Towards a Quantitative Approach for Evaluating the Impact of Brand Non-Fungible Tokens (NFTs) on the Marketing Funnel: approach and early results.

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Abstract:

This paper introduces a systematic approach to measure the impact of non-fungible tokens (NFTs) at each stage of the marketing funnel. Leveraging data derived from blockchain transactions and web metrics this study aims to provide a foundational basis for brands to frame the impact of NFT usage on their marketing strategy. The study extends existing marketing literature by introducing a first approach to quantitatively assess NFTs' influence on the marketing funnel.

Keywords: Non-Fungible Tokens, NFT, Marketing Funnel, Blockchain, Quantitative Analysis, brand impact metrics., brand impact metrics.

Titre : Une approche quantitative pour évaluer l'impact des jetons non fongibles (NFT) sur le Funnel Marketing : approche et premiers résultats

Résumé :
Cet article présente une approche systématique pour mesurer l'impact des jetons non fongibles (NFT) à chaque étape du marketing funnel. En exploitant des données issues des transactions sur la blockchain et des données du web analytics, cette étude vise à fournir une première base fondamentale aux marques pour cadrer l'impact de l'utilisation des NFT sur leur stratégie marketing. L'étude élargit la littérature marketing existante en introduisant un cadre quantitatif pour évaluer l'influence des NFT sur les étapes du marketing funnel.

Mots-clés : Jetons non fongibles, NFT, Funnel Marketing, Blockchain, Analyse quantitative, mesures d'impact marque.

1. Introduction

Non-fungible tokens (NFTs) have gained significant attention and popularity in recent years. They are digital assets that represent ownership or proof of authenticity of a unique item or piece of content, such as art, collectibles, virtual real estate, music, videos, and more, on a blockchain. Unlike cryptocurrencies like Bitcoin or Ethereum, which are fungible and can be exchanged on a like-for-like basis, NFTs are distinct and cannot be exchanged on a one-to-one basis.

Non-fungible tokens (NFTs) have disrupted various industries, not least of which is marketing (Faridani, A. (2021), Alkhudary, R & Al (2022), Hofstetter & Al (2022), Chohan R. & Paschen J., (2023), Bequiri & Al, 2023, Colicev, (2023)). Specifically, brand NFTs are gaining popularity developing substantive new streams of revenue for brands. Recent data reported by Dune Analytics[1] shows leading brands such as Nike, Dolce & Gabbana, Tiffany & Co, achieving significant new revenue streams, Nike leading the crowd with more than 185 millions dollars of additional revenue generated by NFTs. Furthermore, although the NFTs market has collapsed in 2022, brands still fuel the NFT market activity and as a recent report clearly shows :

"it's exciting to see brands continue to experiment despite current market conditions. There seems to be a trend away from using NFTs to make a quick buck toward focusing on how technology can be used in a loyalty setting to engage customers and increase LTV ".[2]

According to the same report, as of early 2023, it is not less than 90 brands that enter the Web3 every quarter. About 60% of brand initiatives relate to NFTs launch. This trend confirms again brands' strong interest and willingness to explore both the branding and business opportunities offered by this new Internet.

To this end, two notable research papers (Colicev, (2023), Chohan R. & Paschen J., (2023)) introduce the potential impact of NFTs on brands' value. Colicev (2023) argues that NFTs *"from a brand perspective, can be seen as representations of the brand components, such as the product, the logo, or the image and have immense potential to become standalone brand assets"* and illustrates the argument by relating how brand's NFT strategies may impact the different marketing funnel stages (Wiesel, & Al. (2011). Similarly, Chohan R. & Paschen J., (2023), discuss *"how marketers can encourage consumers to purchase NFTs, adopting a widely applied buying decision model comprising four stages: awareness, interest, desire, and action (AIDA)"*. The same authors expand the original AIDA framework adding a post purchase stage to the model (Barry, T. E., & Howard, D. J. (1990)) to discuss how brands may market NFTs, as stand alone brands assets (Colicev, 2023) not only to develop new streams of revenue but also to strengthen and expand brand equity.

Despite this growing popularity, there is yet a lack of systematic, quantitative studies evaluating brand NFTs' impact on the marketing funnel.

