

Marketing on the Metaverse: Research Opportunities and Challenges

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Few business topics generate as wide an array of opinions as the metaverse.

According to one industry survey, half of US firms were planning to spend 10% or greater of their 2023 marketing budget on the metaverse (Dencheva 2023). Yet, in another industry survey, nearly half of US firms indicated that their marketing teams will not be prioritizing the metaverse in 2023 and that the metaverse will not live up to its long-term hype (Majidi 2023).

Business leaders also have divided opinions on the metaverse. Mark Zuckerberg, Meta's co-founder and CEO, described the metaverse as "the next chapter of the internet" and as "this kind of very magical sensation, and it's extremely human and in a lot of ways it's like the Holy Grail of the types of social experiences" (Carlson 2022). Satya Nadella, Microsoft's CEO, stated that "the metaverse is here, and it's not only transforming how we see the world but how we participate in it – from the factory floor to the meeting room" (Marr 2022). In contrast, Elon Musk, Tesla, SpaceX, and Twitter's CEO, said that he is "unable to see a compelling metaverse situation" and that he does not "see someone strapping a frigging screen to their face all day and not wanting to ever leave" (Wayt 2021). Tim Cook, Apple's CEO, stated he is "really not sure the average person can tell you what the metaverse is" and this makes him skeptical of its future success (Huddleston 2022).

Into this domain, Reibstein and Iyengar (2023) boldly provide clarity on how the metaverse can be used for marketers. Reibstein and Iyengar place the metaverse in a marketing context by describing it as the next evolution that builds on previous marketing domains such as 4 P's (promotion, product, place, and price), 5 C's (customers, company, competitors, collaborators, and context), and omni-channel marketing. Reibstein and Iyengar also present a nice overview of firms' initial motivations for investing in the metaverse. Further, Reibstein and Iyengar conduct an interview with Tessie Lieberman, Chipotle's vice

president (VP), digital marketing and off-Premise to detail how Chipotle leverages the metaverse to expand its traditional in-store experience into the virtual world. Reibstein and Iyengar describe Chipotle's Burrito Builder game on Roblox, where Chipotle's virtual customers assembled burritos in the metaverse and were able to earn free physical store entrée rewards. Reibstein and Iyengar build on their overview and interview to develop a summary of seven methods for how firms can conduct metaverse marketing. Finally, Reibstein and Iyengar offer interesting reflections for marketers to consider how the metaverse will evolve and what parts of the metaverse may succeed.

Our paper aims to provide insights into how firms can leverage the metaverse for marketing purposes. Previous research in marketing on the metaverse has typically focused on a consumer perspective (e.g., Belk et al. 2022; Hadi et al. 2023; Lee and Chen 2011). In contrast, we expand on Reibstein and Iyengar (2023) to provide scholars and practitioners a better understanding of potential avenues of metaverse marketing from a firm perspective. As the metaverse is nascent and constantly evolving, we first provide background on the metaverse and summarize existing metaverse marketing research. Then, we describe how marketers can use the metaverse to differentiate their firms through the 4 P's and 5 C's. We subsequently expand on Reibstein and Iyengar's (2023) seven potential marketing roles for the metaverse by providing additional rationales, potential opportunities, challenges, and future research directions for each role. We conclude by summarizing the potential and challenges firms will face conducting metaverse marketing.

What is the Metaverse?

The word/topic of "metaverse" conveys different meanings to different people and firms since the metaverse is not fully developed and is constantly evolving. For some, the metaverse conjures up a futuristic three-dimensional (3D) - environment where customers can interact with each other and brands from any virtual location in the world. For example,

Hugo Swart, VP and general manager of extended reality (XR) at Qualcomm, described how his firm: “Views the metaverse as an ever-present spatial internet complete with personalized digital experiences that spans the physical and virtual worlds, where everything and everyone can communicate and interact seamlessly. People will access the metaverse through any computing device—smartphone, PC, augmented and virtual reality (AR/VR) device, etc.—as a portal to a virtual presence that mirrors aspects of real life” (Sullivan 2021). For others, the metaverse is simpler and is just the next version of the internet that enables 3D experiences. Hence, Ed Greigg, Chief Disruptor at Deloitte, described the metaverse “in simplest terms” as “the internet, but in 3D” (Marr 2022). And for many others, general uncertainty exists about what exactly the metaverse is and how it will evolve. For instance, Timoni West, VP of AR/VR at Unity, stated about the metaverse: “I think we can all agree our initial dreams of a fully immersive, separate digital world is not only unrealistic, but maybe not what we actually want” (Sullivan 2021).

The lack of certainty on what exactly the metaverse is, what it will look like, what users will do on it, and how firms will interact with users on it has greatly impeded consumers’ and firms’ metaverse use (Atske 2022; Dwivedi et al. 2023; Ravenscraft 2022). However, the idea of a virtual world for consumers such as the metaverse is not new. Various technologies related to the metaverse such as virtual worlds, VR, Second Life with avatars, gaming with friends, and co-experiencing online communities with others, were envisioned and/or developed many decades ago (Barrera and Shah 2023).

The term metaverse originates from Neal Stephenson’s 1992 science fiction novel “Snow Crash” that described the metaverse as a virtual world people could go online to experience (Economist 2020). The metaverse does not rely on a single platform or technology, despite one firm’s (Meta’s) attempt to associate itself with the metaverse. Instead, the metaverse includes a wide array of functions, such as social interaction and social

commerce, and is supported by emerging technologies such as XR, artificial intelligence, and blockchain (Barrera and Shah 2023).

Video games played an influential role in the development of the metaverse and currently serve as an anchor for what people envision as the metaverse. Second Life, a video game released in 2003, is largely considered the first successful “metaverse” (Villar 2022). It is a 3D online virtual world where avatars live and operate similarly to people in the real world. Roblox is a major metaverse platform and its daily active user count reached over 50 million in 2022 (Goldman 2022). Roblox allows users to play a wide variety of games, create games, and chat with others online, which combines gaming, social media, and social commerce. One co-author’s children regularly play on Roblox with their friends and families living near and far, and his children use the platform as a method to build and maintain connections with those friends and family.

The metaverse, of course, is not just a video game-like hosting platform in a virtual world. Fast-food companies such as Wendy’s, McDonald’s, and Panera Bread have opened or are in the process of opening virtual restaurants in the metaverse (Meisenzahl 2022), in addition to Chipotle’s metaverse experience described by Reibstein and Iyengar (2023). Apparel brands such as Gucci, Burberry, Forever 21, H&M, Vans, and Nike (Semence 2023), beverage brands like Coca-Cola (Wright 2022), and entertainment brands like Disney (Faughder 2022) have also begun to engage with consumers in the metaverse. Opportunity also exists for firms in various industries such as financial services (e.g., decentralized finance supported by blockchain and cryptocurrency that may not rely on traditional banks), healthcare (e.g., telemedicine and collaborative R&D), and manufacturing (mixed reality enabled factory floor) to employ the metaverse (McKinsey and Company 2022a).

Various academics and practitioners attempted to define the metaverse (see Table 1). Early definitions characterize the metaverse as (1) a technology-mediated (through AR, VR,

and XR) environment that allows for (2) real-time social interaction (users can interact with each other) and (3) an immersive experience (users have high-level sensory engagement in a seamless and realistic environment). The concept of the metaverse started as a purely single virtual world, without the assumption that the virtual worlds are interconnected. For example, Davis et al. (2009) define the metaverse as immersive 3D virtual worlds where people interact as avatars with each other and software agents.

