

Digital future of luxury brands: Metaverse, digital fashion, and non-fungible tokens

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Abstract

Leading luxury brands have incorporated technologies to recreate brand images and reinvent consumer experience. The fashion industry is experiencing a historic transformation thanks to emerging technologies such as blockchain and non-fungible tokens (NFTs) along with impactful technologies such as artificial intelligence (AI), machine learning (ML), and virtual reality (VR). With metaverse as a new social platform around the corner, academics and industry alike are querying how these new technologies might reshape luxury brands, reinvent consumer experience, and alter consumer behavior. This research charts new academic territory by investigating how newly evolved technologies affect the fashion industry. With practical examples of luxury brands, this article has theorized the irreversible trend of digital fashion: the attraction of NFT collectibles. It then proposes intriguing questions for scholars and practitioners to ponder, such as will young consumers, essentially living online, buy more fashion products in the digital world than in the real world? How can the fashion industry strategize for the coexistence of digital collections and physical goods?

JEL CLASSIFICATION

M30, M31, O31, O33

1 | INTRODUCTION

In an industrialized digital world in which teens and young adults below 25 are spending, on average, 8 h a day engrossed in their screens (Williams, 2021), luxury brands are clearly seeing the writing on the wall: change is imperative; for companies hoping to attract youthful consumers, the time to incorporate new technology into their brand is now. Such global brands as Gucci, Burberry, Ralph Lauren, and Louis Vuitton are increasingly deploying artificial intelligence (AI) in designing seamless customer onsite interactions with their brands. Many are also incorporating non-fungible tokens (NFTs) to certify the authenticity of digital images available for purchase.

Far-sighted brands are also ramping up digital product lines for the soon-to-debut online social space known as the metaverse (as opposed to a variety of lower-case metaverses, some of which (e.g., Second Life and the gaming site Roblox) have been in operation since the early 2000s. China is close behind—despite the government ban on NFTs, sellers get around it by calling them digital collectibles.

Since the desire for these objects is high, Singles Day, the world's largest shopping festival, is becoming a massive opportunity for luxury brands to target Chinese consumers. An example of this trend is an art exhibition on the Tmall/Taobao mobile app that comprised eight NFTs, including Burberry and Kiehl's (Sentance, 2021).

2 | HOW AI AND NFTS ENHANCE THE LUXURY EXPERIENCE

This essay addresses the new realities of incorporating cutting-edge technological advancements, namely, AI and NFTs, into luxury brand products. This research also examines the future role the metaverse may play in driving burgeoning consumer demand for digitized luxury products (Kaczynski & Kominers, 2021). This anticipated paradigm shift is presaged by art entrepreneurs and artists who have found commercial success in using blockchain and NFT technology (Whitaker, 2019). The current study begins an investigation with an

apt example of one luxury brand's use of AI and NFTs, discussing a mesmerizing art installation that offered visitors a unique brand experience.

2.1 | Bulgari: Brand extension via AI

A highly regarded luxury brand specializing in jewellery, fragrances, leather goods, watches, and other exclusive merchandise, Bulgari has a venerable history dating back to 1884. From its beginnings as a single jewellery story in Greece through its transformation as a brand inextricably linked to Italy, Bulgari has steadily expanded its reach through the rise of industrialization, two world wars, and technological advances. The brand's iconic Serpenti line of watches, first introduced in the 1940s, remains startling in its modernist design; these coiled watches—a hybrid of the bracelet and watch—twine unusually about the wrist in a snake motif. Over the post-war decades, the company evolved into an internationally recognized brand, with flagship stores throughout the industrialized world, and an ardent following among the elite, including celebrities like Elizabeth Taylor, a frequent customer during the 1950s.

In 2011, Bulgari entered into a mutually beneficial alliance with LVMH, described by LVMH Chairman Bernard Arnault as “an association between two families sharing a common vision.” The alliance benefited both: Bulgari was acquired by LVMH, and the Bulgari family became the second-largest shareholder in its new parent company (Betts, 2011). LVMH is renowned for its frequent collaborations with artists (Joy et al., 2014). Bulgari had one previous partnership with an artist—filmmaker, Keiichi Matsuda, who created a short film, “Hyper-Reality,” which envisions a dystopian future where virtual realities mesh with real life, resulting in a nightmarish world of unavoidable pop-up ads (Winston, 2016).

