming, fashion, and entertainment (e.g. music).

- **Art and collectibles:** CryptoPunks and Bored Apes are well-known examples of collectible NFTs. Some NFT collectibles come with membership pass utility, such as Loaded Lions, the very first platform-owned PFP (profile picture) project launched in the NFT space.

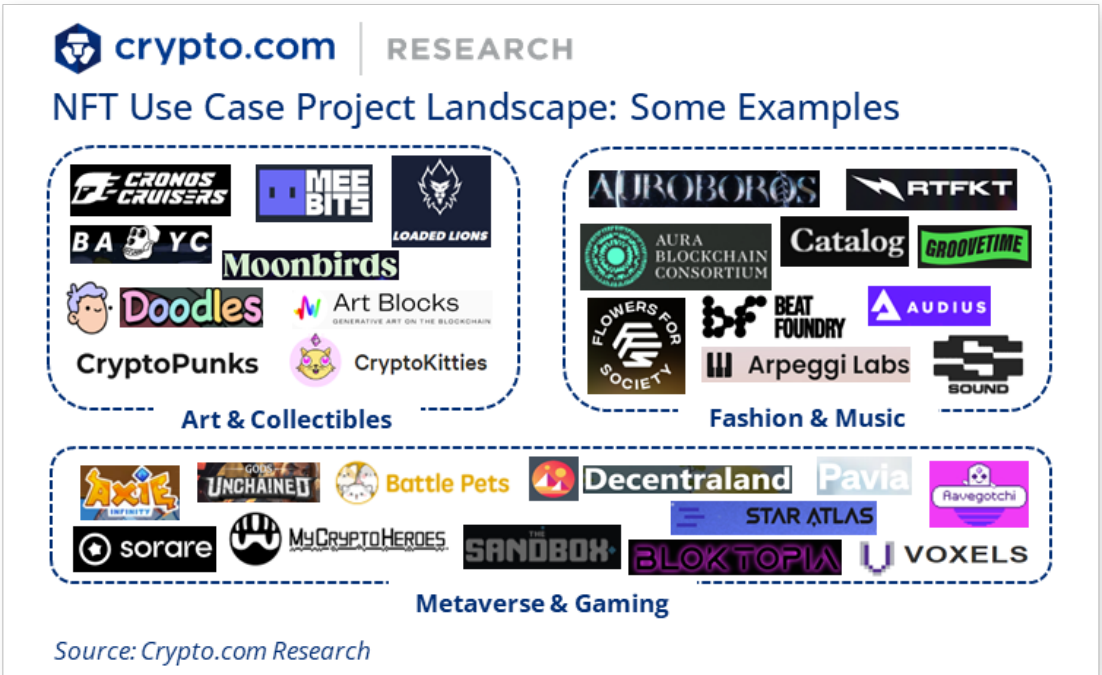
Each NFT serves as a key to **The Mane Net**, an exclusive membership for Loaded Lions collectors, and grants holders access and benefits from both the Cronos and Crypto.com ecosystems. Cronos Cruisers is an NFT collection of 8,000 utility-enabled algorithmically generated PFPs created in collaboration with Cronos Labs. It is currently listed on Minted, a decentralised NFT platform for items native to Ethereum and Cronos.

- **Metaverse and gaming:** People can own and trade NFTs as in-game assets (which are NFTs) in play-to-earn games like Axie Infinity (AXS). NFTs also allow people to own assets in the metaverse, such as virtual real estate in The Sandbox (SAND) and Decentraland (MANA), or access to exclusive social spaces. This includes the Bored Ape Yacht Club (APE) communities.

- **Fashion and music:** NFTs could drive the growth of digital fashion applications, including virtual fashion shows, exclusive shopping experiences, and fashion for game avatars. Music can be turned into NFTs as well. Copyright issues could be tackled with NFTs, given their fundamental ability to carry proof of ownership and proof of provenance. Opulous is an example of a platform allowing users to own a share of music copyrights and receive royalty revenues.

- **DeFi:** An example of this would be liquidity providers on decentralised exchanges like Uniswap (UNI) receiving tokens (which are NFTs) to represent their positions in liquidity pools. These tokens can in turn be traded on NFT marketplaces such as OpenSea.

- **Web 3 identity:** Soulbound tokens, for example, are NFTs tied to an individual or entity. They aim to represent the holder's social identity by containing their commitments, credentials, and affiliations. This is similar to how a resume works.