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Recent metaverse definitions add one more characteristic: (4) interconnectedness among multiple virtual worlds, platforms, and experiences. This characteristic aims to define the metaverse as consisting of multiple interconnected virtual worlds where large numbers of users can interact simultaneously in an embodied form (Ahn et al. 2022). For instance, Dionisio et al. (2013) define the metaverse as an integrated network of 3D virtual worlds that allows users to interact in real-time with a computer-generated environment and with each other through the use of avatars or agents that represent them in the virtual space. Hennig-Thurau et al. (2022) conceptualize the metaverse as a new computer-mediated environment consisting of virtual worlds where people use avatars to act and communicate with each other. Hadi et al. (2023) define the metaverse as a network of digitally mediated spaces that immerse users in shared, real-time experiences.

Scholars employing a futuristic perspective posit two additional characteristics that define the metaverse: (5) interoperability (users have avatars that interact with other avatars seamlessly in different virtual worlds, games, and platforms) and (6) a fully functioning virtual economy (potentially built on cryptocurrency and digital goods and assets, including nonfungible tokens [NFTs]). For example, Barrera and Shah (2023) expand on earlier definitions to view the metaverse as a technology-mediated network of scalable and potentially interoperable XR environments merging the physical and virtual realities to

provide user experiences characterized by their level of immersiveness, environmental fidelity, and sociability. Yoo et al. (2023) describe the metaverse as an online collaborative shared space consisting of 3D environments that leverage high consumer immersion techniques to reduce the perception of technological mediation alongside transferrable and unique digital assets while allowing user-generated digital personas to interact with each other.

Therefore, to answer the question “what is the metaverse,” our review describes how the metaverse started as a single virtual world with a technology-mediated network where users can create avatars, interact with each other in real-time, and engage in an immersive experience. Since then, the metaverse has further expanded to interconnected extended realities with blurred lines between physical and virtual worlds. In the future, the metaverse intends to move towards interoperable extended realities that will enable a fully functioning virtual economy.

What is Marketing on the Metaverse?

Literature Review

The marketing literature contains several published papers that provide detailed metaverse overviews, focusing primarily on how the metaverse will impact consumers. Ahn et al. (2022) conceptualize consumers as relationship initiators that stand at the apex of a triadic relationship between customers, engagements, and media on the metaverse and physical world. Hadi et al. (2023) posit a consumer-metaverse framework that centers around how the five key characteristics of the metaverse (i.e., digitally mediated, spatial, immersive, shared, and operates in real-time) might alter our understanding of consumer behavior in three domains: consumer identity, social influence, and ownership. Hennig-Thurau et al. (2022) build on Hoffman and Novak (1996)’s idea of computer-mediated environment to examine the real-time multisensory social interactions (RMSIs) between metaverse users.

Hennig-Thurau et al. (2022) provide initial conceptual and empirical evidence on when 3D based RMSIs in the metaverse, accessed through VR headsets, generate more value for respondents in terms of interaction outcomes (interaction performance, evaluation, and emotional responses), compared to 2D virtual interactions.

Barrera and Shah (2023) propose (1) an inner-ring of the metaverse based on user experiences that are determined by the extent to which the metaverse offers immersiveness, environmental fidelity, and sociability; and (2) an outer-ring based on the technology that supports the inner-ring. Belk et al. (2022) focus on the metaverse's digital economy and theorize new forms of ownership with fractional ownership and fractionalized property rights. Dwivedi et al. (2023) provide 14 academic researchers' diverse perspectives on how the metaverse will affect consumer psychology, consumer well-being, consumer consciousness, sensory acceptance, and consumer states of information flows, in addition to how firms can tailor their branding and service marketing to better match those consumer behaviors. Yoo et al. (2023) detail how four characteristics, online collaboration, high consumer immersion, unique digital assets, and digital personas, will directly impact consumers' use of the metaverse.

Consequently, based on a review of the marketing literature, metaverse marketing represents a forward-thinking approach to engaging with consumers that can help businesses establish a competitive advantage in today's rapidly evolving landscape. Thus, we build on Reibstein and Iyengar (2023) and focus on what metaverse marketing could entail for firms. Next, we take a broad view to discuss how firms can conduct metaverse marketing through each of the 4 P's and 5 C's. Subsequently, we expand on Reibstein and Iyengar's (2023) seven proposed methods for metaverse marketing.

Metaverse Marketing through the 4 P's

Metaverse marketing will entail the opportunity for firms to engage with consumers through the 4 P's in a virtual world, with the aim of building long-term profitable relationships in the virtual and/or physical world. We discuss several opportunities for how the metaverse can benefit each of the firms' 4 P marketing efforts (Table 2).

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Promotion. The metaverse enables marketers to promote their firms to users through a variety of innovative (e.g., immersive technology) and traditional (e.g., billboards) methods. Further, the metaverse will allow marketers to reach customers through direct (e.g., through their own metaverse firm-shopfronts) or indirect (e.g., through brand-developed communities) methods not bound by physical world limitations. For example, Coca-Cola and Samsung have placed virtual billboards throughout metaverse video games like Football Manager to promote their brands, extending the traditional use of billboards (Miles 2022). In addition, H&M's Looptopia Experience on the Roblox platform provides users with an immersive experience that allows digital identity experimentation while also promoting H&M as a brand that empowers people to express themselves through different styles (Stewart 2023).

Product. The metaverse allows marketers to develop products tailored to consumer preferences in the interconnected and/or interoperable virtual world, which are not necessarily bound to the physical world. Firms must understand what products to develop on the metaverse that can fulfill customers' wants and needs through an understanding of customers' motivations to own virtual products. Pokémon's virtual store, Electric/City on Selfridges, has been successful because it understood that a significant number of its consumers prefer to purchase both virtual and physical collections of Pokémon products

(Yahoo Life Staff 2021). Nike has released virtual shoes, apparel, and accessories on Nike's Swoosh platform, allowing customers to buy and collect virtual products (Perry 2022).

Place. The metaverse enables marketers to develop new channels of distribution that may substitute or complement firms' current online and offline channels, depending on how firms intend to utilize the metaverse. Additionally, the metaverse can enhance firms' current omni-channel strategy by enabling users to transition between the physical, traditional online, and virtual worlds. IKEA offers a high-definition, interactive VR showroom that enables users to explore and visualize IKEA furniture virtually before purchasing physical products.¹ Disney brought its physical Star Wars themed park, Galaxy's Edge, to its VR game, "Star Wars: Tales from the Galaxy's Edge." Tilak Mandadi, Disney's chief technology officer, described the initiative as a "theme park metaverse ... where physical and digital worlds converge" so users unable to visit the park can explore the park virtually through the game. Further, Disney's initiative enabled users who visited Disney's physical parks to also play the game after becoming connected with the game's story through their physical world experience (Martens 2020).

Price. The metaverse will enable firms to employ innovative pricing and payment strategies that build on NFTs, crypto-currency, and blockchain technologies, in addition to traditional payment methods. Further, the metaverse is not restricted to just traditional forms of pricing and payments, which should allow firms to develop payment strategies that may not be feasible in the physical world. For example, Gucci is currently testing different pricing strategies by making its AR digital-only sneakers available to everyone priced at lower points than in the physical world (Bingol 2021). However, Gucci's NFTs are exclusively sold only at its NFT store and the NFTs' price points are extremely high in the thousands of dollars (Harjai 2022). Sandbox sells virtual real estate in its game world with different price points

¹ Available at: <https://demodern.com/projects/ikea-vr-showroom>

based on the value of the locations: for popular destinations that many users will teleport to, the greater the value of the surrounding areas (Shine 2022).

Main Future Research Questions on Metaverse Marketing through the 4 P's: Given the uncertainty with how the metaverse will evolve, questions exist about how firms will conduct metaverse marketing through the 4 P's. Two broad future research questions that will particularly assist firms in their metaverse marketing through the 4 P's are:

- Will firms need to develop new to the world products, promotions, places, and pricing to succeed on the metaverse, or will firms be able to leverage their current methods?
- How can firms accurately estimate the demand for metaverse promotions, products, places, and prices?