In 2021, Bulgari took a more escapist approach: this time, dazzling AI-generated images were intended to be pleasurable rather than disturbing, no longer an expression of capitalism run amok. In October 2021, Bulgari debuted its ambitious installation, Serpenti Metamorphosis, the first of its kind in terms of its massive scale and involvement with both AI and NFTs. Created by the Turkish artist and director Refik Anadol, the installation is a multimedia and multisensory experience embodying the concept of rebirth of Serpenti Metamorphosis which features a constantly shifting flow of undulating designs based on 200 million images from nature, including 160 million images of flowers. Trained on these images, the AI algorithms produce streams of vibrant, color-saturated shapes and patterns that drift, bloom, combine, and recombine on the walls, ceilings, and reflective floors of the installation pavilion in a kaleidoscopic dreamscape.

The impact is hallucinatory, a fully immersive experience that envelops the viewer in intense emotion as it organically shapeshifts from one moment to the next. The installation was slated to appear in various major European cities in 2021 and later become an NFT to be sold at auction, a work of ever-changing art both unique and exclusive, according to Jean-Christophe Babin, CEO of the Bulgari Group. As Babin explained, as quoted in *Elle Décor* (December 29, 2021),

“Serpenti Metamorphosis[...] exists in the digital world, thanks to the NFT technology that uses the potential of blockchain to make a work of art truly[...] inimitable within the digital universe. This project is [...] the perfect example of how Bulgari is able to achieve a real metamorphosis of the luxury experience becoming more emotionally immersive than ever through the use of new technologies.” (Carlotta, 2021).

Non-fungible tokens are possible because of Blockchain Technology: “A blockchain is essentially a digital ledger of duplicated transactions and distributed across the entire network of computer systems on the blockchain” (Euromoney, 2021). The advantage of such a system is that the authenticity of an item is identifiable, and its distributed nature across computers on a blockchain makes it difficult to copy. NFTs are also easily transferable from person-to-person and counterfeits are now difficult to create. Several artists have started to create NFTs and have attained legitimacy and validation through adoption by traditional art institutions like Christie's or Sotheby's.

In March 2021, Christie's sold artist Beeple's (aka. Mike Winkelmann) NFT collage “Everydays: The First 5000 Days” for 69 million dollars (Kastrenakes, 2021). Christie's then sold “Cryptopunks” and “Bored Ape Yacht Club” NFTs and Sotheby's staged a physical NFT exhibitions. Buyers are invited to Sotheby's offices in London and Hong Kong, where NFT art is displayed using Samsung's important Frame TVs and 4K Projectors (Chen, 2021a, 2021b). These monitors provide a physical representation for the digital works of art and allow them to be exhibited in traditional gallery spaces despite their lack of material form. Displaying NFTs in galleries has enabled art collectors to have a physical viewing space (Whiddington, 2021). Alternatively, art galleries and auction houses create virtual venues in the metaverse (Akhtar, 2021). In these galleries, a collector could be anywhere globally and use their avatar to enter galleries in the online spaces, and view pieces that may not be accessible to them otherwise.

Unsurprisingly, luxury brand companies such as LVMH are investing in blockchain technologies. Nevertheless, the International Anti-counterfeiting Coalition estimates that at least \$200 million US yearly is still lost by counterfeiting through terminated jobs, unpaid taxes, and missed sales (Furnham & Valgeirsson, 2007; Regner et al., 2019). Alarmingly, 29% of the British and Chinese consumers polled in one study saw no harm in product counterfeiting as long as the products do not put consumers at risk (Bian & Veloutsou, 2007). These authors explain that consumers do not perceive the counterfeit trade as illegal and are indifferent to its concomitant legal issues, like the violation of trademark and copyright law. Smart contracts accompany blockchains as a code that allows for the transfer of digital assets between parties when prescribed conditions have been met. As Wilson et al. (2022) note, smart contracts for NFTs can reduce the need for middle agents such as lawyers. Kaczynski and Kominers (2021) observed that NFTs allowed for certain kinds of actions both in digital spaces as well as in the real world. For instance, each time a work of art is sold, the artist receives a royalty, which did not always happen in the past. In many ways, a radical innovation (Wilson et al., 2022), NFTs are minted with information stored within them; for example, smart contracts can be embedded inside an NFT (Wilson et al., 2022).

