Non-Fungible Tokens (NFTs) Create New Digital Products and Business Models

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NFTs enable new and more decentralized actors to use programmability to create new value exchanges that transform industry structures. This new digital asset class is also a new digital product that executive leaders should integrate into their future digital business strategies.

Quick Answer

How do NFTs contribute to the future of digital business?

NFTs enable your organization to create new business models, extend the value of your existing products and services, and enter new markets by creating:

- New digital asset classes that improve funding, as well as generate revenue from secondary trading
- New digital products and an ability to increase the valuation and tradability of your physical assets
- New customer engagement models — and improve how you reach and segment such customers in the first place

More Detail

Definition: Non-Fungible Token (NFT)

An NFT is a blockchain-based monetized record of unique noninterchangeable information that represents a piece of digital media. NFTs can link to any form of digital asset — digital art, text (such as a document), videos, photos, songs (or samples) or lines of code. NFTs can also represent, in a tokenized form, any digitally represented artifact, i.e., a physical asset that has been digitized.
NFTs provide an alternative way to finance projects, as well as opportunities for trading and investing in a new digital asset class. But they are also new digital products that enable new engagement models. We will first use the NBA Top Shot moments NFTs to illustrate this latter point. We will then consider market hype and the risks posed by the emergence of this new class of digital assets. And in order to demonstrate that NFTs are transforming digital business, we will use a financial lens, as well as a digital product innovation lens, to review key NFTs. By using these illustrations, we will assess:

- The business value of programmability
- The role of and the emergence of new and decentralized commercial actors supporting such programmability
- The business value of new forms of monetized digital products and assets
- The resulting evolution of industry structures

**Market Opportunity and Digital Product Creation**

It is clear that the novelty of the technology, combined with the significant shifts to digital over the last few years, is highlighting significant digital product innovation and potentially radical industry disruption. This is true initially in media, music, gaming and sports, including for physical assets. And soon for every industry as they get fractionalized, monetized and repurposed.

Executive leaders building a digital business should consider the possibility that new product life cycles will be introduced. NBA Top Shot moments illustrate how NFTs enable digital product creation and create new engagement models with fans, as shown by Figure 1.
As Figure 1 illustrates, the NBA is using NFTs to turn collectibles, previously the role of trading cards, into digital products. As with trading cards, the scarcity of the collectibles define their value. But the use of NFTs improves the ease of trading such collectibles, as well as the use of gamification to encourage purchases and trading. It expands the market for collectibles. From the NBA's perspective, it also lowers the cost of creating and distributing the collectibles and facilitates engagement via gamification. Fans can use their knowledge of players, notably younger players, to favor specific collections and expect higher valuations for their investments. While not part of the current setting, this could become another route to finance scouting and younger players' career development.

The market expansion, digital product innovation and new engagement models of NFTs shown in Figure 1 illustrate key business contributions to digital transformation that executive leaders can not ignore. They generate new revenue via digital product creation, promote a secondary market for such products and improve engagement with customers. They also enable the discovery of new demand preferences, and potentially, more effective customer segmentation approaches, for example as used by the NBA with...
the different tiers of collectibles (e.g., common vs. legendary) and customer status (e.g., Street Baller vs. Elite). However, despite the benefits illustrated by NBA moments, due to the current level of hype, NFTs face some strong criticisms.

**Market Hype and Criticism**

Hype and criticism of NFT have increased dramatically over the last month as the market valuation of NFTs went over $300 million. In principle, this was due to two events. One is the notoriety of Christie’s sale of a digital collage of photos known as *Everydays: The First 5,000 Days* by Mike Winkelmann. The other is the launch of the *NBAs Top Shots* initiative that creates digital tokens of video clips of memorable “dunks” or other scores.