Further, for each of the P's, we list a major unaddressed research question:

- *Promotion:* How can firms determine the most effective promotional technology (traditional vs. innovation) and delivery mode (direct vs. indirect) combinations on the metaverse?
- *Product:* How will the extent of “newness” of metaverse (versus traditional) products affect customer adoption, and how will the effect vary by product type and industry?
- *Place:* How will metaverse marketing impact firms’ omnichannel strategies, and how can firms effectively integrate metaverse channels into their existing omnichannel approach?
- *Price:* How can firms determine whether innovative or traditional pricing and payment strategies are better suited for their metaverse efforts?

Metaverse Marketing through the 5 C's

Building on how marketers can employ the 4 P's on the metaverse, we now describe how the metaverse will enable marketers to also differentiate their firms through the 5 C's (Table 3).

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Customers. The metaverse will enable firms to expand on the types of customers with which they engage; e.g., brick-and-mortar dominant firms will be able to use the metaverse to reach customers either unable or uninterested in coming to physical stores with engaging virtual communications. The metaverse will allow firms to develop greater connections with their customers than current online purchases, which are primarily transactional-focused and not conducive to long-term relationship building (Mintz 2022). For example, Acura uses virtual showrooms to enhance the consumer experience by allowing customers to virtually race new models and interact with salespeople about the products without having to go to the dealership (McKinsey and Company 2023). Adidas is planning to engage with its customers by rewarding their metaverse use through special access to physical merchandise and purchases of Adidas' NFTs (Peters 2021).

Company. Customer expectations for creative firm engagements are significantly greater on the metaverse than in the physical world (Ringman 2022). Additionally, firms' adaptability and capability to utilize technology to create the 4 P's tailored to the metaverse will be critical to their metaverse marketing success (McKinsey and Company 2022b). Thus, to succeed in the metaverse, firms must improve their customer engagement strategies to support the development of customer-centric metaverse content, either in-house or through collaborations. For example, Sephora's virtual try-on technology supports a personalization strategy by allowing users to see how different makeup products look on their faces using AR (Yashin 2023). Yet, Sephora will need to further leverage the customer insights and intelligence gained from its customers' experiences to create successful new products and personalized offerings that meet customers' unfulfilled needs.

Competition. Firms can differentiate themselves on the metaverse by creating unique virtual experiences or products. On the one hand, unique metaverse experiences require

technological innovation that creates a new barrier to entry, particularly for firms with few resources and technological capabilities to operate effectively in the virtual world. On the other hand, the metaverse can allow firms to successfully break through physical world competition by offering innovative methods to gain customer attention and develop customer relationships. Hence, Sephora's competitors will also need to consider the consequences of whether or not to develop virtual shopping by offering real-time, immersive, and interactive experiences catered to each consumer (Darbinyan 2022). Fast-food pioneers Chipotle and Wendy's have already opened their metaverse-based restaurants, while McDonald's and Panera Bread plan to compete with them by opening their own metaverse-based restaurants (Meisenzahl 2022). Consequently, the metaverse will require firms to consider how to best position themselves to compete in this new environment by effectively communicating their value propositions and unique selling points to customers.

Collaborators. The metaverse creates new opportunities for collaboration, allowing for an entire new network of potential collaborators. New firms, gatekeepers, and power players are likely to emerge. NVIDIA's "Omniverse" allows multiple firms, including Amazon, AT&T, BMW, Ericsson, Foxconn, GM, Kroger, Lowe's, Mattel, Pepsico, Siemens, Sony, Universal Robots, and Valeo, to build digital twins of their processes and simulate factory layout, workstation design, and assembly design (Freund 2022). This tool allows companies to collaborate on 3D models, enhancing communication, productivity, and innovation (Gandhi 2022). Two Bulls, an Australian firm, has collaborated with large and small firms, government agencies, and non-profits to develop metaverse ideas into practice at an affordable rate. Thus, a market opportunity should exist for those who find collaborators that can enable firms to match their customers' unmet wants and needs on the metaverse.

Context. The metaverse offers the potential for firms to build a truly global community around their products not constrained by physical world limitations. Hence, the

metaverse will enable firms to be creative and develop entire new contexts that can be tailored to any potential user. Accenture provided more than 150,000 employees metaverse-based offices to allow them work and collaborate with others inside the organization in a virtual environment (Peyton 2022). Fortnite has excelled at hosting live concerts with unconstrained capacity limits, audience physical locations, or types of shows that artists can perform in the physical world. Further, Fortnite was able to integrate the singers' concerts and contents such as their songs, clothing style, and emotes into its game to enhance customers' connections with the signers and the game.² Consequently, the change in context that the metaverse provides should provide firms additional opportunities to better reach and engage with customers.

Main Future Research Questions on Metaverse Marketing through the 5 C's:

Significant challenges remain for how firms can conduct metaverse marketing through the 5 C's. Two broad future research questions that will particularly assist firms in their metaverse marketing through the 5 C's are:

- How can firms conduct market research to understand customers' wants, needs, and expectations on the metaverse when customers are uncertain about what is currently offered and what can potentially be offered?
- Will firms' success in delivering experiences on the metaverse that meet customers' expectations depend on external gatekeepers, internal or external technological capabilities, or new systems of collaboration with few barriers to entry?

For each of the C's, we list a key research question to be addressed:

- *Customers:* What percent of customers will want to use and/or actively use the metaverse, when (if ever) will various customer segments adopt the metaverse, and

² For example, see <https://www.fortnite.com/news/fantasy-meets-reality-fortnite-introduces-the-kid-larois-wild-dreams>

how will this impact the types of interactive customer engagements offered on the metaverse?

- *Company:* Will firms' ability to adapt and use technology efficiently be a more important driver of metaverse success than to leverage established physical and traditional online skills?
- *Competitors:* How can firms effectively communicate value propositions and unique selling points on the metaverse to create differentiated customer experiences that outperform their competitors?
- *Collaborators:* Which types of collaborations will emerge on the metaverse, and will the metaverse become dominated by a few gatekeepers or be more egalitarian?
- *Context:* How can firms develop global communities and engagements on the metaverse that will effectively resonate with customers while being unconstrained by physical world limitations and expectations?

The Seven Methods of Metaverse Marketing

We now detail how Reibstein and Iyengar's (2023) seven potential metaverse marketing methods can benefit firms while also presenting challenges and future research directions related to each method (Table 4). Throughout our discussion, we use Chipotle's Burrito Builder metaverse experience discussed by Reibstein and Iyengar (2023) as a case study that provides concrete examples for each metaverse marketing method.

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Method 1: Further Create Brand Awareness

Benefits. The metaverse represents a new frontier for firms to create further brand awareness by showcasing their brands and creating memorable experiences. Marketers can foster a deeper connection with customers by leveraging the immersive nature of the metaverse. Chipotle created further awareness of the brand through its Burrito Builder

experience that provided a more interactive environment than traditional digital or offline advertisements. In addition, Chipotle took advantage of the metaverse's unique features by transporting customers back to the original Chipotle in Denver in 1993 to learn about the brand's values, culture, and history in an engaging and interactive way. Hence, Chipotle used the metaverse as a method to enhance its unique brand identity and connect with its customers that should increase its overall brand awareness.

