



False idols: Unpacking the opportunities and challenges of falsity in the context of virtual influencers



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Abstract Influencer marketing has become a dominant and targeted means for brands to connect with consumers, but it also brings risks associated with influencer transgression and reputation damage. In recent years, virtual influencers have gained popularity and given rise to falsity, or artificially created and manipulated influencers that are revolutionizing the field of influencer marketing. A virtual influencer is an entity—humanlike or not—that is autonomously controlled by artificial intelligence and visually presented as an interactive, real-time rendered being in a digital environment. As brands increasingly seek to engage virtual influencers to connect with and sell to audiences, we take a step back and discuss the opportunities and challenges they present for firms and managers. To help marketers understand this emerging field, we first document the rise of virtual influencers. Then, we discuss consumer reactions to virtual influencers before unpacking their associated opportunities and challenges for brands and marketers. Finally, we conclude with an overview of implications and future considerations.

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1. Falsity in influencer marketing

Adorned head-to-toe in Prada and wearing the triangular logo-plaque earrings from the Spring/Summer 2021 collection, Candy looks like a typical influencer. But the Prada influencer is anything but typical; she is a computer-generated avatar

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created to promote a fragrance collection, also called Candy. Candy and a raft of other false idols or virtual influencers are transforming modern influencer marketing, particularly on Instagram—the most popular platform for influencer marketing worldwide (Statista, 2021). Regardless of social media platform, influencers specialize in generating interactive content for consumers that spreads widely on social media. Globally, the influencer market was valued at more than \$15 billion in 2022, up from \$8 billion in 2019 (Chitrakorn, 2021). As a result, there has been an influx of people—real and virtual—striving to become successful influencers (Lorenz, 2018) with the potential to earn money from brands for posting sponsored content (Handley, 2020).

The lure of financial gain has driven concerns about falsity in influencer marketing (Dans, 2019), including false followers and false lifestyles, which were highlighted in the 2021 HBO documentary *Fake Famous*. In this documentary, a group of everyday people with small social media followings were professionally managed to become influencers with large followings. As consumers become increasingly aware of the potential for falsity—or manufactured realities—in influencer marketing, it is unsurprising that recent years have seen a rise in virtual influencers (Thomas & Fowler, 2021), or influencers that are not human but are digital creations with high levels of human likeness, often powered by artificial intelligence (AI).

While academic research has begun to examine virtual influencers and their applications to marketing, research is yet to examine how virtual influencers are likely to reshape the practice of marketing itself. These shifts are being exacerbated by the rapidly developing domain of synthetic advertising (Campbell et al., 2021), which allows influencers to be created using digital tools and manipulated using synthetic methods to personalize interactions between virtual influencers and consumers. These considerations are important given the increasingly prominent role of falsity in the marketing domain, such as in advertising, social media, and beyond (Campbell et al., 2021; Kietzmann et al., 2020). To address this, we unpack the opportunities and challenges virtual influencers present for marketers and brands. In doing so, we first contextualize the rise of virtual influencers before considering how consumers react.

2. The rise of virtual influencers

Developments in AI and machine learning (ML) are challenging contemporary notions of marketing.

For instance, within the field of advertising, ads are increasingly generated and edited through the artificial and automatic production and modification of data—a process known as synthetic advertising (Campbell et al., 2021). The impact of AI has also spread to the domain of social media influencers wherein AI, or *virtual influencers*, mimic realistic characteristics, features, and personalities of human influencers (Thomas & Fowler, 2021). In line with work in the human-computer interfaces discipline (Seymour et al., 2018), a virtual influencer can be defined as an entity—humanlike or not—that is autonomously controlled by AI. A virtual influencer is visually presented as an interactive, real-time rendered entity in a digital environment.

While a relatively recent phenomenon, virtual influencers have been around for some time. Arguably the best-known virtual influencer, Lil Miquela¹ was created in 2016 with a typical “Instagram look” (Wong, 2018). Lil Miquela has since built a social media following exceeding 3 million; the account has worked with brands including Chanel, Burberry, and Fendi, and is recognized as one of *Time*'s most influential people on the internet alongside Rihanna, Trump, and Kanye West (Time Staff, 2018). One of the most followed virtual influencers is Lu do Magalu², with more than 5 million Instagram followers—in addition to 14 million on Facebook, 2 million on YouTube, and 1 million on Twitter and TikTok. Lu do Magalu originated more than a decade ago on the Brazilian retailer Magalu's app icon and the retailer's website. Since then, Lu do Magalu has evolved into a virtual influencer and today markets products on YouTube, features in product review and unboxing videos, and shares software tips on behalf of the Magalu brand.

