**NFT Use Cases**

**Art**

The recent surge of interest in NFT’s during early 2021 has largely been driven by digital art NFT’s, despite the origins of digital art NFT’s started much earlier in 2014. New York artist [Kevin McCoy’s *Quantum*](https://www.mccoyspace.com/project/125/)is widely recognisedas the first piece of art created as an NFT. However it was during early 2021 that art NFT’s started to gain significant attention; by the end of 2021, nearly [£31b had been spent](https://www.paymentscardsandmobile.com/state-of-the-blockchain-nfts-explode-onto-scene-in-2021/) on NFT purchases, a considerable and exponential growth given [2020 sales of ~£71m](https://raritysniper.com/news/nfts-exploded-in-2021-with-25-billion-in-sales/)

High profile digital artists such as *Beeple* whose [recent recording break sale](https://www.forbes.com/sites/abrambrown/2021/03/11/beeple-art-sells-for-693-million-becoming-most-expensive-nft-ever/?sh=3f237d1c2448) of his NFT *“The first 5000 days”* (See figure 1.x)at Christies (a long established British auction house, specialising in high profile precious work of art) for £52.9m helped bring NFT’s into the public spotlight and wider give them global attention.

Art as NFT’s offer the following advantages:

1. **Immutable Nominal Authenticity:** Art fraud such as false representation, forgeries, plagiarism have been a reoccurring blight since art has existed; artists and works of art have been open to abuse by forgers, black market profiteers and even fellow artists laying claim to works of art of others. Unless a work of art is sold, exhibited or listed, documenting when and who created it, the *nominal authenticity,* which Dutton (2003) states as the *“correct identification of the origins, authorship, or provenance of an object”* can be increasingly mutable over a period of time, dependent on a multitude of factors, including; the artists existing profile, how widely and where the work of art is exhibited, if the work of art is commissioned by a patron, if it’s sold, and profile of the buyer/collector. At its most basic level, once a work of art is ‘minted’ as an NFT (publishing the art work as a unique token on the blockchain) this functions as an immutable publicly accessible proof of ownership and by extension proof of creation. The act of minting is not purely limited to digital art; all an artist requires is a digital representation of any physical art (sculpture, physical painting, installation etc..) which can be used as a proxy allowing artists to record the date of creation/origin of a physical piece of art on the blockchain, a buyer purchasing the NFT can be provided the actual physical artwork as part of the NFT. Nominal authenticity becomes secure and immutable.
   1. **Secure Digital Provenance**: [Provenance](https://en.wikipedia.org/wiki/Provenance) (or the chain of custody) is an important aspect in works of art, antiques and antiquities. Provenance not only helps assign work to an artist but also documents ownership history. Digital provenance, an inherent feature of NFT’s means provenance now no longer becomes what has historically sometime been a contentious detective’s game at the best of times; one that is open to fraud, misinterpretation and entirely reliant on good record keeping.

Since provenance can contribute to the value of a piece of art (benefiting both the creator and collector) the use of the blockchain as an open, secure ledger is a far more trustworthy system than traditional methods of artistic provenance that were cobbled together; often consisting of a mix of physical and digital documents spanning private & public sale receipts, art/museum gallery exhibitions and private record keeping). Digital provenance provided when an artist ‘mints’ a piece of art into an NFT allows artists and collectors to record a secure, permanent unalterable history of transactions for a specific piece of art, providing future collector complete trust in the origin and custody of a piece of art.

* 1. **Decentralised automated royalty payments**: Traditionally if a piece of art is sold, the first sale may (but not always) benefit the artist financially, however secondary and any subsequent sales would only ever financially benefit the buyer/collector; the original artist would rarely benefit. However If a work of art is minted into an NFT, royalty payments can be predetermined and automated in perpetuity directly by the use of a ‘smart contract’. Smart contracts are small, automated scripts/programs that run automatically and independently of a buyer/seller; pre-determined conditions are set by the buyer; these trigger when certain conditions are met i.e
     1. *On sale transfer 20% of total sale amount into digital wallet of the creator.*
     2. *On sale transfer 80% of total sale amount into digital wallet of the seller.*

Once the royalty payment rate is set by the artist/creator, future royalties of all sales can be paid directly to the artist/creator account (via a digital wallet) without the need of a third party (traditionally a gallery/agent etc..).

Smart contract driven NFT’s means that even if piece of art is resold 5, 10 or even a 100,000 times moving through 5, 10 or even a 100,000 different collectors; a pre-determined royalty payment rate set by the creator would still guarantee the artist/creator is paid directly from each and every future sale.

Historically provenance for works of art may span across generations, for instance Gabriël Metsu’s oil on canvas painting *The Lace Maker’s* provenance, first recorded in 1722, now spans 300 years of ownership, including from a British Baron in the 19th century to an American philanthropist in the 20th century.) Metsu died young at the age of 38, leaving a widow; neither his/her relatives/descendants benefit from his original work, 300 years later this would be near impossible to facilitate with traditional systems, as even legal contracts are open and prone to the ravages of time.

NFT smart contracts hold an incredibly potential; an artists descendants financially benefiting directly from the resale of a piece of work long after the artist/museum’s/gallery or even state have turned to dust as long as the original creator’s digital wallet is accessible, *the blockhain becomes an everlasting digital patron* ensuring

**Computer & Video Games**

Computer & Video games are a huge global business, exponential global growth over the last 30 years has seen this grow to a point where it has eclipsed both the [global movie and North American sports industries](https://www.businessinsider.com/video-game-industry-revenues-exceed-sports-and-film-combined-idc-2020-12?r=US&IR=T) combined.