Challenges. Firms have increasingly become successful with brand building efforts in the physical and traditional worlds. Yet, it is uncertain whether customers' expectations for enhanced experiences on the metaverse will force firms to change from previously successful brand building efforts. Further, it remains unclear whether brand building on the metaverse directly or indirectly translates into product sales and brand loyalty. The delay between when customers become aware of a product, such as a virtual Chipotle burrito in the metaverse, and when they eventually make purchase decisions in the physical world may result in short-lived effects unrelated to sales. Marketers will also face major challenges in attributing the effects of metaverse brand building efforts to long-term customer behavior in the physical or virtual world that can also be influenced by many additional traditional online and offline initiatives. Thus, marketers may not be able to demonstrate the results of their brand building efforts on the metaverse as effectively as in the physical world.

Main Future Research Questions:

- How can firms develop meaningful connections on the metaverse that further enhance brand awareness?
- Which success factors of brand building in the physical and traditional online worlds will be related to success factors of brand building on the metaverse?
- How can firms measure the impact of metaverse brand building efforts on customer long-term behaviors?

Method 2: Broaden the Audience

Benefits. The metaverse provides firms a unique opportunity to reach customers that may be difficult to reach through existing marketing methods. Chipotle was able to leverage the metaverse to reach customers who have not tried out the restaurant or do not have access to a physical location, such as potential rural and international customers. Further, Chipotle's Burrito Builder game allowed the firm to gain benefits from a broader audience beyond traditional customers, e.g., job applicants, which enjoyed Chipotle's virtual experiences mimicking physical world job responsibilities. In addition, the metaverse allows companies to target younger customers who are more likely to possess and seek metaverse experience than older customers (McKinsey and Company 2022a). This is especially significant since some of these younger customers have been on metaverse-like platforms for years and now represent an influential, income-generating group (McKinsey and Company 2022c).

Challenges. Firms cannot solely rely on having a presence on the metaverse to broaden their audience through metaverse marketing. Instead, to design effective metaverse marketing, firms must conduct extensive market research to understand customer's needs and responses to firm's metaverse marketing. For example, Chipotle's burrito builders may not be interested in buying a real Chipotle burrito. Further, Chipotle's burrito builders that expressed interested in working for the firm may not necessarily translate their virtual skills into the real-world and may not enjoy working in a physical location. In addition, developing content tailored to younger adults presents numerous challenges due to their overexposure to marketing across various social media and digital marketing technologies (McKinsey and Company 2022d). Further, numerous ethical and regulatory concerns exist if firms decide to use the metaverse to market to minors.

Main Future Research Questions:

- How can firms leverage the metaverse to effectively target and reach a broader audience than with their existing methods?
- What innovative and traditional marketing methods should firms conduct on the metaverse to broaden their audience?
- How can firms develop tailored metaverse marketing content to effectively target younger customers, considering those customers' lofty expectations for metaverse experiences and high exposure to various additional types of marketing?

Method 3: Enhance the Customer Experience with the Brand

Benefits. One of the primary aspirations for firms to utilize the metaverse is the potential to deliver customer experiences that were previously unattainable (e.g., Dwivedi et al. 2023; Hadi et al. 2023; Yoo et al. 2023). Chipotle has successfully created a nostalgic experience for its customers to visit its original restaurant location while also reminding them of the original popular destination for millennial fans. Further, Chipotle's Burrito Builder experience allowed customers to feel like they are part of the team and immerse themselves in how to build burritos. Other firms could also leverage the metaverse's potential to deliver unforgettable customer experiences, with firms already offering superior customer engagement than what is possible in the physical world through virtual test driving of new cars, virtual tours of museums and firms' signature locations, and virtual showrooms and activities that allow customers to customize products.

Challenges. Designing an immersive customer experience in the metaverse may pose significant challenges because it may be difficult for firms to attain the level of experiences customers expect from the new environment. Customer heterogeneity in preferences, expectations, and comfort in using the metaverse all will make it challenging for firms to deliver enhanced customer experiences. Firms may also encounter difficulties in finding or

affording the necessary talent to develop and implement enhanced customer experiences on the metaverse. Gathering and processing vast amounts and types of personal data is another inherent challenge of the metaverse, while firms must ensure compliance with data protection regulations and take appropriate measures to safeguard customer privacy.

Main Future Research Questions:

- What level of innovation is required for firms to match customer expectations for enhanced customer engagement on the metaverse? Should firms rely on experiences similar to those used in traditional internet or physical world engagements, or should they develop completely new and innovative experiences?
- What elements of the metaverse can firms utilize to create engaging and immersive customer experiences, and how can firms effectively integrate these elements into their marketing strategies?
- How can firms tailor customer metaverse experiences to individual preferences and expectations when facing difficulties in collecting, identifying, and analyzing individual-level data?

Method 4: Generate Revenue in the Virtual World

Benefits. The metaverse should enable firms to generate revenues in the virtual world based on products and experiences that cater to customers' present and future unmet needs (Darbinyan 2022; Perry 2022). Firms will be able to generate revenues in the virtual world independently or in collaboration with other firms. For instance, Chipotle could directly earn revenue in its Burrito Builder experience from customers that purchase the virtually created burritos. Chipotle could also allow customers to purchase virtual currency in exchange for loyalty points that can be used for the firm's current offerings in the real world. This would allow customers to earn loyalty points through their virtual activities and supplement Chipotle's existing loyalty program. Further, Chipotle could engage in a collaboration with

Roblox that allows users to purchase both virtual burritos with Roblox currency (Robux) and gift cards, enhancing the revenues of both companies.

Challenges. A lack of clarity exists about customer spending patterns in the metaverse. It is uncertain how much customers are willing to spend, how often they are willing to spend, and what is the overall demand for the metaverse products and experiences. Further, firms have great uncertainty on how to estimate potential revenues from direct metaverse purchases and whether they will achieve a positive return on investment (ROI) from those direct purchases. Thus, as the metaverse continues to evolve, firms face challenges to determine the most effective and efficient business models that most appeal to their customers.

Main Future Research Questions:

- What types of products, experiences, and services are most likely to generate direct revenues on the metaverse?
- When should firms attempt to generate revenue on the metaverse independently, and when should they collaborate with other firms?
- How can firms accurately measure the revenue generated from direct metaverse purchases, and distinguish them from purchases that substitute from physical world transactions?

Method 5: Generate Revenue in the Real World

Benefits. The first three methods to conduct metaverse marketing (e.g., further brand awareness, broaden the audience, and enhance customer experiences) aim to ultimately generate revenue for firms, either in the virtual or physical world. Chipotle's revenues will remain largely dependent on its physical world sales. Thus, its metaverse marketing will play a complementary or facilitatory role to generate such sales. Chipotle's Burrito Builder experience allows users to build and familiarize themselves with burritos, with the goal that

users will enjoy this experience, become more loyal, and be more likely to purchase additional Chipotle burritos in the physical world. Chipotle could allow users to directly purchase burritos from their metaverse game through ordering services that are delivered in the physical world. Chipotle currently also offers its customers on the metaverse exclusive promotions, such as earning “burrito bucks” by rolling virtual burritos, which can be redeemed for real-world burritos. This strategy can also encourage customers to make additional purchases beyond their “burrito bucks” allocation.

Challenges. Firms may struggle to convert metaverse experiences to physical world purchases. Customers in the metaverse may not be interested in making purchases in the physical world, face difficulty in receiving products immediately, and could be reluctant to link their virtual and physical identities through physical world purchases. For instance, certain Chipotle’s Burrito Builder users will not want to make any purchases from the store. Other users solely partook in Chipotle’s Burrito Builder game to experience the original Chipotle location, and did not want to make any purchases. As a result, firms will be forced to conduct iterative experimentation to figure out how to effectively target the right customers on the right metaverse platforms with the appropriate message in order to generate sales.