Read more in our report: NFT Utility: A Multifaceted Overview and Use Cases

Read more about NFTs in "Gaining Traction - Study of NFTs and Success Factors"

1.2 NFT Financialisation

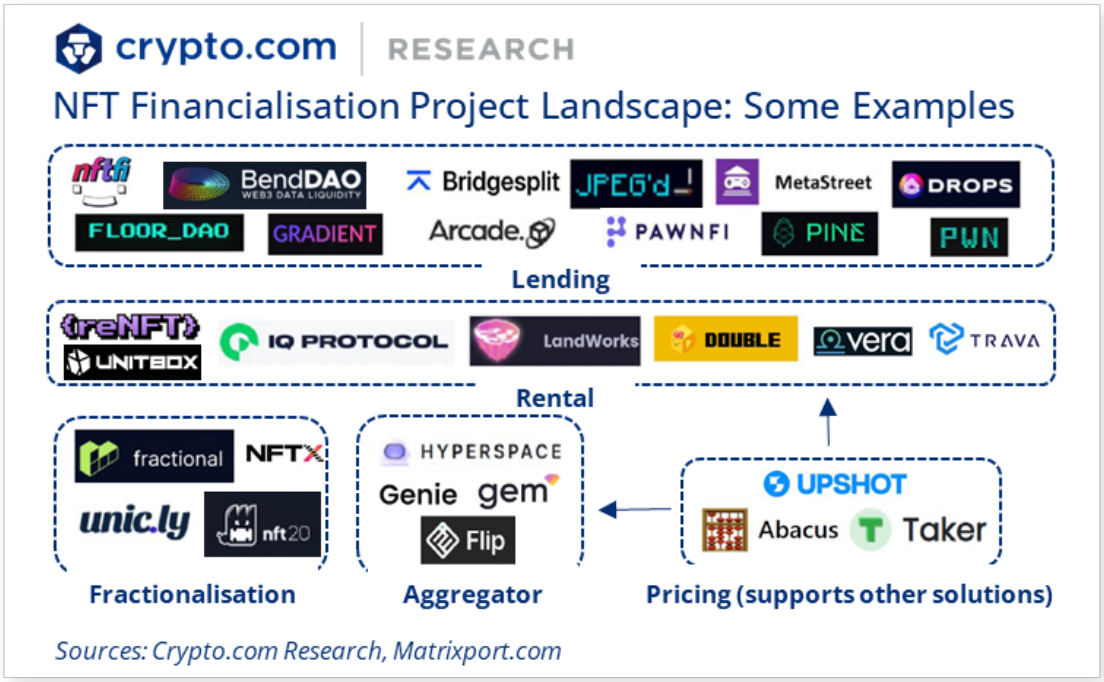
As NFT use cases continue to grow, so does the potential to make money from them. Posing a significant challenge to this is the **illiquidity of NFTs,** which non-fungibility is a major contributor to. Liquidity can be defined as the ease with which people can unlock the value of their assets and therefore, make money from them.

Cryptocurrencies like Bitcoin (BTC) and Ethereum (ETH) can be traded almost instantly, making them very liquid assets. However, the NFT market has historically been illiquid - it could take months for someone to buy your NFT for example, and you had to sell your entire NFT.

Fractionalisation of NFTs was one of the first steps toward achieving greater liquidity. However, people often want to keep the entirety of their NFTs and be able to profit from them. In other words, they want to obtain liquidity without selling all or even part of their NFT.

NFT financialisation refers to the emerging technologies that aim to achieve greater liquidity. It can thus be viewed as the use of protocols to enable NFT holders to **unlock the financial value of their NFTs to a greater extent.** The

current NFT financialisation landscape comprises **fractionalisation, rental, lending, pricing, and aggregators**.



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2. NFT Financialisation Landscape

NFT Financialisation

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Solutions	Key Features	Challenges	Liquidity
Fraction -alisation	• Splits a NFT into smaller fungible pieces. Every piece is identical to each other. • Opens up the market to more participants, as investors with a smaller budget can gain access. This makes NFTs more tradeable. • Facilitates price discovery for NFTs, as more people bid for them.	• Partial NFT may not have the same utility as the whole. It could also be difficult to reconstitute the NFT (i.e., buy back all of the split pieces and make whole) if the various owners lose their NFT fractions or refuse to sell them. • Fractional pieces of the NFT could vary greatly in price compared to the actual underlying NFT.	Liquidity is limited for those who want to maintain full ownership and utility of their NFT.
Lending	• Uses NFT as collateral for loans. • Peer-to-peer lending allows for customisable loan terms between lender and borrower. • Peer-to-protocol lending typically has more standardised loan terms.	• Relies on finding a lender willing to accept the NFT as compensation in the event of a loan default. • Lenders and borrowers in peer-to-peer lending have to wait for an agreement on terms before they can access the NFT or loan. • Borrowers may default on purpose if the NFT value falls below the loan value.	Peer-to-protocol lending is likely more liquid than peer-to-peer lending.