Along with the market hype, there has been a great deal of skepticism and criticism surrounding NFTs:

- The abstraction of value manifested in the NFTs is often opaque, highly volatile and sometimes meaningless/worthless.
- The value is based mainly on inflated social media concepts of reputation.
- The market has different layers of decentralization so is not economically frictionless.
- The underlying asset can be altered, even deleted or moved after the NFT sale — depending on the rules created under the NFT construction. There have also been recent projects to test NFT security, for example “sleepminting,” which could raise doubts about legality, value and such.
- The party purchasing the NFT doesn’t necessarily get automatic ownership control over the underlying asset.
- NFTs are another manifestation of the initial coin offering (ICO) market hype of 2017 that requires significantly enhanced levels of governance.

The v0.01 version of NFTs and their ecosystem certainly has these potential flaws. And the digital infrastructure and business processes supporting NFT exchanges (e.g., secondary markets), as well as their governance, need to evolve.

However, as illustrated first by NBA Top Shots moments, NFTs are not just another speculative asset, but an important enabler of digital product creation. To further stress this important dynamic, we explore the fundamental dynamics that make NFTs a critical component of executive leaders’ strategies by using other high-profile NFTs.

**Critical Inflection Points**

**The Value of Programmability**

NFTs are programmable instruments. They can be programmed using blockchain-enabled technologies to reflect and execute predetermined conditions or rules set out by the issuer. For example, the music
group Kings of Leon (KOL) recently issued some NFTs representing access to digital files containing a new album release. Some of these NFTs included software code that guaranteed purchasers of the NFT, in perpetuity, rights to front-row seating at future KOL concerts. Figure 2 illustrates the options that Kings of Leon opted for with their NFTs issuance.

Figure 2: How Programmability Enables New Engagement Models — The Case of Kings of Leon

How Programmability Enables New Engagement Models
The Case of Kings of Leon

This kind of programmability affords an opportunity to target, at a microtransaction level, specific conditions or rights that can be executed as an embedded part of the transaction between sellers and buyers. These include how and under what conditions the initial creator of the NFT is rewarded. These economics create a different kind of commercial landscape, customer experience and engagement model and reinforce brand resonance with targeted audiences (as 3lau did with an NFT issuance to superfans of his music).

New and Decentralized Actors
This higher level of programmability also contributes to the creation of new roles. The reliance of NFTs on public blockchains, especially Ethereum (most NFTs follow the ERC-721 protocol), directly challenge current commercial intermediation models, pricing structures and product design approaches. Figure 3 illustrates the tokenization and value exchange for three projects related to the artist known as Beeple. While “The First 5,000 Days” is the most well-known NFT due to its valuation, the other two projects are also important to understand the business implications of NFTs.

**Figure 3: How NFTs Enable New Value Flows — The Case of Beeple’s Digital Art NFTs**

**How NFTs Enable New Value Flows**
The Case of Beeple’s Digital Art NFTs

**“First 5,000 days”**
1. Put for auction
2. Bought for $69.25m
3. 10% commission = $6,600
4. $6.6m minus 10% minus 5% Nifty fee = $5.61m

- **C** Creator of the Content
- **Bn** nth Buyer of the Digital Asset (Owner at That Time)

**“Crossroad”**
1. Auction via online drop
2. Bought for $66,000
3. Resell
4. 10% commission = $660,000
5. Buy for $6.6m

- **C** Creator of the Content
- **B1** 90% commission = $59,400
- **B2**

**Decentraland**
1. Acquire virtual land rights
2. Auction via online drop, bought for $2m
3. Build museum on Decentraland
4. Bundle art and land NFTs, and fractionalize
5. 2% tokens to creator

Source: Gartner

Those three initiatives imply three dynamics in the emergence of new and decentralized actors, but also on the risks associated with recentralization.

**The Decentralization of Finance**
NFTs operate on the principle of decentralized finance (DeFi), whereby assets and participants in a market operate on a person-to-person (P2P) and decentralized basis. Cryptocurrencies tend to be the preferred medium of exchange for the asset, and the intention, at least, is that there will be no centralized intermediaries involved in the market.