Main Future Research Questions:

- Which types of metaverse customer experiences will have the greatest influence on customer purchasing decisions in the physical world? And how can firms optimize these factors to increase revenue in the physical world?
- What new methods, metrics, and technologies are necessary to accurately attribute metaverse experiences to physical world purchases?
- When do the long-term benefits of conducting metaverse marketing that drives physical world revenue outweigh the short-term costs of such marketing efforts?

Method 6: Influencer Marketing

Benefits. Firms can employ influencer marketing on the metaverse to create resonating original and authentic content (Leung et al. 2022). For example, Chipotle could collaborate with a well-known influencer on its Burrito Builder experience where the influencer builds burritos and interacts with customers in order to help generate brand awareness, broaden the audience, enhance customer experiences, and increase virtual and physical world revenues. In addition, individuals, and not just firms, are expected to create unique user experiences that generate large audiences as the metaverse evolves. Thus, those individuals are likely to become important influencers, and provide firms with potential lucrative collaborations. Further, the metaverse is enabling the development of more cost-effective and flexible non-human virtual influencers that allow firms greater content control than human influencers (Chitrakorn 2021). Consequently, Chipotle could consider developing or partnering with new or rising virtual influencers to help promote its Burrito Builder experience.

Challenges. Identifying appropriate influencers that resonate with customers and drive customer action is a significant challenge both in the physical world and on social media, and this challenge will persist on the metaverse. Determining whether influencers generate a positive ROI will be challenging, as employing influencers adds another layer of complexity to the aforementioned difficulties in linking metaverse marketing to customer sales. Virtual influencers that are not real people may not resonate with customers. Instead, customers may perceive such influencers as providing inauthentic content as part of a firm-constructing ploy, and ignore such initiatives.

Main Future Research Questions:

- How can firms collaborate with influencers on the metaverse to create original and authentic content that enhances customer experiences and generates revenues?

- How can firms identify appropriate influencers on the metaverse that can resonate with customers, drive customer action, and generate a positive ROI?
- When will virtual influencers, whose (in)authenticity is known, be trusted by consumers and be as effective at driving sales as real-world influencers, whose authenticity is less known?

Method 7: Marketing Research

Benefits. The metaverse offers marketers a non-intrusive method to gain valuable customer insights that can drive decisions on new product development, personalized communications, and marketing strategies. Chipotle polled Roblox players on Twitter to determine their favorite burrito orders in the virtual world, and launched its first-ever menu item inspired by Roblox fans (Chipotle Mexican Grill. Inc 2022). In the future, Chipotle can examine the ingredients most used in its Burrito Builder experience that are currently not offered at their physical locations to gain insights on which new ingredients to offer physical world customers. Further, Chipotle could develop a new physical world burrito menu item, perhaps titled the metaverse burrito, based on the combinations of ingredients most frequently ordered together in its Burrito Builder experience. In addition, Chipotle can examine users' locations in international and rural areas to estimate demand for potential new brick-and-mortar store locations.

Challenges. It is uncertain whether users' behaviors and preferences on the metaverse and in the physical worlds are correlated. Some users may exhibit certain preferences on the metaverse that would not be exhibited in the physical world, such as the types of burritos they prefer to create or eat. In addition, insights obtained from users' behaviors and preferences in the metaverse are likely to be based on the subset of active users on the metaverse that do not necessarily represent the general population. Hence, firms should be cautious about deriving overgeneralized insights solely based on customers' metaverse behaviors and preferences.

Uncertainty also exists on how firms can accurately collect customer data from the metaverse beyond general meta-data. Therefore, technological advancements need to be developed for firms to gain customer insights from metaverse data.

Main Future Research Questions:

- How can firms assess which metaverse behaviors will and will not align with physical world behaviors?
- When will firms rely more on market research data collected on the metaverse?
- How can technology evolve to accurately collect and analyze customer metaverse data?

Conclusion

The metaverse offers marketers the greatest potential to engage with customers and develop competitive advantages on a new medium since at least the advent of social media. Our paper provides an overview of how to conduct metaverse marketing through the 4 P's, the 5 C's, and seven methods proposed by Reibstein and Iyengar (2023). Our intention is to assist marketers to better understand the metaverse, metaverse marketing, and how to benefit from the metaverse's opportunities. We build on Reibstein and Iyengar's (2023) Chipotle's Burrito Builder example to develop a case study that specifically demonstrates how marketers can currently and potentially use the metaverse. Further, we detail potential challenges and posit future research for various types of metaverse marketing.

However, we must caution that the metaverse's evolution is not guaranteed. Significant uncertainty exists on the metaverse's potential number of active users, types of engagements offered, and types of new products and industries that may succeed. Several challenges need to be addressed, including uncertainties regarding metaverse customer adoption (e.g., how customers perceive and will perceive the metaverse, what percent of the population will be active on the metaverse, what will drive customer adoption, etc.), the development of the metaverse infrastructure (e.g., how to develop interconnected and

interoperable virtual worlds), and the pace of technological innovations to support the metaverse (e.g., whether the metaverse's best experiences require VR headsets, which may also deter users). In addition, major concerns about the metaverse must be settled, such as how to (1) handle customer privacy, (2) enforce ethical behavior, (3) refrain from the targeting of minors, (4) regulate customer data collection, (5) prevent illicit material, communications, and behavior, (6) protect users' mental and physical well-being, and (7) address new, questionable behaviors potentially acceptable in the virtual world.

Therefore, no one currently knows how the metaverse will ultimately develop and how many or how often users will use it. Further, we admittedly cannot answer Reibstein and Iyengar's (2023) question on "what will be the primary marketing purpose of activities in the metaverse world?" However, this is precisely what makes the metaverse's development and how firms should conduct metaverse marketing fascinating.

Despite these unknowns, the metaverse is not expected to be going away anytime soon. In fact, firms spent an estimated \$120 billion in just the first five months of 2022 to build metaverse technology and infrastructure (McKinsey and Company 2022a), and Meta alone reportedly spent \$36 billion in the past four years on the metaverse (Mann 2022). Thus, we advise marketers and researchers to continue to explore the metaverse's possibilities of an interconnected and interoperable world, continue to experiment and learn to gain insights on best marketing practices, and continue to be adaptable and agile as the metaverse evolves. Ultimately, the metaverse holds great promise but also presents many perils for marketers and researchers, which makes it a very important area of future research.

Table 1. Representative Definitions of the Metaverse

Representative Definitions from Academic Papers	
Davis et al. (2009)	Immersive 3D virtual worlds where people interact as avatars with each other and with software agents.
Dionisio et al. (2013)	An integrated network of 3D virtual worlds that allows users to interact in real-time with a computer-generated environment and with each other using avatars or agents.
Ryskeldiev et al. (2018)	A persistent and constantly updated collection of XR spaces mapped to different geospatial locations.
Kim (2021)	An interoperated persistent network of shared virtual environments where people can interact synchronously through their avatars with other agents and objects.
Hennig-Thurau et al. (2022)	A new computer-mediated environment consisting of virtual worlds where people use avatars to act and communicate with each other.
Ahn et al. (2022)	Where multiple interconnected virtual worlds exist for large numbers of users to interact simultaneously in embodied forms.
Hadi et al. (2023)	A network of digitally mediated spaces that immerse users in shared, real-time experience.
Barrera and Shah (2023)	A technology-mediated network of scalable and potentially interoperable XR environments merging the physical and virtual realities to provide experiences characterized by their level of immersiveness, environmental fidelity, and sociability.
Yoo et al. (2023)	An online collaborative shared space built of 3D environments that leverage high consumer immersion techniques to reduce the perception of technological mediation alongside transferrable and unique digital assets while allowing user-generated digital personas to interact with each other.
Representative Definitions from Practitioners	
Tucci (2022)	A single, shared, immersive, persistent, 3D virtual space where humans experience life in ways they could not in the physical world.
Stackpole (2022)	It's actually many metaverses, or digital spaces, which typically are decentralized, incorporate AR and VR, store information on blockchain, and allow users to own digital goods.
Ball (2022)	A massively scaled and interoperable network of real-time rendered 3D virtual worlds and environments which can be experienced synchronously and persistently by an effectively unlimited number of users with an individual sense of presence, and with continuity of data, such as identity, history, entitlements, objects, communications, and payments.
McKinsey and Company (2022b)	At its most basic, the metaverse will have three features: (1) a sense of immersion, (2) real-time interactivity, and (3) user agency; and ultimately the full vision of the metaverse will include the following: (1) platforms and devices that work seamlessly with each other, (2) the possibility for thousands of people to interact simultaneously, and (3) use cases well beyond gaming.