Web3 is a term that was coined in 2014 by Gavin Wood (Edelman, 2021). The term heralds the third iteration of the internet age, which many believe to revolve around decentralized open protocols. Web3 changes the balance of power by moving away from centralized models where a few actors control all of the resources and access to a decentralized model which will be owned “by users, who will earn their ownership stake by helping to develop and maintain those services” (Edelman, 2021).

Institutions will serve as guarantors of products, services, and transactions because it is often costly for individuals to do the research required to trust individual vendors or conduct individual purchases. In marketing, scholars often speak of heuristics that help the decision-making process of purchasers, and brands are often used to guarantee a certain level of value for consumers. Web3 uses technology and protocols to provide the user with a guarantee that the transaction is authentic and that the item purchased was what was promised. Specifically, the security property that Web3 inherits from blockchain technology lowers the burden of trust that users need to have in individual transactions and eliminates the need for middlemen or institutional guarantors. The shift to Web3 will have myriad implications for the future of ownership transactions and markets, both of which will significantly impact the luxury sector.

Ariane, a French Ethereum-based company (although they refer to themselves as a project), tracks the provenance or chronology of ownership of luxury brands. This business model is successful. Recently, Ariane partnered with Breitling and has been used by the Richemont group. Ariane collaborated with Paris Fashion Week and Haute Couture Week to deliver a unique NFT experience to early adopters, journalists, influencers, and photographers while educating users about digital wallets. There are, of course, huge costs to the creation of NFTs. Blockchains require an inordinate energy use and the carbon footprint is therefore high (Jones, 2021).

Companies like LVMH have invested in a consortium called “Aura,” which is a blockchain company that offers transparency and traceability. LVMH sees this move as a great opportunity to create a lasting bond with customers who can now be assured that they have unique products from a trusted brand. Their direct competitor, the Kering Group (2018a, 2018b), is also developing apps and software to give their customers a seamless experience within the store and the comfort that their purchases will not be counterfeited. Their brands, such as Gucci, operate within the metaverse as well. However, while these conglomerates may successfully prevent counterfeit theft, a blockchain ledger is only as good as the information it stores. These ledgers cannot prevent a wholesaler from creating a false entry; it is practically impossible to erase once a record is entered. Likewise, if blockchains are used for supply chains, users must trust that everyone in that supply chain will provide accurate information.

Blockchain technology provides the properties of decentralization, anti-tampering, and information traceability. As a result, specific luxury e-commerce platforms are focusing on the use of blockchain technology to issue electronic certifications to consumers to boost customer trust in luxury goods (Whitaker, 2019). Distributed ledgers in the blockchain system record all information in luxury goods

manufacture and distribution processes. Therefore, based on the blockchain's production and circulation of information for luxury items, authentication institutions may offer correct certifications. The distributed ledger assures that the certificates cannot be tampered with by the platform (Regner et al., 2019).

Consumers may easily obtain authentication information through the digital identity of luxury goods; for example, when customers scan the QR code, they may view the electronic authentication information, including the manufacturing, circulation, and authentication of the items. Platforms can adopt blockchain technology to avoid the authentication defects caused by manual technology, thereby improving consumers' trust. The platforms adopting blockchain technology need to bear higher authentication costs, which will undermine the anticipated benefits of this novel process.

Despite the flaws of manual authentication, the cheaper authentication cost helps to minimize the platforms' economic burden. As a result, some platforms continue to opt for manual technology as a cost-cutting measure. Hence, whether the platform uses manual or blockchain technology is worth discussing. There are multiple luxury e-commerce sites competing for the same market, and competition will have an impact on each platform's operational decisions and income. When it comes to art, provenance and authentication are two prized attributes, and blockchain promises both, providing a chain of ownership record dependent on the starting point of the blockchain record (Whitaker, 2019).

2.2 | AI: A streamlined customer interface

Customer experience in the virtual world is likely to resemble the Amazon shopping experience, which is fast, simple, intuitive, and user friendly. Through contemporary technology and AI in particular, e-commerce customers can now increasingly enjoy access to information formerly available only after waiting for a potentially overworked retail representative to respond to a query. The rise of chatbots—known more elegantly on many sites as “virtual assistants”—has allowed for a potentially seamless customer experience, with a digital sales representative providing typed responses and guiding customer purchases. On one hand, chatbots are available 24/7, and can quickly resolve simple questions (e.g., order status, product comparisons, and stock availability).