The capabilities for decentralization also provide for value to be captured directly by the creators of the asset — initially at sale and potentially as a form of annuity through models such as leasing, rental and royalties. For example, artists can now get directly remunerated from patrons; they can define the royalty rates, and decide whether or not to transfer the copyrights. Moreover, these commercial transactions can happen at scale using digital infrastructure. In Figure 3, as illustrated by the trading of the “Crossroad” piece, Beeple did actually obtain a higher financial contribution from the secondary sale, even if the commission decreased from 90% to 10%.

**Autonomous Economic Agents**

These dynamics will accelerate participation by artists and any content creators. This includes smart machines as they evolve into autonomous artistic entities and economic agents. Consequently, NFTs provide another building block in the DeFi infrastructure to accommodate nonhuman actors as commercial actors. The rollout of 5G and IoT infrastructure and blockchain-enabled smart cities, and broader digital infrastructures such as the BSN in China, provide core transaction mechanisms that autonomous agents can use to conduct commercial transactions. NFTs could be one type of digital asset that monetizes those transactions across the networks.

The economic opportunity for enterprises to monetize previously illiquid assets is significant as potentially billions of autonomous agents “go online” and operate as independent economic actors — interfacing with each other and with humans. However, such autonomous agents could become the main contributors to secondary trading activity. And this raises risks in terms of how more tech-savvy and less decentralized actors could control value flows.

**The Risk of Recentralization**

B₁ was the same individual for both “The First 5,000 Days” and 20 out of the 21 single-edition images auctioned in December 2020. And as illustrated by the third part of Figure 3, he created an art fund bundling NFTs representing land ownerships on Decentraland and the NFT art pieces he collected. He then tokenized in order to fractionalize ownership of the resulting bundle, issuing B.20 tokens, which provided ownership to the collection. As a result, while still financially benefiting some of the creators, the main beneficiaries could become the intermediaries with the financial capability to acquire the NFTs in the first place. This would dilute the ability of NFTs to increase engagement between the artists and a larger number of owners. Or this engagement could depend on a new central intermediary, thus diluting the contribution of NFTs.

Another related challenge is how to fund the NFT purchases in the first place. Both creators and buyers of NFTs have to rely on currency exchanges to buy and transfer cryptocurrencies into the appropriate
coin, as well as to marketplaces. Christies’ is clearly not a decentralized organization, and competition between marketplaces is likely to lead to consolidation.

In order to handle those challenges, participants will have to consider the role of NFTs from a data asset perspective.

**New Forms of Assets, New Digital Products**

The centuries old and still current economic structure that individuals, enterprises and governments use today is mostly based on mediums of exchange relying on fiat. This imposes limitations in terms of what and how commercial transactions are conducted and how assets are valued and exchanged. These predigital business financial systems and nondigital valuation mechanisms inhibit the creation and fair distribution of economic value. The ability to make all assets interchangeable, whether physical or digital, and to enable new forms of assets to be valued — such as social media reputation or social behaviors — is a condition for digital business acceleration. This opens the door to bring a huge array of new digital product development to a vast new audience.

For example, taking NBA Top Shot moments as a starting point, the data exchanges within the community of fans and the NBA could themselves become data assets. Using NFTs would, therefore, enable the valuation of data assets generated by an enterprise (such as sales, customer behavior or process data). This requires cohesive and liquid data markets, and then market-based valuation of such assets. The value of such data assets could be at the microlevel and exchangeable for any other data assets.

In this way, NFTs provide an opportunity to explore the digital fractionalization of commerce. Any type of asset can be digitized, at any kind of size, and that digital representation is monetized and shared with appropriate counterparts on a P2P basis. Terms and conditions of doing business are set and agreed to by the commercial participants — not by a centralized intermediary.

This means previously disenfranchised actors can now access and use assets that were previously unattainable — such as real estate, art, land or media. Therefore, instead of global commerce being limited to a largely known quantity of asset stock, with NFT and DeFi, the sum of the parts is many times greater than the whole.