Table 2. Marketing on the Metaverse through the 4 P's Overview and Examples

Method	How Related to Metaverse	Example	A Key Future Research Question
<i>Promotion</i>	A variety of innovative and traditional promotions can reach users	H&M uses Looptopia Experience that empowers users to express themselves	How to determine the most effective promotional technology and delivery mode combinations on the metaverse?
<i>Product</i>	Products can be developed to fulfill customers' needs that are not limited to the physical world	Pokémon sells virtual and physical collections via its metaverse store Electric/City on Selfridges	How will the extent of "newness" of metaverse products affect customer adoption, and how will the effect vary by product type and industry?
<i>Place</i>	New distribution channels can substitute or complement firms' current online and offline channels	IKEA offers a virtual showroom that enables users to explore and visualize how furniture would look in the physical world before purchasing	How will metaverse marketing impact firms' omnichannel strategies, and how to effectively integrate metaverse channels into existing omnichannel approach?
<i>Price</i>	Innovative pricing and payment strategies can be employed using NFTs, crypto-currency, and blockchain technologies in addition to traditional methods	Gucci's AR digital-only sneakers price at low points, but the NFTs price at extremely high points	How to determine whether innovative or traditional pricing and payment strategies are better suited for metaverse efforts?

Table 3. Marketing on the Metaverse through the 5 C's Overview and Examples

Method	How Related to Metaverse	Example	A Key Future Research Question
<i>Customers</i>	Long-term relationships with customers can be developed through virtually engaging communications	Acura uses virtual showrooms to enhance the consumer experience, such as allowing them to virtually race the new models and interact with salespeople about the products	What percent of customers will want to use and/or actively use the metaverse, when will various customer segments adopt the metaverse, and how will this impact the types of interactive customer engagements offered on the metaverse?
<i>Company</i>	Customer engagement must become more central to firms' core strategies	Sephora's virtual try-on technology supports a personalization strategy by allowing users to see how different makeup products look on their faces using AR	Will firms' ability to adapt and use technology efficiently be a more important driver of metaverse success?
<i>Competition</i>	Creating unique virtual experiences can allow firms to differentiate themselves from virtual or physical world competitors	Chipotle and Wendy's have opened their virtual restaurants, but McDonald's and Panera Bread plan to compete with them by opening their own metaverse-based restaurants	How to effectively communicate value propositions and unique selling points on the metaverse to create differentiated customer experiences that outperform the competitors?
<i>Collaborators</i>	New networks of potential collaborators will arise	NVIDIA's "Omniverse" allows firms to collaborate on 3D models, enhancing communication, productivity, and innovation	Which types of collaborations will emerge on the metaverse, and will the metaverse become dominated by a few gatekeepers or be more egalitarian?
<i>Context</i>	Potential to build communities with less constraints than the physical world	Accenture employees are able to visit virtual 3D locations and collaborate in a virtual environment	How to develop global communities and engagements that will effectively resonate with customers while being unconstrained by physical world limitations and expectations?

Table 4. Seven Methods of Metaverse Marketing: Opportunities, Challenges, and Future Research Questions

Method	Opportunities	Challenges	Future Research
Further create brand awareness	<ul style="list-style-type: none"> • Immersive nature can generate better connections to fuel greater brand awareness • Greater ability to showcase brands 	<ul style="list-style-type: none"> • Brand building efforts may not be as effective as physical and traditional online brand building efforts • Hard to measure the long-term effects on customer behavior 	<ul style="list-style-type: none"> • How to develop meaningful connections on the metaverse that further enhance brand awareness? • Which success factors will be related to success factors of brand building on the metaverse? • How to measure the impact of brand building efforts on customer long-term behaviors?
Broaden the audience	<ul style="list-style-type: none"> • Unique opportunity to reach customers that may be difficult to reach through existing marketing methods • Reach a broader set of customers 	<ul style="list-style-type: none"> • Need to understand which customers are likely to participate in the metaverse • Need to be proactive to reach customers 	<ul style="list-style-type: none"> • How to effectively target and reach a broader audience than with current methods? • What innovative and traditional marketing methods should firms conduct on the metaverse to broaden their audience? • How to develop tailored metaverse marketing content to effectively target younger customers?
Enhance the customer experience with the brand	<ul style="list-style-type: none"> • Deliver customer experiences that were previously unattainable • Offer superior customer engagement than what is possible in the physical world 	<ul style="list-style-type: none"> • Difficult to attain the level of experiences customers expect from the new environment • Finding or affording the necessary talent to develop and implement enhanced customer experiences 	<ul style="list-style-type: none"> • What level of innovation is required to match customer expectations for enhanced customer engagement on the metaverse? • What elements of the metaverse to utilize to create engaging and immersive customer experiences, and how to effectively integrate these elements into their marketing strategies? • How to tailor customer metaverse experiences to individual preferences and expectations when facing difficulties in collecting, identifying, and analyzing individual-level data?
Generate revenue in	<ul style="list-style-type: none"> • New revenue can be generated independently • New revenue can be generated in 	<ul style="list-style-type: none"> • Customer spending and demand to spend is unclear 	<ul style="list-style-type: none"> • What types of products, experiences, and services are most likely to generate direct revenues on the metaverse? • When to generate revenue on the metaverse independently, and when to collaborate with other firms?

the virtual world	collaboration with other firms	<ul style="list-style-type: none"> • May not achieve positive a ROI 	<ul style="list-style-type: none"> • How to distinguish virtual revenues from the substitutes for physical world transactions?
Generate revenue in the real world	<ul style="list-style-type: none"> • Revenue can be generated through the first three metaverse marketing methods • Revenue can be based on complementary or facilitatory actions 	<ul style="list-style-type: none"> • Virtual customers may not want to make related purchases in the physical world • Customers could be reluctant to link their virtual and physical identities through physical world purchases 	<ul style="list-style-type: none"> • Which types of metaverse customer experiences will have the greatest influence on customer purchasing decisions in the physical world? And how can firms optimize these factors to increase revenue in the physical world? • What new methods, metrics, and technologies are necessary to accurately attribute physical world purchases? • When do the long-term benefits that drive physical world revenue outweigh the short-term costs of such marketing efforts?
Influencer marketing	<ul style="list-style-type: none"> • Create resonating original and authentic content • Virtual non-human influencers are more cost effective, flexible, and allow greater control than human influencers 	<ul style="list-style-type: none"> • Identifying appropriate influencers • Non-human virtual influencers may be perceived as inauthentic 	<ul style="list-style-type: none"> • How to collaborate with influencers on the metaverse to create original and authentic content that enhances customer experiences and generates revenues? • How to identify appropriate influencers on the metaverse that can resonate with customers, drive customer action, and generate a positive ROI? • When will virtual influencers be as effective at driving sales as real-world influencers?
Marketing research	<ul style="list-style-type: none"> • Non-intrusive method to gain valuable customer insights • Customer data can be used to infer the demand for physical world products 	<ul style="list-style-type: none"> • Users' behaviors may correlate with the physical worlds • Collecting customer data beyond general meta-data is difficult 	<ul style="list-style-type: none"> • How to assess which metaverse behaviors will and will not align with physical world behaviors? • When to rely more on market research data collected on the metaverse? • How can technology evolve to accurately collect and analyze customer metaverse data?