On the other hand, many customers may be wary of data harvesting. Chatbot conversations with customers can provide companies with valuable data: customer contact information; purchase patterns and concerns; what considerations drive purchase decisions; and what interests and desires aspirational fuel purchases, as when customers gaze, perhaps repeatedly, at a product online but choose ultimately not to make a purchase. Moreover, interacting with a chatbot may be disagreeable to customers who prefer the warmth of human interaction. To ameliorate these concerns, luxury brands such as Louis Vuitton, Burberry, Tommy Hilfiger, Dior, and Estée Lauder offer virtual consultants as the first point of contact as the Websites make clear that they can then lead to interaction with a human representative if desired.

Therefore, chatbots function as gatekeepers, dispatching simple queries, while living consultants are reserved for more complex needs. Because human interaction is itself a luxury commodity, insofar as customers receive direct attention dedicated to identifying and meeting their needs, digitized consultants are used sparingly. The intention is to provide a customer experience entirely free of friction, in which all questions can be quickly answered. The challenge is to do so in a way that does not appear to the customer as emotionally cold and disengaged, given that the most polite bot can never (at this time) replicate empathy. However, with advancements in machine learning by AI researchers, this lacking empathy may not always be the case.

Machine learning play a key role in the development of Bulgari's *Serpenti Metamorphosis*, which relies on AI algorithms "trained" on the vast trove of available images; through machine learning, algorithms can "learn" to make accurate predictions, about, for example, what combinations and sequences of images will be appealing. The process of machine learning improves automatically through experience. By making sense of real-time customer data—for example, who buys what, when, at what price points, and in what locations—machine learning can help luxury brands offer highly personalized and relevant recommendations to each consumer.

3 | THE RISE OF METAVERSES

While the use of AI and NFTs are key to contemporary luxury brand customer experiences, the most significant imminent change may be brands' expansion into multiple metaverses. Indeed, digitized product lines quickly get a toehold of these ultramodern spaces. For a new generation of consumers who see the online world as essential to their day-to-day lives, the distinction between "real" versus "virtual" may be considerably blurrier than older generations might have once anticipated, spurred by a worldwide increase in isolation about by a global pandemic.

Over the past nearly 2 years and counting, worldwide health concerns have severely limited human interaction in the real world and concurrently spurred far more virtual interactions on various social media sites, from Facebook to Tik Tok, Snapchat, Instagram, YouTube, and Twitter. Being online has become a standard daily activity for many consumers, whether scrolling in solitude or participating in communal games or online communities. Couples have held their weddings in virtual settings, featuring avatars for members of the wedding party and their guests: avatars never need be concerned with such pedestrian earthly issues as changes in appearance, and wedding dress designs can attain levels of elaborate ornamentation unobtainable for most budgets in the real world.

Moreover, because congregating in crowds is still hazardous in certain areas of the world, online shopping has become not only second nature, but for many, and to the detriment of local retail, their preferred choice. The Ralph Lauren Website notes, "When your home becomes your entire world, rediscover the joys of things surrounding you" (Carter, 2018). When the outside world, along with people

outside one's immediate social circle, disappears, "things"—including the people with whom one interacts exclusively online—fill the void.

3.1 | Living life online

There are multiple definitions of technology's latest buzzword, "metaverse," as the technology journalism site *Ars Technica* explains, the metaverse is both an idea under construction and a concept in use today. What is not in doubt is the meaning of the metaverse: a place where predominantly young consumers develop online lives, with avatars who can move, speak, and be customized to look in whatever way their creators wish. They can own property, wear clothes, and engage in animated actions. NFTs can serve as a decentralized approach to tracking and establishing ownership of virtual goods as they traverse metaverses owned by different corporations (Orland, 2021). Against the 3D and augmented reality of a metaverse, our current internet will soon likely seem curiously flat and perhaps even antiquated.

While the meanings potential stakeholders attribute to metaverses may differ, certain commonalities are indisputable. Metaverses universally comprise the following four commonalities [Ibid]: (a) shared social space with avatars to represent users; (b) a world for the avatars to inhabit and interact with; (c) a space enabling users to own virtual property as they would physical property; and (d) a space enabling users to create their virtual property.