This paper proposes to address this gap to further demonstrate the value of NFTs as marketing assets and provides brands with a first framework they can relate to invest more

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[1] Top 5 brands with the most with the most NFT revenue in 2022: https://metav.rs/blog/5-brands-most-nft-revenue/

[2] Brands in Web3 : https://www.nfttech.com/newsroom/web3-report

confidently in Web3 and prove the ROI of their NFT campaigns (Chohan R. & Paschen J., (2023)). To this end, we introduce a novel methodology that harnesses both blockchain metrics and traditional web metrics to measure NFTs' influence at each stage of the marketing funnel (Colicev, (2023). As NFTs become more mainstream, understanding their impact on the marketing funnel becomes crucial for marketing managers. To date although some early research has been produced to understand the unique values of NFTs as marketing and brand assets, no research seems to answer the need of marketers yet truly for measurement of the impact of NFTs on the marketing funnel. Furthermore, the approach offers marketers an ability to evaluate their "NFT marketing campaigns" impact on the consumer decision model (Chohan R. & Paschen J., (2023)) .

The paper is organized around four sections. The first section reviews the literature and develops the conceptual framework of the research. The second section provides the basis of our proposed methodology. The third section discusses the early results of the approach. A final section discusses opportunities and future research directions providing a tentative future research agenda for measuring and valuing brand web3 initiatives such as NFTs.

2. Literature Review and Conceptual Framework

Recent research from Colicev (2023) argues that NFTs can be seen as representations of the brand components, such as the product design, the logo, or the image. For instance, a branded NFT can be a digital twin of a physical product, a graphical representation of a brand's logo in the digital environment, or even ticket to a concert for example. The author further expands his argument and supports that NFTs can become standalone brand assets and therefore impact the overall brand equity.

Early insights on the potential impact of NFTs on brand equity.

Colicev (2023) proposes that NFTs may impact brands by affecting consumers in the pre-purchase, purchase, and post-purchase stages of the marketing funnel in two ways.

- ***First, NFTs can become standalone brand components*** (e.g., new products) that can play an important role along the whole marketing funnel. Launching a branded NFT can raise brand awareness and attract previously unreachable audiences (e.g., Gen-Z). For instance, Anheuser-Busch has successfully launched several NFT collections accompanying the launch with events (music, concerts) and giveaways from tech companies[3]. Consumers can also be persuaded by the NFTs to buy the brand's physical products, thus creating cross-selling opportunities. A prominent example is digital fashion brands like Nike and Adidas, which have sold many physical shoes as NFTs and vice-versa (McKinsey, 2022). Finally, brands can build loyalty by creating stronger perceived ownership of certain brand elements, such as the brand logo or design.

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[3] https://www.ledgerinsights.com/budweiser-nft-sells-out-in-an-hour-75-up-for-resale/
https://www.nftculture.com/nft-news/budweiser-unveils-exclusive-nft-collection-budverse-x-fifa-world-cup-in-continued-partnership-with-vayner3/

- *Second, NFTs can form a brand community that can support the brand*. As webpages revolutionized commerce and social media have created a two-way communication channel with consumers, NFTs can become the catalyst for the third wave of commerce through the power of online brand communities (Schau, Muñiz, & Arnould, 2009 ; Alkhudary & Al, 2022). Discord, Telegram, and Reddit are highly engaging, decentralized, and anonymous social media platforms where users spend an increasing amount of time. Brands can use platforms to create customer engagement in NFT communities through organic messages or creative content that can increase brand awareness. For example, Time Magazine uses Discord to engage users with daily games and challenges[4]. Brands can also utilize the community aspects of NFTs for blending the NFT ownership with offline use cases, increasing purchase intentions for the brand's products. This can be done by rewarding NFT holders with access to exclusive merchandise (e.g., The Hundreds' and Adam Bomb Squad), premium service (e.g., priority in seating in concerts), or even private parties (e.g., Bored Ape Yacht Club yacht party) (Kaczynski & Kominers, 2021). Finally, brands create a bond with consumers by designing authentic and creative storylines around the brand's identity.

According to Colicev (2023), it therefore becomes acceptable to consider that NFTs, either as standalone branding components or thanks to their community building aspects, may impact the different stages of the marketing funnel from pre-purchase (eg. brand awareness) to purchase (eg. consideration, purchase, purchase intent) and post-purchase stage (satisfaction, loyalty) (Wiesel & Al, 2011). The author illustrates his arguments in Figure 1 and provides examples of brand initiatives leveraging NFTs either as standalone brand components or through their community building aspects to impact each stage of the marketing funnel.

Fig. 1. NFTs and the stages of the marketing funnel.