References

- Ahn, S. J. (Grace), Kim, J., & Kim, J. (2022). The Bifold Triadic Relationships Framework: A Theoretical Primer for Advertising Research in the Metaverse. *Journal of Advertising*, 51(5), 592–607. <https://doi.org/10.1080/00913367.2022.2111729>
- Atske, S. (2022). The Metaverse in 2040. *Pew Research Center: Internet, Science & Tech*. <https://www.pewresearch.org/internet/2022/06/30/the-metaverse-in-2040/>. Accessed 22 March 2023
- Ball, M. (2022). *The metaverse: and how it will revolutionize everything* (1st ed.). New York, NY: Liveright Publishing Corporation, a division of W.W. Norton & Company.
- Barrera, K. G., & Shah, D. (2023). Marketing in the Metaverse: Conceptual understanding, framework, and research agenda. *Journal of Business Research*, 155, 113420. <https://doi.org/10.1016/j.jbusres.2022.113420>
- Belk, R., Humayun, M., & Brouard, M. (2022). Money, possessions, and ownership in the Metaverse: NFTs, cryptocurrencies, Web3 and Wild Markets. *Journal of Business Research*, 153, 198–205. <https://doi.org/10.1016/j.jbusres.2022.08.031>
- Bingol, V. (2021). Gucci Case Study: How NFTs are Revolutionizing the Fashion Industry – 440 Industries. <https://440industries.com/gucci-case-study-how-nfts-are-revolutionizing-the-fashion-industry/>. Accessed 25 March 2023
- Carlson, K. (2022). At SXSW, Mark Zuckerberg says metaverse is “Holy Grail” of social experience. *Austin American-Statesman*. <https://www.statesman.com/story/business/2022/03/16/sxsw-facebooks-mark-zuckerberg-says-metaverse-future-internet/7051230001/>. Accessed 22 March 2023
- Chipotle Mexican Grill. Inc. (2022). Fans Can Roll Burritos at Chipotle in the Metaverse to Earn Burritos in Real Life. <https://www.prnewswire.com/news-releases/fans-can-roll->

[burritos-at-chipotle-in-the-metaverse-to-earn-burritos-in-real-life-301517604.html](https://www.burritos-at-chipotle-in-the-metaverse-to-earn-burritos-in-real-life-301517604.html).

Accessed 22 March 2023

Chitrakorn, K. (2021). What influencer marketing looks like in the metaverse. *Vogue Business*. <https://www.voguebusiness.com/technology/what-influencer-marketing-looks-like-in-the-metaverse>. Accessed 2 April 2023

Darbinyan, R. (2022). Virtual Shopping In The Metaverse: What Is It And How Will AI Make It Work. *Forbes*. <https://www.forbes.com/sites/forbestechcouncil/2022/03/16/virtual-shopping-in-the-metaverse-what-is-it-and-how-will-ai-make-it-work/>. Accessed 24 March 2023

Davis, A., Murphy, J., Owens, D., Khazanchi, D., & Ziguers, I. (2009). Avatars, People, and Virtual Worlds: Foundations for Research in Metaverses. *Journal of the Association for Information Systems*, *10*(2), 90–117. <https://doi.org/10.17705/1jais.00183>

Dencheva, V. (2023). Share of marketer budgets devoted to metaverse advertising U.S. 2023. *Statista*. <https://www.statista.com/statistics/1345237/marketing-budgets-devoted-to-metaverse-us/?locale=en>. Accessed 2 April 2023

Dionisio, J. D. N., Iii, W. G. B., & Gilbert, R. (2013). 3D Virtual worlds and the metaverse: Current status and future possibilities. *ACM Computing Surveys*, *45*(3), 1–38. <https://doi.org/10.1145/2480741.2480751>

Dwivedi, Y. K., Hughes, L., Wang, Y., Alalwan, A. A., Ahn, S. J. (Grace), Balakrishnan, J., et al. (2023). Metaverse marketing: How the metaverse will shape the future of consumer research and practice. *Psychology & Marketing*, *40*(4), 750–776. <https://doi.org/10.1002/mar.21767>

Economist. (2020). A novelist's vision of the virtual world has inspired an industry. *Economist*. <https://www.economist.com/technology-quarterly/2020/10/01/a-novelists-vision-of-the-virtual-world-has-inspired-an-industry>. Accessed 22 March 2023

- Faughder, R. (2022). From 2D to Web3: Disney is working on a metaverse game plan. *Los Angeles Times*. <https://www.latimes.com/entertainment-arts/business/story/2022-04-27/disney-begins-formulating-a-metaverse-strategy>. Accessed 22 March 2023
- Freund, K. (2022). NVIDIA Omniverse: The Useful Metaverse. *Forbes*. <https://www.forbes.com/sites/karlfreund/2022/10/07/nvidia-omniverse-the-useful-metaverse/>. Accessed 24 March 2023
- Gandhi, S. (2022). Leveraging New Tech to Boost Supply Chain Resilience. *Harvard Business Review*. <https://hbr.org/2022/10/leveraging-new-tech-to-boost-supply-chain-resilience>. Accessed 24 March 2023
- Goldman, J. (2022). Roblox is gaining users and brand partnerships—but growing revenue would be great. *Insider Intelligence*. <https://www.insiderintelligence.com/content/roblox-gaining-users-brand-partnerships-but-growing-revenue-would-great>. Accessed 22 March 2023
- Hadi, R., Melumadb, S., & Parkc, E. S. (2023). The Metaverse: a new digital frontier for consumer behavior. *Journal of Consumer Psychology*. <https://ora.ox.ac.uk/objects/uuid:75c25ffe-ac98-466e-93f9-33836befb194>. Accessed 22 March 2023
- Harjai, G. (2022). Superplastic X Gucci “SUPERGUCCI” NFT drop: Price and everything you need to know. *Sportskeeda*. <https://www.sportskeeda.com/pop-culture/superplastic-x-gucci-supergucci-nft-drop-price-everything-need-know>. Accessed 25 March 2023
- Hennig-Thurau, T., Aliman, D. N., Herting, A. M., Cziehso, G. P., Linder, M., & Kübler, R. V. (2022). Social interactions in the metaverse: Framework, initial evidence, and research roadmap. *Journal of the Academy of Marketing Science*. <https://doi.org/10.1007/s11747-022-00908-0>

- Hoffman, D. L., & Novak, T. P. (1996). Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations. *Journal of Marketing*, 60(3), 50–68.
<https://doi.org/10.1177/002224299606000304>
- Huddleston, T. (2022). Apple CEO Tim Cook doesn't like the metaverse—he predicts a different technology will shape the future. *CNBC*.
<https://www.cnbc.com/2022/10/03/apple-ceo-tim-cook-doesnt-like-metaverse-prefers-augmented-reality.html>. Accessed 22 March 2023
- Kim, J. (2021). Advertising in the Metaverse: Research Agenda. *Journal of Interactive Advertising*, 21(3), 141–144. <https://doi.org/10.1080/15252019.2021.2001273>
- Lee, Y., & Chen, A. N. K. (2011). Usability Design and Psychological Ownership of a Virtual World. *Journal of Management Information Systems*, 28(3), 269–308.
<https://doi.org/10.2753/MIS0742-1222280308>
- Leung, F. F., Gu, F. F., & Palmatier, R. W. (2022). Online influencer marketing. *Journal of the Academy of Marketing Science*, 50(2), 226–251. <https://doi.org/10.1007/s11747-021-00829-4>
- Majidi, M. (2023). Top metaverse projections according to marketers U.S. 2022. *Statista*.
<https://www.statista.com/statistics/1346297/top-metaverse-projections-marketers-us/?locale=en>. Accessed 2 April 2023
- Mann, J. (2022). Meta has spent \$36 billion building the metaverse but still has little to show for it, while tech sensations such as the iPhone, Xbox, and Amazon Echo cost way less. *Business Insider*. <https://www.businessinsider.com/meta-lost-30-billion-on-metaverse-rivals-spent-far-less-2022-10>. Accessed 22 March 2023
- Marr, B. (2022). The 10 Best Metaverse Quotes Everyone Should Read. *Forbes*.
<https://www.forbes.com/sites/bernardmarr/2022/08/15/the-10-best-metaverse-quotes-everyone-should-read/>. Accessed 22 March 2023

Martens, T. (2020, December 29). How the new virtual reality “Star Wars” experience gets us closer to a theme park “metaverse.” *Los Angeles Times*.

