



Crypto-marketing: how non-fungible tokens (NFTs) challenge traditional marketing

Reto Hofstetter¹ · Emanuel de Bellis² · Leif Brandes¹ · Melanie Clegg¹ · Cait Lamberton³ · David Reibstein³ · Felicia Rohlfen¹ · Bernd Schmitt⁴ · John Z. Zhang³

Accepted: 28 June 2022 / Published online: 29 July 2022
© The Author(s) 2022

Abstract

In this article, we argue that non-fungible tokens (NFTs) challenge established marketing understanding of digital ownership, uniqueness, and value; authenticity, status, and sharing; and branding and distribution. We propose a set of preliminary research questions rooted in these areas, in hopes of offering entry points to future programmatic investigation of the broader field of “crypto-marketing.” This emerging subdiscipline offers opportunities to expand our understanding of consumer behavior, pricing, and product design and may be crucial in predicting the future of our discipline as NFTs further evolve.

Keywords Non-fungible token · NFT · Crypto-marketing · Blockchain · Ownership · Authenticity · Uniqueness · Decentralization

“Who spends \$140,000 on a CryptoKitty?” the New York Times wondered in 2018, reporting on an emerging class of digital collectibles that is known as non-fungible tokens or NFTs (Mala, 2018). A couple of years later, digital art from CryptoKitties, CryptoPunks, Bored Apes, and other groups were valued in the millions of dollars, with sales projected to reach \$35 billion in 2022 (Canny, 2022). While the value of NFTs—and of crypto-currencies—fluctuates, and at times dramatically, NFTs have made major inroads into consumer markets. Fueled by Coca-Cola, Gucci, Pizza Hut as well as several luxury brands, NFTs have become part of the strategy of consumer brands. Adidas, for example, made over \$22 million in one afternoon by selling 30,000 NFTs tied to a new hoodie and tracksuit for \$765 each.

We define an NFT as a unique unit of data that is tradeable and stored on a decentralized, public blockchain along with its ownership history. NFTs represent ownership of any information, including URLs, images, videos, social media posts, or

✉ Reto Hofstetter
reto.hofstetter@unilu.ch

Extended author information available on the last page of the article

certificates that can be associated and stored on the blockchain together with the identifier of that unique good. Physical assets can also be represented as or augmented by NFTs, as long as they can be uniquely identified (e.g., via serial number) or digitized through filming, scanning, as virtual objects or representations. Once the NTF is created through a process called minting, each subsequent transaction is recorded on the blockchain, thus aggregating history over time. Importantly, unlike other digital goods and cryptocurrencies such as Bitcoin, each NFT is distinguishable and unique.

We propose that NFTs offer an entry point into what we call “crypto-marketing,” a nascent subdiscipline that includes any marketing practice that leverages blockchain technology for the purpose of designing, pricing, promoting, and selling digital and non-digital goods. Although NFTs might sound like an esoteric fad, we argue that they create a variety of new challenges and opportunities for marketers, consumers, and researchers. Specifically, NFTs raise questions in three main areas: (1) digital ownership, uniqueness, and value; (2) authenticity, sharing, and status; and (3) decentralization of branding and distribution. Analysis of these three areas prompts an initial set of research questions, which may inspire researchers to embrace this area of study. A true novelty of NFTs is that the full ownership history is public and immutable. However, while other aspects of NFTs are per se not new, they lead to new outcomes (in terms of perceptions and actions) when combined with the benefits of blockchain technology and smart contracts. In analyzing these areas, we lay out which aspects are truly unique to NFTs and which have already existed for other products but lead to new outcomes in crypto-marketing.

1 Digital ownership, uniqueness, and value

Historically, digital goods have been accorded less value than physical goods due to their inability to generate strong psychological ownership (Atasoy & Morewedge, 2018). NFT technology, however, may enhance psychological ownership, in part because NFTs cannot be replicated.¹ NFTs represent an exceptionally strict form of uniqueness, giving consumers the ability to prove that they are the only possessor of a good. Such uniqueness should drive value because limited supply offers the owner of a scarce product a feeling of distinctiveness and uniqueness (Lynn, 1991). However, there is a catch: although each NFT is unique, NFTs are often nearly alike. The CryptoPunks collection, for instance, features 10,000 technically unique NFTs that look almost identical (e.g., only one feature may differ between two NFTs). Thus, while NFTs offer uniqueness and exclusivity, they also offer a certain level of conformity—a combination rarely found in other goods—and a feature in need of further research.