A. Colicev (2023) research is specifically interesting as it suggests that although NFTs were primarily associated with art and collectibles, NFTs also hold significant potential for brands to add value to their marketing strategies. By integrating NFTs into the marketing funnel channels, brands can create engaging experiences for their customers, enhance brand loyalty, and generate new revenue streams.

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[4] https://www.coindesk.com/business/2021/11/30/note-to-brands-crypto-isnt-funny-money-its-community/

As NFTs become more mainstream, it is clear that marketing managers will need to be ready to meet increasing consumer demand for NFTs. To this end, recent research ((Chohan R. & Paschen J., (2023)) discusses and showcases the NFTs' marketing potential, but also stresses the need for marketing managers to know how to use NFTs in their campaigns. To help dispel such uncertainty, Chohan R. & Paschen J., (2023) discuss a modified AIDA hierarchy as a tool for marketers to understand what NFTs are and how to start using them. It therefore becomes clear to insist on the fact that NFTs will strive as a driving force behind the Web3 marketing revolution only when both their management and marketing effectiveness will be understood by brands.

The present situation reminds us of the same needs and questions as in the early days of the Internet and the rise of digital advertising (Florès, 2000). At that time, digital advertising, now more widely called "digital marketing" represented not more than 3% of a brand's total media investment. Brands were both suffering from a misunderstanding of "how internet advertising works", a down market after the ".com" bubble burst[5] and a lack of proof of the impact of digital advertising impact on brands' marketing funnel. Clearly, if NFTs are to expand in terms of importance to drive brand marketing they need to show and prove value and ROI on the different stages of the marketing funnel, moving from promises (Colicev 2023) to actual marketing ROI proof of their impact. The present paper intends to address this gap by providing an early approach to valuing and measuring the impact of NFTs on the marketing funnel.

From measuring digital advertising impact on brands to measuring NFTs impact on brands.

In less than 25 years, digital marketing makes in bounds to account for about 60% of brands' total marketing media spend[6]. What seems obvious today was not all 25 years back. One of the key catalysts of digital media adoption was its relative "measurability". But soon, advertisers realized that web analytics were giving lots of data and "counts" more than "measures", as such, both brands and media specialists soon became overwhelmed with data that had poor branding and marketing meaning. Tom Heslin, senior vice president and executive editor of the Providence Journal, calls this the *"irony of expectations"*. *"Our biggest challenge is to simplify solutions for our clients, even for national advertisers,"* he explains. *"The development of metrics has far outstripped knowledge of ad buyers and sellers. There is a real disconnect between the technology and how it can be applied and used."*[7] NFTs "onchain" publicly available metrics run the same risks of not being used if improperly understood and valued by brands when evaluating their NFT activation.

At the time, Hollis (2005) work reconciled two different paradigms that characterized the way the effectiveness of online advertising has been assessed: brand building or direct response.

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[5] https://www.clickz.com/internet-advertising-in-2000-and-beyond/62069/
[6] https://www.irep.asso.fr/actualite/bump-les-resultats-au-1er-trimestre-2023-sont-disponibles/
[7] https://towcenter.gitbooks.io/faulty-metrics-and-the-future-of-digital-journali/content/ii_measuring_online/the_irony_of.html

Following the same principles, the present paper intends to provide a broader view of the impact of NFT on brands. Going beyond the pure transactional metrics provided NFT on-chain data such as floor price, volume sold, transactions, etc. that tend to mainly qualify the success of a NFT drop by its speed of sales and its floor price. We intend to go beyond pure transactional metrics to review the potential impact of NFTs drops on all stages of the marketing funnel (Colicev, 2023).

To this end, we use publicly available "on chain" data along with other web analytics (off-chain data) metrics to value how NFTs may impact each stage of the marketing funnel. Furthermore, leveraging early work and recommendations to use web proxy metrics for in market measurement (Delarocas & Al, 2004 ; Belvaux, Florès, 2010; Binet, 2020; Hawkins, 2020), we apply such approach to NFT metrics to help demonstrate their impact on brand's marketing funnel.

We illustrate the overall approach in Table 2. It provides examples of the use of proxy metrics extracted from both "on chain" and traditional web metrics able to potentially value the impact of NFTs at each stage of the marketing funnel.