<https://www.latimes.com/entertainment-arts/story/2020-12-28/virtual-reality-showcase-ales-from-galaxys-edge-is-my-favorite-star-wars-theme-park-experience>.

Accessed 26 March 2023

McKinsey & Company. (2022a). Meet the metaverse: Creating real value in a virtual world.

<https://www.mckinsey.com/about-us/new-at-mckinsey-blog/meet-the-metaverse-creating-real-value-in-a-virtual-world>. Accessed 23 March 2023

McKinsey & Company. (2022b). Marketing in the metaverse: An opportunity for innovation

and experimentation. <https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/marketing-in-the-metaverse-an-opportunity-for-innovation-and-experimentation>.

Accessed 2 April 2023

McKinsey & Company. (2022c). What is the metaverse?

<https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-the-metaverse>. Accessed 22 March 2023

McKinsey & Company. (2022d). Mind the Gap: Not so fast: Three realities busting the Gen

Z attention span myth.

<https://www.mckinsey.com/~media/mckinsey/email/genz/2022/11/29/2022-11-29b.html>. Accessed 24 March 2023

McKinsey & Company. (2023). The metaverse and proto-metaverse in automotive.

<https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/the-metaverse-driving-value-in-the-mobility-sector>. Accessed 24 March 2023

Meisenzahl, M. (2022). See inside the virtual worlds created by Wendy’s, Chipotle, and

McDonald’s as the metaverse becomes the latest battleground for fast food. *Business*

- Insider*. <https://www.businessinsider.com/chipotle-mcdonalds-wendys-metaverse-virtual-worlds-photos-2022-4>. Accessed 22 March 2023
- Miles, S. (2022). Metaverse Ad Market To Break Open With DOOH. *Street Fight*.
<https://streetfightmag.com/2022/12/23/dooh-advertising-market-breaks-open-the-metaverse-in-2023/>. Accessed 24 March 2023
- Mintz, O. (2022). *The Post-Pandemic Business Playbook: Customer-Centric Solutions to Help Your Firm Grow* (1st ed.). Singapore: Palgrave Macmillan.
- Perry, F. (2022). Nike Will Let People Design and Sell Sneakers for the Metaverse. *Wired*.
<https://www.wired.com/story/nike-will-let-people-design-and-sell-sneakers-for-the-metaverse/>. Accessed 24 March 2023
- Peters, J. (2021, December 18). Adidas sold more than \$22 million in NFTs, but it hit a few snags along the way. *The Verge*.
<https://www.theverge.com/2021/12/17/22843104/adidas-nfts-metaverse-sold-bored-ape>. Accessed 24 March 2023
- Peyton, L. (2022). Top 3 marketing use cases for the B2B metaverse. *MarTech*.
<https://martech.org/top-3-marketing-use-cases-for-the-b2b-metaverse/>. Accessed 29 March 2023
- Ravenscraft, E. (2022). What Is the Metaverse, Exactly? *Wired*.
<https://www.wired.com/story/what-is-the-metaverse/>. Accessed 23 March 2023
- Reibstein, D., & Iyengar, R. (2023). Metaverse—Will It Change the World or Be a Whole New World in and of Itself. *AMS Review*.
- Ringman, M. (2022). Great expectations: Customer experience in the metaverse. *Fast Company*. <https://www.fastcompany.com/90811502/great-expectations-customer-experience-in-the-metaverse>. Accessed 2 April 2023

- Ryskeldiev, B., Ochiai, Y., Cohen, M., & Herder, J. (2018). Distributed Metaverse: Creating Decentralized Blockchain-based Model for Peer-to-peer Sharing of Virtual Spaces for Mixed Reality Applications. In *Proceedings of the 9th Augmented Human International Conference* (pp. 1–3). Presented at the AH2018: The 9th Augmented Human International Conference, Seoul Republic of Korea: ACM.
<https://doi.org/10.1145/3174910.3174952>
- Semence, C. (2023). 8 forward-thinking brands in the metaverse. *Underwaterpistol*.
<https://www.underwaterpistol.com/blogs/ecommerce/brands-in-the-metaverse>.
Accessed 22 March 2023
- Shine, I. (2022). Metaverse real estate prices are booming. This is why. *World Economic Forum*. <https://www.weforum.org/agenda/2022/03/metaverse-real-estate-prices-boom/>. Accessed 25 March 2023
- Stackpole, T. (2022). Exploring the Metaverse. *Harvard Business Review*.
<https://hbr.org/2022/07/exploring-the-metaverse>. Accessed 24 March 2023
- Stewart, R. (2023). H&M Dabbles in Virtual Fashion With Its Roblox Experience. *Ad Week*.
<https://www.adweek.com/brand-marketing/hms-roblox-experience-is-an-experiment-in-virtual-fashion/>. Accessed 24 March 2023
- Sullivan, M. (2021). What the metaverse will (and won't) be, according to 28 experts. *Fast Company*. <https://www.fastcompany.com/90678442/what-is-the-metaverse>. Accessed 22 March 2023
- Tucci, L. (2022). What is the Metaverse? An Explanation and In-Depth Guide. *WhatIs.com*.
<https://www.techtaraget.com/whatis/feature/The-metaverse-explained-Everything-you-need-to-know>. Accessed 24 March 2023

- Villar, T. (2022). What Is Second Life? A Brief History of the Metaverse. *MUO*.
<https://www.makeuseof.com/what-is-second-life-history-metaverse/>. Accessed 25 March 2023
- Wayt, T. (2021). Elon Musk says idea of metaverse is not “compelling.”
<https://nypost.com/2021/12/22/elon-musk-says-idea-of-metaverse-is-not-compelling/>.
Accessed 22 March 2023
- Wright, W. (2022). 5 brands winning in the metaverse. *The Drum*.
<https://www.thedrum.com/news/2022/06/01/5-brands-winning-the-metaverse>.
Accessed 22 March 2023
- Yahoo Life Staff. (2021, October 1). Discover a first-of-its-kind immersive shopping experience to celebrate Pokémon’s 25th anniversary. *Yahoo Entertainment*.
<https://www.yahoo.com/entertainment/charli-cohen-pokemon-collection-152255688.html>. Accessed 24 March 2023
- Yashin, G. (2023). While the metaverse is still the future, what’s now? *VentureBeat*.
<https://venturebeat.com/virtual/while-the-metaverse-is-still-the-future-whats-now/>.
Accessed 24 March 2023
- Yoo, K., Welden, R., Hewett, K., & Haenlein, M. (2023). The merchants of meta: A research agenda to understand the future of retailing in the metaverse. *Journal of Retailing*.
<https://doi.org/10.1016/j.jretai.2023.02.002>