A global industry with revenues over £120b, [with ~half the people on the planet](https://www.wepc.com/news/video-game-statistics/) playing some form of games in 2021.

As the games industry has evolved and matured over the last 40 years, secondary markets have emerged, most notably the ‘second hand’ games resale market. The rise of ‘retro’ gaming, has demonstrated the second hand market is a lucrative one for private resellers, an unopened copy of Super Mario Bros for the Nintendo Entertainment System [recently selling for £1.5M](https://www.nytimes.com/2021/08/06/business/super-mario-bros-sale-record.html) to the extent the market has seen [speculators looking to cash in](https://www.businessinsider.com/retro-gaming-market-being-overtaken-by-speculators-2021-9?r=US&IR=T) on the huge global interest in retro/second hand games

Despite publishers and developers increasingly moving to non-physical digital only’ games, the demand for used games remains incredibly high.

Whilst some retailers have adapted their business models to include reselling of retro/second hand games, the vast majority of publisher/developers/retailers aren’t able to directly benefit from the emerging retro/second hand games market. The potential of *video games as NFT’s* presents a huge opportunity for publishers, developers and players alike, offering the following advantages:

1. **Royalty Sales on Pre-owned Games** ; A predetermined proportion of any resale of a used game can automated in perpetuity via smart contracts; once these are set by the publisher, future royalties of all sales can be paid directly to the publishers/developers wallets (a digital account) without the need of a third party (traditionally a retail entity). Traditionally only the initial first sale of a game would financially benefit the publisher/developer/retailer, secondary and subsequent sales would only ever financially benefit the purchaser, with many developers/publishers arguing this is hurting the wider industry through the loss of significant income generated by the secondary and subsequent sales, sometimes over the course of decades. However the use of NFT’s smart contracts means that if a game is sold/resold through 10,000 collectors; a pre-determined royalty payment rate set by the publisher would still guarantee the publisher (and or developer/retailer) takes a proportion of any future sales.
2. **Monetisation of User Generated Content:** Games as a NFT’s offer ability to monetise UGC: User generated content.

Video games such as [Nintendo’s *Pokemon Go*](https://www.businessofapps.com/data/pokemon-go-statistics/) *(166 million players)*, [Bungie’s *Destiny 2*](https://techacake.com/destiny-2-player-count/#:~:text=The%20total%20player%20base%20of,to%20be%2038%20million%20players.&text=According%20to%20the%20source%2C%20the,in%20terms%20of%20player%20population.) *(38 million players)* or [miHoYo’s Genshin Impact](https://fictionhorizon.com/how-many-people-play-genshin-impact/#:~:text=Genshin%20Impact%20had%20approximately%209,million%20users%20in%20June%202021.) (*9 million players* ) all have large, established and significant player bases. What is noteworthy, the games are designed to encourage players may spend hundreds, or in some cases thousands of hours on one game alone; according to [Destinytracker.com](https://destinytracker.com/destiny/leaderboards/all/minutesplayedtotal?grouped=true&page=1), the top players have amassed total play times over 20,000 hours, close to 1,000 days or ~ 3 years, which is incredible feat given Destiny 2 only launched 5 years ago in 2017.

Destiny/Pokemon Go and Genshin Impact revolve around a central key game mechanic; players investing significant amounts of time collecting in game digital assets; characters/weapons/items, often classed as ‘rare’ or ‘exotic’ or ‘5 Star’. These collectibles usually found by a combination of the accrual of in-game time, completing quests, purchasing additional in-game items/boosters, and luck (‘RNG’). Players are often encouraged to share their collections of rare characters/weapons/ objects through in-game achievements, triumphs, scores acting as a mark of distinction/status symbol.

Traditionally there has been nothing that went beyond sharing the *digital badge* (i.e triumph/achievement/accomplishment) on a on social media/gamer’s platform profile. However NFT’s offer the ideal system for developers/publishers and even players to monetise user generated/customised data (such as a players unique save game data), simultaneously allowing:

a) creation of an additional monetised ecosystem to meet player demands i.e. some players who are willing to monetise and ‘sell’ their invested time in a particular product/service to other players with little time but willing to pay other players for ‘grinding’ (progressing laborious in game tasks) and a more advanced in-game progression point.

The potential to provide publishers/developers with an additional long-term income stream, providing a better ROI on computer & video game development, which in many instances can cost hundreds of millions in development costs spanning 5/10 years, is undeniable.

1. Play to earn revenue models.
2. Monetizing In game collectibles: customisable in game assets (vanity items such as cosmetic character skins/clothing or collectible items that offer player advantages(new weapons/vehicles/mods etc,..)

* Dutton, D. (2003). Authenticity in art. *The Oxford handbook of aesthetics*, 258-274.

**Figure 1.x** : Beeple’s *Everydays: the First 5000 Days* NFT https://onlineonly.christies.com/s/beeple-first-5000-days/beeple-b-1981-1/112924

**Figure 1.x:** Typical Smart Contract Structure: https://www.jigsawllc.com/2021/03/25/nfts-creativity-innovation/