Stage of the Marketing Funnel	Examples of proxy metrics either "onchain" or offchain that may illustrate the impact of NFTs on brands.
Awareness	- Number of NFTs minted: Tracking the total number of NFTs created and listed on the blockchain. - NFT Ownership Transfers: Monitoring the number of transfers of NFT ownership. - Social Media Mentions: Tracking the number of mentions, likes, shares, and other social media interactions related to the NFT launch. - Token Burn Events: Monitoring the burning (destruction) of specific NFTs, which can create scarcity and increase the value of remaining NFTs. - Community Growth: Measuring the increase in the number of members in NFT-related social media groups or communities.
Consideration	- NFT Bids/Auctions: Monitoring the number of bids and the bidding activity on NFT marketplaces. - Time Held per NFT: Measuring the average duration for which users hold on to NFTs. - Unique Wallet Addresses: Counting the number of unique wallet addresses interacting with the NFTs. - Token Velocity: Calculating the rate at which NFTs are changing hands within a specific period, indicating how actively they are being traded. - Volume of Community Contributions: Tracking the quantity and

	quality of contributions from the NFT community, such as artwork, collaborations, or fan-generated content
Conversion	- Conversion Rate: Calculating the percentage of users who perform the desired conversion action after owning an NFT. - Transaction Volume: Tracking the total value of transactions related to the NFTs. - Referral Program Participation: Monitoring the number of NFTs earned or transferred as part of a referral program. - Total Staked Tokens: Measuring the amount of cryptocurrency tokens staked or locked in smart contracts related to the NFT project, indicating user commitment and loyalty. - Decentralized Exchange (DEX) Listings: Tracking the number of decentralized exchanges where the NFTs are listed, indicating the demand and liquidity for the NFTs
Loyalty	- NFT Holders Retention: Analyzing the percentage of NFT holders who continue to hold the NFT over time. - Exclusive Content Access: Monitoring the usage of NFTs to access exclusive content, events, or perks. - Community Engagement: Measuring the level of community interactions and participation by NFT holders. - Participation in Governance: Analyzing the level of engagement in decision-making processes related to the NFT project through governance voting. - Repeat NFT Purchases: Tracking the frequency of repeat NFT purchases by loyal customers
Advocacy	- NFT Token Transfers: Tracking the number of NFT transfers to other wallet addresses. - User-Generated NFT Content: Monitoring the creation and sharing of user-generated NFT content related to the brand or campaign. - Votes and Governance: Analyzing the participation in voting processes if NFTs provide voting or governance rights. - NFTs used as Collateral: Monitoring the use of NFTs as collateral in decentralized finance (DeFi) lending platforms, indicating their perceived value and utility beyond collectibility. - Influencer Endorsement: Measuring the level of endorsement and promotion of the NFTs by influencers or celebrities

Revenue Generation	- Secondary Market Sales: Analyzing the volume and value of NFT sales on secondary markets. - Royalties Earned: Tracking the royalties earned from secondary sales of NFTs. - Token Price Performance: Monitoring the price performance of utility tokens on exchanges if NFTs are utility tokens. - NFT-Related Merchandise Sales: Tracking the sales of physical merchandise related to the NFT project, leveraging the brand value of the NFTs. - NFT Integration with Partners: Monitoring the number and value of partnerships and collaborations involving the NFT project, leading to additional revenue streams
Table 2 - Example of proxy metrics that may provide insights on NFTs impact on the brand marketing funnel.	

3. Methodology: using on-chain data and web analytics (off-chain data) as proxy metrics to measure NFTs impact on the marketing funnel.

In their original paper, Belvaux and Florès (2010) introduce the concept of "proxies du web" which refers to digital indicators or metrics that serve as representative measures for predicting market success. They show that these web proxies are valuable tools for gauging and forecasting in-market performance. Building on these principles, another compelling application of web proxy metrics is evident in the realm of "share of search" (Binet (2020), Hawkins (2020)). This metric, derived from online search data, has been identified to represent a staggering 83% of a brand's market share[8], showcasing the profound potential of online behaviors in predicting market dynamics and brand performance.

Drawing a parallel to the realm of blockchain and NFTs, one can argue that on-chain data derived from blockchain transactions can function as analogous proxy metrics. Such data offers a granular view of user interactions, transactions, and behaviors within the NFT ecosystem. By analyzing these on-chain metrics, brands can gain a deeper understanding of the impact of NFTs on their marketing funnel, potentially predicting market responses and strategizing accordingly. Just as "proxies du web" (Belvaux, Florès, 2010) serve as lead indicators in traditional digital spaces, on-chain data can be the avant-garde proxy for the burgeoning world of NFTs in brand marketing. These on-chain metrics coupled with other more traditional web analytics (or off-chain data) may then provide an early read on the performance of NFTs campaigns for brands (Chohan R. & Paschen J., (2023)) as well as support the case of NFTs' impact on brands' full marketing funnel (Colicev, 2023).