Second, one of the traditional functions of marketing is to communicate the value of a good or service. A distinguishing feature of NFTs is that the creator and any

¹ Note that whereas the NFT itself cannot be replicated on the blockchain, the good it is referring to potentially can be replicated.

later owner can be verified in the ownership history of an NFT, publicly stored on the blockchain. Although the ownership history of some goods was tracked already in the past (e.g., houses, automobiles, fine art), the possibility to attach a history also to digital goods is exclusive to NFTs. This allows for distinct pricing models in which original creators can charge a royalty for any transaction beyond the first sale, similar to an oil painting by a famous artist. In addition, NFTs can accrue a rich ownership history, akin to an offline provenance. Depending on prior ownership, such a history may create either positive or negative contagion.

Features such as visual properties, collection size, or past bidding behavior have been found to matter (Nadini et al., 2021), but their relevance relative to such NFT-specific ownership resale models and accruals have not been studied. Thus, it remains unclear how NFT offerings can be designed to provide optimal prices.

Third, NFTs offer consumers new ways to exchange economic value by the fact that they are bought and sold on the blockchain using a cryptocurrency or even by acting as payment themselves. Classic explorations of pain of payment effects (Prelec & Loewenstein, 1998) have documented consumers' propensity to spend more in lower-pain modes, such as credit cards, than in more transparent, painful modes, such as cash. Research has also suggested that consumers may mentally account (Thaler, 1985) for money differently when it takes the form of liquid currency than when it has been moved into securities, sometimes leading to irrational behaviors. Similarly, the digital nature of paying for NFTs may easily reduce consumers' felt pain of payment—but due to their novelty, may also increase it. Given pain of payment's role in charitable giving, debt management, and perceived transaction value, understanding this phenomenon in the NFT world may become of broad importance.

2 Authenticity, sharing, and status

The ability to verify the authenticity of NFTs also presents new challenges and opportunities to marketers. First, social media firms use the ability to authenticate ownership as a means of conferring status on users, presumably raising the value of interacting on their platform. Twitter, for instance, has started to verify ownership of NFT images used as profile pictures. NFTs may thus provide additional status beyond social network metrics such as followers and engagement (Lanz et al., 2019), though the nature of such status should not be assumed to be identical to that created in other ways.

Similarly, NFT technology may affect what information consumers share with others. The potential to turn one's own social media posts, reviews, comments, and blogs into tradable NFTs already exists. In 2021, for example, then-Twitter CEO Jack Dorsey sold his first tweet as an NFT for \$2.9 m. Such examples may inspire additional creation and sharing of content, similar to other user-generated content prompts, but also illustrate the fact that consumers may be able to turn audiences into potential content buyers. As researchers, we may therefore revisit expectations of user-generated content and study how consumers' beliefs and desires may be inferred from the “products” they offer.

Firms may also use NFTs to raise brand status or expand to new markets. Consumer brands such as Campbell's, Gap, Pizza Hut, and Samsung are experimenting with flanking new product launches with NFTs or with launching their own collections (Kelly, 2022). A Pizza Hut NFT that sold initially for 18¢ resold shortly after for \$8824 (AdAge, 2021), suggesting that even a non-prestige brand may offer NFTs at a premium. What is not yet understood is how and why NFTs attract new segments, generate revenues, transfer status to consumers, and increase content creation and sharing.

3 Decentralized branding and distribution

The decentralized nature of NFTs calls into question our understanding of branding and product management as centralized marketing processes (Schreier et al., 2012). First, NFT marketing, product development, and personalization are crowdsourced. For instance, consumers may brand “derivative collections” using previously minted NFTs (NFT Culture, 2022) or brand their own products inspired by others (e.g., the Bored Ape Rolex; Miles, 2022). Such crowdsourced branding may offer a laboratory to observe branding when consumers play the role of active creators. Second, NFTs transform the supply chain, as the decentralized ledger eliminates the need for intermediaries such as wholesalers, retailers, or sales agents. This gap may be filled by new intermediaries, enablers and facilitators, who provide access to and augment NFT technology. The largest NFT marketplace, OpenSea, for instance, facilitates the access and distribution of NFTs and offers additional, beyond-blockchain features to NFT buyers and sellers. At the same time, facilitators pose their own risks, as evidenced by a recent database outage at OpenSea and large amounts of plagiarism; over 80% of items on OpenSea have been identified as plagiarized, fake, or spam (Brandom, 2022).