Rental	• Renters get to use an NFT that they might not be able to afford or don't want to own outright. • Lenders receive income from their otherwise idle NFTs. • The main types are collateral renting and collateral-free renting.	• In collateral renting, renters may not have sufficient collateral, preventing them from participating altogether. • NFTs could be transferred to the renter's wallet in collateral renting, so there is a risk they won't return it.	Collateral-free renting is likely more liquid than collateral renting.
Aggregators	• Potentially lower gas fees by combining multiple trades into one transaction. • Facilitates easier comparison of NFT prices across different marketplaces.	• May not cover all existing marketplaces. • May not offer the trading rewards of a specific marketplace.	Does not have a direct impact on liquidity. Currently, limited to digital art marketplaces. Price discovery is also mostly limited to highl-value NFTs.
Pricing	• Supports other solutions by trying to enable accurate and continuous pricing of NFTs. • The main methods are TWAP, machine learning and statistics, and peer appraisal.	• The inherent nature of NFTs, such as non-fungibility, illiquidity, highly volatile prices, and having very specific features (e.g. rarities and traits), makes pricing difficult. • Each method has its own pros and cons.	Critical to achieving greater liquidity across all solutions.

As of 25 Oct 2022 *Sources: Crypto.com Research, Matrixport.com*

2.1 NFT Fractionalisation

NFT fractionalisation (also known as **tokenisation**) was one of the first steps to make NFTs more liquid. The process involves using a smart contract to split a non-fungible (ERC721 standard) NFT into **smaller fungible pieces** (i.e. tokens) that use the ERC20 standard. Each piece represents partial ownership of the NFT.

The key benefits of fractionalisation are that it opens up the market to a much **larger pool of participants** and the tokens can also be **traded more easily**. Investors and collectors with a smaller budget can gain exposure to astronomically priced NFTs that were previously only accessible to those with deep pockets. The result is a more liquid market overall.

Some examples of marketplaces where people can go to create, buy, and sell fractionalised NFTs are Fractional, NFT20, and Unic.ly.

- **Fractional**: This platform allows NFT owners to fractionalise both individual collectibles and a basket of NFTs into fungible ERC20 tokens. Owners who lock up their NFTs earn curator fees annually. Holders of the fractionalised tokens vote to set the reserve price for the whole NFT, which is then auctioned. This gives fractionalised token holders the chance to liquidate their assets on a prorated basis.

- **NFT20**: Here, users can deposit their NFTs into various pools and receive fungible tokens in return. These tokens can then be used for other purposes on the platform, including exchanging for tokens in other pools and bidding for NFTs in auctions. The tokens can also be used for trading or providing liquidity on platforms like Uniswap (UNI).

- **Unic.ly**: In this marketplace, users can lock up their ERC721 NFTs in exchange for fungible ERC20 tokens called u-tokens. For example, you could deposit a CryptoPunk and receive a u-punk token in return. This token would represent your share of the entire u-punks collection. You could also trade your u-punk for other u-tokens.

One of the key challenges with fractionalised NFTs is **reconstitution**. The utility of a fractional piece of an NFT could be different as compared to when it is whole. For example, if you only have a small piece of an in-game asset, you may not be allowed to use it for its intended purpose in the game that you're playing. The NFT can be made whole (i.e. reconstituted) by purchasing all the fractions, but other difficulties could emerge if the owners lose their pieces or refuse to sell them. Some fractionalisation protocols are attempting to solve this problem with buyout auctions.

Read more in our Research Wizard article: What Are Fractionalised NFTs?

2.3 NFT Lending

The current NFT lending sector comprises mainly peer-to-peer lending and peer-to-protocol lending.

- **Peer-to-peer NFT lending**: This works the same way as a traditional lending marketplace i.e. matching lenders with borrowers. NFTfi is one platform that offers this. On NFTfi, borrowers can list their NFT as collateral and receive loans from lenders' wallets in Wrapped Ether (WETH) or MakerDAO's DAI. The NFT is stored in an escrow smart contract for the duration of the loan and the borrower gets it back when they repay the loan (plus interest) on time. If the borrower fails to repay the loan, the lender will receive the NFT. In peer-to-peer lending, lenders and borrowers agree on the terms of the loan (e.g. interest rate, loan duration, loan-to-value ratio) among themselves.

- **Peer-to-protocol lending**: Borrowers take up a loan directly from the protocol. Similar to DeFi lending, liquidity providers add crypto funds into pools and borrowers would take up loans from these pools. Borrowers have to put up their NFTs as collateral by locking them in smart contracts known as digital vaults. BendDAO (BEND) is one of the platforms doing peer-to-protocol lending. Because the floor price of NFTs change in real-time, if a borrower's one falls below a certain threshold, BendDAO will liquidate it and use the proceeds to help pay down the loan. However, a recent liquidity crisis at BendDAO highlights some of the risks these nascent lending platforms currently face.