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[8] https://www.marketingweek.com/share-of-search-market-share/

3.1 Data Collection

We first gathered publicly available on-chain data from Ethereum and Polygon blockchains. These two blockchains are indeed the ones that mainly support brands' NFTs programs launched. According to a recent report[9], in 2022 and 2023, not less than 90 brand projects have been launched, quarterly, either on Polygon or Ethereum blockchains. In the present paper, we extracted data from automotive NFTs drops. Indeed, the automotive industry has been a leading industry to experiment the use of NFTs in its value chain[10]. In this research, we only collected data from car manufacturers using NFTs for branding purposes (Colicev, 2023). Data were collected from 5 car manufacturers accounting for a total of 7 NFT drops, two drops from Hyundai and two drops from Renault (Table 4).

We then collected web analytics or off-chain data[11] from the same car manufacturers from their websites, twitter and discord properties dedicated to their NFT drops. Indeed, NFT drops seem to all follow a common process[12] to maximize their success (Florès, 2023) . This process goes from activating interest/awareness from various communities, to explaining the content and benefits of the drop on a dedicated website and/or the parent brand website to drive interest and consideration, to finally launching and managing community interactions during and beyond the launch. To this end, traditional web2 channels, such as Twitter and Discord, as well as more traditional PR triggers (press releases, etc.) are activated in order to raise awareness, interest and drive positive word of mouth throughout the sale and beyond.

4. Conclusion and Future Research.

Our research proposes to leverage data from blockchain transactions and other web analytics metrics (see Table 2) to serve as web proxy metrics able to assess NFTs' impact on the marketing funnel.

In their original paper, Belvaux and Florès (2010) introduce the concept of "proxies du web" which refers to digital indicators or metrics that serve as representative measures for predicting market success. Drawing a parallel to the realm of blockchain and NFTs, just as "proxies du web" (Belvaux, Florès, 2010) serve as lead indicators in traditional digital spaces, we introduce "on-chain data" to serve as proxy metrics to measure the impact of NFT campaigns on brands. These on-chain metrics coupled with other more traditional web analytics metrics (or off-chain data) provide an early read on the performance of NFTs campaigns for brands (Chohan R. & Paschen J., (2023)) as well as support the case of NFTs' impact on brands' full marketing funnel (Colicev, 2023).

To date, our research is the first that establishes such supporting evidence. Going beyond the hype of vanity metrics such as "speed of NFTs sales" that tend to qualify the success of an NFT campaign on brand, we tentatively provide a set of measurements able to prove the value of NFTs as effective marketing programs able to impact the full brand marketing funnel.

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[9] https://www.nfttech.com/newsroom/web3-report

[10] https://www.overland-e.com/the-power-of-nfts-and-their-use-in-the-automotive-industry/

[11] We collect data from sources such as www.similarweb.com and APIs from Twitter and Discord.

[12] https://queue-it.com/blog/successful-nft-drop/

The proposed methodology provides a starting point for brands to evaluate and optimize their NFT marketing strategies. Future research should further refine this first quantitative approach.

Future research is recommended in two directions.

The first string of future research should look at refining the veracity of this novel approach and its methodological rigor. One essential trajectory for future research is the meticulous refinement and validation of the method introduced in this study.

The second stream of research should look at better understanding the specific branding mechanics of NFTs (Colicev 2023). To this end, as NFTs become a more mainstream part of marketing strategies, it's crucial to understand not just their broad impacts, but the specific ways in which they influence different stages of the marketing funnel. This will allow brands to more effectively harness the power of NFTs, tailoring their strategies to optimize the impact at each stage. Finally, while this paper focuses on a quantitative approach, future research should also consider qualitative aspects of NFTs' impact. Following recent research from Alkhudary, R & Al (2022) exploring the consumption practices of NFTs using Holt's typology of consumption practices, research is needed to understand how consumers perceive brands that use NFTs? Do NFTs affect the perceived authenticity or credibility of a brand? Understanding these aspects will provide a more holistic view of NFTs' role in marketing.

We hope other researchers and practitioners alike will join forces to drive the future of a measurable Web3 marketing.

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