Interestingly, the vulnerabilities in a decentralized system may also offer opportunities to develop new businesses or strengthen offline brands. For example, Bitcoin Suisse produces crypto certificates—paper wallets that offer transferable storage for blockchain-based assets, making it possible for consumers to securely store private keys necessary to access their value. Others, such as Origyn Foundation, offer authentication for watches and other physical goods, uniquely identified with high-definition photos. Such NFT-related services may protect consumers against flaws in distribution systems, while protecting brands against the dangers inherent in online markets.

Taken together, the three sets of differences between NFTs and previously studied goods raise a host of new research questions, some of which are shown in Table 1.

4 Risks, pitfalls, and conclusion

Although crypto-marketing provides novel opportunities for marketing practice and research, it also poses distinct risks. First, crypto-marketing will need to inspire new forms of trust, yet decentralization makes it hard for regulators to police the

Table 1 NFT and crypto-marketing research questions*Digital ownership, uniqueness, and value*

1. How does owning a unique digital product or a digital companion of a physical product influence consumer perception and use of the product?
2. How do consumers perceive the functional, economic, social, and psychological benefits of NFTs vs. traditional digital and physical offerings?
3. Do NFTs enhance the relevance of uniqueness and scarcity as value drivers?
4. How can NFTs generate value in the metaverse by using augmented reality (AR) and virtual reality (VR)?
5. What are effective pricing mechanisms for NFTs?
6. What will drive the perceived value of and willingness to pay for NFTs over time, contexts, and consumers?
7. How does “pain of payment” change when consumers buy or sell NFTs with cryptocurrency as opposed to other forms of value exchange?
8. Will consumers mentally account for NFTs in ways more like those observed for currency, credit, or securities?

Authenticity, sharing, and status

9. How important is the product itself, the originator, and the history of ownership?
10. How are immutable digital ownership and an evolving history of ownership valued by customers?
11. How do royalties change creators’ incentives and behavior?
12. How do NFT-based and traditional promotion interact to influence customer engagement?
13. How do NFTs influence content creation and sharing?
14. What roles can NFTs play in constructing one’s digital or physical self?
15. How does signaling NFT ownership influence status perceptions?
16. How can NFTs be used to support brands’ promotional efforts?

Decentralized branding and distribution

17. How is the role of brands changing given the decentralized nature of NFT offerings?
18. What type of products will consumers want to create as NFTs by themselves, and what products will remain marketer-driven?
19. How can intermediaries such as retailers still create value in a decentralized NFT ecosystem and how is B2B marketing affected?
20. How do consumers perceive facilitating platforms and what is the role of the platforms’ communities in setting value?
21. What is the role of self-responsibility from both consumer and company perspectives?
22. Does warehousing and storage become more relevant for digital goods because of NFTs?

behavior in the system. Consumers and firms will also need to learn whether and when to trust blockchain technology, new intermediaries, and the crypto community, and to manage NFT experiences responsibly. This is especially important because blockchain technologies include a high degree of self-responsibility (e.g., there are no fallback options if users lose private keys to their digital wallets). In addition, blockchains (especially “proof-of-work” blockchains) can consume extraordinary amounts of energy and thus generate environmental costs. As with any radically new technology, marketers have the responsibility to assess both the strengths and weaknesses of the system with transparent, unbiased inquiries.

We look forward to an ongoing conversation and novel scientific insights into the exciting and fast-developing area of crypto-marketing—with the goal of eventually offering non-unique, fungible conclusions.

Funding Open access funding provided by University of Luzern

Declarations

Ethics approval This article does not contain any studies with human participants performed by any of the authors. Therefore, no ethical approval or informed consent is needed.

Conflict of interest The authors declare no competing interests.


Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- AdAge (2021). Pizza Hut's NFT promotion delivers an \$8,824 slice of pixelated pepperoni. <https://adage.com/article/digital/pizza-huts-nft-promotion-delivers-8824-slice-pixelated-pepperoni/2322331>. Accessed 20 January 2022.
- Atasoy, O., & Morewedge, K. (2018). Digital goods are valued less than physical goods. *Journal of Consumer Research*, 44(6), 1343–1357.
- Brandom, R. (2022). How one company took over the NFT trade, The Verge. <https://www.theverge.com/2022/2/2/22914081/open-sea-nft-marketplace-web3-fundraising-finzer-a16z>. Accessed 1 March 2022.
- Canny, W. (2022). Jefferies sees the NFT market reaching more than \$80B in value by 2025, CoinDesk. <https://www.coindesk.com/business/2022/01/20/jefferies-sees-the-nft-market-reaching-more-than-80-billion-in-value-by-2025/>. Accessed 1 March 2022.
- Kelly, L. (2022). Pre-orders of Samsung's new Galaxy S22 smartphone to come with NFTs, Decrypt. <https://decrypt.co/92880/pre-orders-samsung-new-galaxy-s22-smart-phone-come-nfts>. Accessed 1 March 2022.
- Lanz, A., Goldenberg, J., Shapira, D., & Stahl, F. (2019). Climb or jump: Status-based seeding in user-generated content networks. *Journal of Marketing Research*, 56(3), 361–378.
- Lynn, M. (1991). Scarcity effects on value: A quantitative review of the commodity theory literature. *Psychology & Marketing*, 8(1), 43–57.
- Mala, E. (2018). Wo spends \$140,000 on a CryptoKitty? The New York Times. <https://www.nytimes.com/2018/05/18/style/cryptokitty-auction.html>. Accessed 1 March 2022.
- Miles, C. (2022). This custom bored ape Rolex is insane!, Sweet + Sour. <https://sweetsourmagazine.com/this-custom-bored-ape-rolex-is-insane/>. Accessed 1 March 2022.
- Nadini, M., et al. (2021). Mapping the NFT revolution: Market trends, trade networks, and visual features. *Nature Scientific Reports*, 11, 20902.
- NFT Culture (2022). Why NFT derivate projects? <https://www.nftculture.com/nft-news/why-nft-derivative-projects>. Accessed 1 March 2022.
- Prelec, D., & Loewenstein, G. (1998). The red and the black: Mental accounting of savings and debt. *Marketing Science*, 17(1), 4–28.
- Schreier, M., Fuchs, C., & Dahl, D. W. (2012). The innovation effect of user design: Exploring consumers' innovation perceptions of firms selling products designed by users. *Journal of Marketing*, 76(5), 18–32.
- Thaler, R. (1985). Mental accounting and consumer choice. *Marketing Science*, 4(3), 199–214.

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Authors and Affiliations

Reto Hofstetter¹  · **Emanuel de Bellis²** · **Leif Brandes¹** · **Melanie Clegg¹** · **Cait Lambertson³** · **David Reibstein³** · **Felicia Rohlfen¹** · **Bernd Schmitt⁴** · **John Z. Zhang³**

Emanuel de Bellis
emanuel.debellis@unisg.ch

Leif Brandes
leif.brandes@unilu.ch

Melanie Clegg
melanie.clegg@unilu.ch

Cait Lambertson
catlam@wharton.upenn.edu

David Reibstein
reibstein@wharton.upenn.edu

Felicia Rohlfen
felicia.rohlfen@unilu.ch

Bernd Schmitt
bhs1@gsb.columbia.edu

John Z. Zhang
zjzhang@wharton.upenn.edu

¹ Institute of Marketing and Analytics, University of Lucerne, Frohburgstrasse 3, P.O. Box 4466, 6002 Lucerne, Switzerland

² Institute of Behavioral Science and Technology, University of St. Gallen, Torstrasse 25, 9000 St. Gallen, Switzerland

³ Wharton School, University of Pennsylvania, Jon M. Huntsman Hall, 3730 Walnut Street, Philadelphia, PA 19104, USA

⁴ Columbia Business School, Columbia University in the City of New York, 665 West 130th Street, New York, NY 10027, USA