The idea of the metaverse extends an existing concept, that of second life, as noted above. Second life is a multiplatform online community in which users create avatars and essentially have a "second life" instead of their primary life in the real world (Tidy, 2021). Avatars can shop for virtual products, own virtual property, and interact and trade digitally with other avatars. Second life debuted in 2003, with an estimated GDP of USD 500 million valuations in 2015 (Maiberg, 2016). Over time, problems plagued the site, ranging from virtual riots to Ponzi schemes to even virtual strip clubs. Like communities in the real world, a metaverse can fall prey to human foibles and larcenous inclinations (Tidy, 2021). Unsurprisingly, user interest in second life faded and multiple other metaverses now exist or are in development. Facebook's 2021 official name change of its parent company to meta signaled its commitment to creating a new and potentially dominant metaverse, referred to as the metaverse. The future shape and import of this new metaverse is currently unclear, other than that, it is on the horizon, and the ramifications, both commercially and culturally, will be significant.

Luxury brands, for their part, do not intend to miss this coming opportunity for brand expansion (Ellwood, 2021; MacDowell, 2019). As Robert Triefus, executive vice president for brand and customer engagement with Gucci, stated in a recent interview, "The idea that everything has to be physical is very quickly being disproven... People are willing to pay good money for NFTs, for digital collectibles, and to have a second life in the metaverse." (Williams, 2021). Other fashion brands are using a wait-and-see approach. NFTs can be minted with a number of creative assets—a sketch, historical documents, DNA, or

even a runway moment, all of which are enjoyed by a tech-savvy younger crowd. New and younger luxury customers want to take these products into their digital lives. Suppose a consumer buys a luxury handbag along with its own NFTs, in that case, it is not too difficult to imagine that the consumer might bring this handbag to a video game or any digital environment (Kansara, 2021).

The issue inevitably arises: will consumers enjoy virtual luxury goods when the full spectrum of sensory input is missing? Color, shape, and to a degree texture will be visible; however, the essential tactile experience—the fit, the level of comfort, the feel of fabric—is simply not there. A human being cannot try on a virtual garment at the moment. Perhaps seeing a given garment on one's image, to have the pride of possession, and the broadcasting of *au courant* taste, is enough for younger consumers.

Gucci recently introduced what it terms “the world's first virtual sneaker,” the Gucci Virtual 25, which can be “worn” in augmented reality (AR). True to its target market, Gucci's Website focuses on images rather than text; the company knows its audience. Priced at \$12.99 USD, the sneakers are far cheaper than actual, wearable-in-real-life sneakers (which fall in the over \$600 USD range). Low prices are not necessarily a guarantee when it comes to virtual products; in 2021, a virtual Gucci handbag, listed on Roblox, sold for the equivalent of USD 4115 (the actual re-sale price was in the virtual currency Robux); the same handbag, except real and wearable in real life, costs only USD 3400. Because the virtual handbag was not an NFT, it cannot be “used” outside of the Roblox platform (Entrepreneur en Espagnol, 2021).

The world of metaverse commerce is an entirely new consumption space, one without precedent. As Robert Triefus of Gucci notes: “Tech-savvy and younger cohorts are spending increasing amounts of time in these spaces—from social media and gaming to virtual realities—and are adopting multiversal identities. At the vanguard, digital assets in the form of virtual fashion and non-fungible tokens (NFTs) are offering new ways for consumers to shop, exchange goods, and inhabit those identities.” (Williams, 2021). It is unclear what the future will be, other than that, it will be different, and luxury brands will have already staked their claims there.

There are multiple benefits from a marketing perspective. Treiblmaier (2021) provides a road map of possibilities that highlights transparency, traceability, ownership rights, anti-fraud mechanisms, and trust and loyalty with consumers in a targeted fashion. Treiblmaier (2021) even suggests that tokens (NFTs) can be used to represent actual or digital products that are limited—a strategy that luxury brands have been doing all along, and now fashion street brands such as Supreme have started doing. Limited availability can arouse consumers to want these items in short supply. As Business of Fashion's Imran Ahmed says, “screen wear is the new street wear in its digital fashion mode.” (BOF team, 2021).