Some key issues are that given the typically high price volatility of NFTs, lenders could find it difficult to value an NFT properly. Therefore, this makes it challenging to come up with loan terms (e.g. loan-to-value ratios). Sharp drops in NFT prices might also **incentivise borrowers to default on purpose**, particularly if the NFT value goes below the loan value. In peer-to-peer lending, the process of agreeing to loan terms before being able to access the NFT or loan could pose challenges to liquidity and scalability.

2.2 NFT Rental

The NFT rental market is where people can rent out their NFTs to receive income. Meanwhile, renters can rent NFTs to use but without owning them. NFT renting emerged because NFTs have **utility** - rent an NFT and you also get whatever utility that comes with it. NFT rental could also be viewed as a type of NFT lending.

- For renters, also referred to as borrowers, the advantage is that they get to use an NFT that they cannot otherwise afford to buy or perhaps don't want to own outright.

- For the NFT holders who rent their assets out, also referred to as lenders, the main benefit is they can receive income for their NFTs that might otherwise be sitting idle in a wallet.

Currently, NFT renting can be categorised into collateral renting and collateral-free renting:

- **Collateral NFT renting** means that the renter has to put up collateral to rent the NFT to use, hence the name. One example would be reNFT, whose investors include Animoca Brands (parent company of The Sandbox). reNFT's protocol transfers the NFT to the wallet of the renter, but they have to put up some collateral (e.g. funds in the form of cryptocurrency), which the lender can claim if the NFT is not returned at the end of the rent period. However, there are some **potential downsides** to collateral renting. Firstly, the renter may not have sufficient funds to put up as collateral, so they might not even be able to participate. Secondly, because the NFT gets transferred to the renter's wallet, there's the risk that they don't return it, and even the collateral may be a poor consolation for the stolen NFT from the lender's perspective.

- **Collateral-free NFT renting** means renters don't need to put up any collateral. It aims to solve some of the issues with collateral NFT renting. For example, IQ Protocol's (which counts Crypto.com Capital as one of its backers) collateral-free renting protocol aims to create wrapped versions of NFTs to rent out. In this way, the original NFT is not actually transferred to the renter.

2.4 NFT Pricing

NFTs are notoriously difficult to price because they are non-fungible, illiquid, volatile in price, and have very specific features (e.g. rarities and traits). However, greater liquidity can only be achieved if this problem is overcome. How can you, for example, buy or sell NFTs, and use them as collateral for loans or rental, if you can't easily find out what price they are at any given point in time? Fortunately, there are several projects that aim to solve this problem.

- **Time-weighted-average-price (TWAP)**: This essentially is an average price derived from multiple prices during a particular length of time. The prices used could be sourced on-chain from oracle protocols such as Chainlink (LINK). However, one of the main disadvantages of TWAP is that it only works well with enough data, which are typically NFTs that have an active market and large transaction volumes. Unfortunately, these also tend to attract oracle attacks and price manipulation.

- **Machine learning and statistical methods**: These use computer algorithms to extrapolate the price based on past sales data and corresponding NFT traits. Algorithms try to determine what traits affect the price of NFTs based on historical data and then predict the value of a particular NFT given the traits it has. Upshot is an example of a platform experimenting with this.

- **Peer appraisal**: Market participants (e.g. NFT collectors and collector DAOs) submit their own appraisal of the price of an NFT. The final price could then, for example, be decided by a vote. One issue with this, however, is that the appraisal could turn out to be a lengthy process, and thus be unable to provide real-time, updated prices. Taker is one platform that has adopted crowd appraisal, while Abacus aims to combine peer appraisal with liquidity pools to come up with valuations for NFTs.

2.5 NFT Aggregators

Since there are many different marketplaces that list NFTs, it could be a hassle for people to go through all of them to trade and compare prices. Aggregators attempt to solve this problem by **combining inventories from multiple NFT marketplaces into one place**. Trades can be made on just one aggregated platform, making it more convenient for both buyers and sellers.

- The key benefits are potentially lower gas fees by combining multiple trades into one transaction, better price discovery, and ease of trading. All of these could contribute to improved liquidity.

- Two examples of NFT aggregator platforms are Gem and Genie. Each of them cover multiple individual NFT marketplaces, including OpenSea, LooksRare, NFTX, and X2Y2. They also claim to be able to save up to 40% on gas fees compared to using individual marketplaces directly.

- However, not all aggregators have the same features and they may not cover all existing marketplaces. They may also be missing the trading rewards and perks that specific individual marketplaces offer.

- Aggregators do not have a direct impact on liquidity. Currently, they are mostly limited to the digital art marketplaces, and price discovery also limited to high-value NFTs.

3. Conclusion

As the use cases of NFTs grow, so does the potential to make money from them. However, the lack of liquidity is the main obstacle to this. NFT financialisation is key to achieving greater liquidity, enabling market participants to unlock the value of their NFTs. Although there are many innovations emerging in the NFT financialisation landscape, most of the technologies are still in their infancy.

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