**New Industry Structures**

To take advantage of these opportunities and guard against threats, executive leaders building a digital business need to:

- Map their ecosystems by acquiring a better understanding of how value flows through their customers and business partners (see Take Control of Your Digital Acceleration by Focusing on How Value Flows Through Ecosystems), since the introduction of NFT presages the restructuring of industries, products and processes.
NFTs have once again highlighted the flaws in an economic and commercial model built around centralization and nondigital capabilities. Blockchain is fundamental to new digital infrastructure development that can more efficiently power digital business and NFTs, and DeFi will be critical to these economic exchanges (see Europe Is Turning to Blockchain to Accelerate Digital Public Services and The China Blockchain Service Network: A New Digital Infrastructure to Accelerate and Challenge Digital Commerce Globally).

The current versions of NFTs are predominantly limited to a small set of digital assets. However, the groundwork, such as the evolution of the Ethereum protocol (see What Is Ethereum 2.0 and How Does it Relate to Digital Business Acceleration and a New Programmable Economy?), is being laid for broader applicability. A multi-trillion-dollar economy powered by blockchain-complete solutions using decentralized P2P distribution, smart contracts and digital tokens is now very much in view (see Understanding the Gartner Blockchain Spectrum and the Evolution of Technology Solutions). It will connect digital actors, products and services to physical world objects and actors at enormous scale.

Executive leaders should pay close attention to these developments and consider experimenting with the creation of NFTs to assess the opportunity and risk implications for their businesses.

- **Track and monitor early adopters.** The obvious disruptive shifts in the music, media, art, gaming and sports industries, as centrally controlling actors are threatened, will be felt first. Big companies that have dominated and controlled transactions, contracts and operating paradigms are likely to suffer from disintermediation risk. It is not surprising that Christie’s recently established a digital innovation department for investigating digital assets. In relation to this, the development of NFTs will influence how royalties are defined and clarify how value flows through intermediaries, thus challenging existing margins and revenue flows.

- **Adopt new funding and payment mechanisms,** as well as custody services.

  - We are also likely to see even more pressure being placed on the financial services industry. This includes supporting clients with their NFT activities, such as with custody services (see OCC Approval for Cryptocurrency Custodial Services Gives U.S. Banks New Opportunities With Digital Assets), and by providing new financial products, such as using NFTs as collateral.

  - Adoption and progress with NFTs also contributes to accelerating the decentralization of finance (DeFi) by further testing the underlying blockchain technologies that support them and providing new P2P tradable assets, enabling new financing models.

- **Participate in data market creation.** Any industries involved with the creation of data assets — therefore, most of them — should consider the opportunity provided by NFT protocols to monetize that data by creating new markets in order to more efficiently value such data assets.

**Bottom Line**

NFTs have once again highlighted the flaws in an economic and commercial model built around centralization and nondigital capabilities. Blockchain is fundamental to new digital infrastructure development that can more efficiently power digital business and NFTs, and DeFi will be critical to these economic exchanges (see Europe Is Turning to Blockchain to Accelerate Digital Public Services and The China Blockchain Service Network: A New Digital Infrastructure to Accelerate and Challenge Digital Commerce Globally).

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In business models in order to increase the financial contribution of an asset such as by the creator getting remunerated for secondary trading of the asset

In ownership rights in order to better reward creators and encourage innovation

In the setting of commercial rules of interaction

NFTs create engagement models that:

- Provide more flexibility for both the creators and the owners to add further business value.
- Build new feedback and connections between creators and owners of the digital product.
- Microsegment owners according to the NFTs they decide to acquire.

NFTs change risk models:

- Altering how assets are represented and exchanged in commercial transactions
- Adjusting authentication and certification processes
- Creating different data flows
- Enabling transparency over commercial activities in an ecosystem

Recommended by the Authors

- What Is Ethereum 2.0 and How Does it Relate to Digital Business Acceleration and a New Programmable Economy?
- The China Blockchain Service Network: A New Digital Infrastructure to Accelerate and Challenge Digital Commerce
- Europe Is Turning to Blockchain to Accelerate Digital Public Services
- Accelerate Your Banking Digital Transformation via Unconventional Payment Strategies
- Take Control of Your Digital Acceleration by Focusing on How Value Flows Through Ecosystems