Wanting a unique NFT in the digital fashion world is soaring. Luxury brands are moving faster than ever into this world, along with tech entrepreneurs. Dolce and Gabbana have created a series of NFT and the most expensive called “The Doge Crown” sold for almost 1.3 million dollars. It included a physical version of the crown and a private tour of the brand's Milan atelier. Pricing is an issue in this context, and

what sold for high prices had a reduction. Consumers can also choose whether they want their NFTs in a Snapchat filter or the metaverse (Bain, 2021).

4 | DIGITAL FASHION COMPANIES

Other companies are availing of the commercial opportunities posed by the rise of metaverses. Dress x is a start-up by two enterprising women, Natalia Modnova and Daria Shapocalova, which creates and sells digital clothing. These pieces are available to shoppers in the form of an image of the buyer themselves wearing these clothes. When a buyer purchases the dress, Dress x can place the dress onto the uploaded picture of the buyer. The picture of the buyer with the dress is now ready to share on social media or any other corner of the internet. The co-owners believe that digital will replace fast fashion—consumers can buy these pieces and they are ready to be used as expressions of their online self at any time. These virtual personas require constant newness, now more sustainably through digital clothes. They do not pollute the environment as fast fashion does; instead, Dress x gives consumers what women crave in fast fashion: novelty and individuality through the continuous showcasing of your personality through clothing (Roberts-Islam, 2020).

Like other fashion brands, luxury brands are actively involved in gaming and now in digital fashion. The focus is on getting consumers engaged at different levels of what Kozinets (2021):8 calls the brand desire spiral. Digital fashion will play a major role in doing that because customers are inspired when uploading their photos. The digital clothes are placed on their image; they are ready to disseminate a particular aesthetic they would like to convey. Their creativity is sparked when they test the multiple possible looks based on the digital clothes. Consumers' engagement in digital fashion to express their brand desire can happen repeatedly on various types of social media, not dissimilar from the skins worn in video games, upon which Gucci, Nike, and LV are all trying to capitalize.

The new tech-savvy young consumer gets engaged at several levels in this process, and influencers can get in action and move the brand experience to a different level. As Kozinets (2021):9 notes: “All these movements—and many more—are supported by individual brand moments, bolstered by platforms, corporations, online groups, and consumers acting in concert and co-ordinated to drive consumers from moments of engagement deeper and deeper into entanglement with networks of brand desire.” This intertwining to enhance consumers' brand experiences is precisely what fashion brands in general and luxury brands in particular want.

The marketing implications of engaging consumers in the networks of brand desire for luxury brands are far-reaching. Kozinets (2021):10 asks how do marketers juggle branding across multiple platforms? What information do they use to make their most important decisions? “A possible insight into this conundrum of brand desire in the digital world for luxury brands is provided by Ian Rogers, who was hired as the chief digital officer at LVMH and then joined a start-up, ledger, as the chief experience officer. Rogers noted in an

interview with Imran Ahmed at Business of Fashion (BOF team, 2021) that having a digital collection is utterly normal for a younger person who knows and cares about digital collections that everyone can see rather than a physical collection that only a few can see. Rogers (BOF team, 2021) gives the example of his 14-year-old daughter, who mostly lives in the metaverse via Tik Tok, Instagram, Fortnite, I message, and other platforms.

The metaverse grew out of gaming, and billions of dollars are bought and sold in terms of virtual goods alone. There are three million players, of which 46% are women. Rogers (BOF team, 2021) adds a note of caution and argues that storytelling on NFTs is way ahead of what companies can deliver. His suggestion is to take a step-by-step approach—first, the creation of digital goods alongside the creation of physical goods; then, when users take the virtual goods into the metaverse, it will make sense. This process of digital consumerism is still in a nascent phase and how NFTs are currently created and deployed requires much maturation.

Unsurprisingly, luxury brands are not yet fully taking the plunge, wanting to see what the future brings. However, the union of luxury branding and NFTs will become more feasible in a gaming world: for instance, an LVMH avatar could wear Dior sneakers or carry a Rimova suitcase. Assessing the popularity of and demand for these digital products, a company can determine how many to make and produce accordingly. As brands become more informed about the NFT production process, engaging in these cutting-edge technologies could spur more avenues for advertising and marketing revenue. (Williams, 2021). As Treiblmaier (2021:9) notes, “the internet of Value and its underlying technological (e.g., blockchain), as well as application related (i.e., tokens) foundations, have not fully arrived in marketing research yet.” The future is promising.

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