There are numerous virtual influencers on social media platforms, with many becoming increasingly realistic, and the distinction between human agents and virtual agents is growing smaller (Seymour et al., 2019). Virtual influencer Ayayi³ is so realistic her skin texture changes like a real person, depending on the lighting and surroundings (Araque & Moynihan, 2021). Importantly, the increased development of virtual influencers has been mirrored by an increase in brands engaging these influencers to promote products and connect with audiences. Brands including KFC, LVMH, Mini, Netflix, Nike, Samsung, and the World Health Organization have worked with virtual influencers in

¹ Instagram: @lilmiquela

² Instagram: @magazineluiza

³ Instagram: @ayayi.iiii

recent years (Baklanov, 2019). One virtual influencer, Rozy⁴, secured over 100 sponsorships and endorsements in a year, making close to \$1 million in 2021 (Cooney, 2021). This figure is dwarfed, however, by the \$11 million or so that Lil Miquela earned—around \$8,500 per sponsored post—much more than the average social media influencer's earnings (Teh, 2021).

Virtual influencers have also gained traction among consumers, with 32% of millennials following profiles that they know are not real people on Twitter or Instagram (Harding, 2019a). From an engagement perspective, consumers have nearly three times the engagement rate on Instagram with virtual influencers compared to human influencers (Baklanov, 2019). It is important to note, however, that virtual influencers are not immune to controversy. For instance, Lil Miquela came under scrutiny and faced backlash for queerbaiting following a brand collaboration with Calvin Klein in which she was featured kissing U.S. supermodel Bella Hadid (Cusumano, 2019). Another virtual influencer, Shudu, has also faced controversy after being described as a "white man's digital projection of real-life black womanhood" (Jackson, 2018).

Despite the potential for controversy, the use of virtual influencers is developing rapidly. Coupled with the fact that AI has the potential to revolutionize the marketing field (Campbell et al., 2020), it is important that marketers understand the opportunities and challenges virtual influencers present. In the next section, we outline consumer reactions to virtual influencers before unpacking the opportunities and challenges for marketers.

3. How consumers react to virtual influencers

Consumers are becoming increasingly comfortable with virtual entities in the context of brand interactions (Sands et al., 2021). This transition has been accelerated by the shift to e-commerce and digital customer service channels resulting from the COVID-19 pandemic. For example, consumers dislike or are unwilling to engage with virtual service agents and chatbots. The emergence of virtual influencers and their resonance with consumers could bring about substantial benefits for marketers and brands that extend beyond those realized through human influencers. However, tensions exist, as some consumers dislike or are unwilling to engage with virtual entities. We

conducted a small survey to investigate how consumers react to virtual influencers; the Appendix provides a summary of the results.

Virtual influencers provide avenues for new types of consumer engagement on social media through identity building, autonomy, and diversion (Arsenyan & Mirowska, 2021). Consumers are acutely aware that their interactions on social media platforms are publicly visible and directly observable by others. In turn, the users and groups an individual interacts with online signal the type of social identities they are attempting to cultivate for themselves (Edwards et al., 2019). Engaging with virtual influencers not only allows consumers to signal fashion and lifestyle attributes, but also trendiness, innovativeness, and open-mindedness (Pan et al., 2017). Moreover, virtual influencers fulfill a need for autonomy, resulting in heightened intrinsic enjoyment during interactions (Downie et al., 2008). Unlike human influencer interactions, in which there is a risk of being fooled by staged photographs and native advertising, consumers choose to interact with virtual influencers and are typically aware of the staged content promoted (Hanus & Fox, 2015).

Virtual influencers act as a form of diversion by bridging real and imaginary worlds, thereby offering consumers a form of escape (Arsenyan & Mirowska, 2021). They allow consumers to immerse themselves in an alternate reality based on the real world (Dill-Shackleford et al., 2016). For consumers, this immersion serves as a unique social interaction as conversations can alter the virtual influencer's behavior and lead to perceptions of a mutual connection (Hwang & Zhang, 2018). Virtual influencers are therefore capable of building rapport, increasing feelings of connectedness, helping to meet social interaction needs, providing support, and mitigating stress and self-esteem issues (Felnhofer et al., 2019). Consumers even engage in mimicry of virtual influencer behavior, like friends and colleagues (Kramer, 2018). However, despite suggestions that virtual influencers could provide similar engagement levels to human influencers, research into consumer reactions to virtual influencers has identified both positive and negative reactions.

One stream of research argues that consumers anthropomorphize machines and adhere to social rules when interacting with them (Feine et al., 2019). Consumers apply the social heuristics of human interaction to their interactions with machines via the attribution of social traits (Edwards et al., 2019). The norms of categorization, politeness, reciprocity, self-disclosure, labeling, and homophily mean consumers react to virtual

⁴ Instagram: @rozy.gram

agents in similar ways that they react to other humans (Nass & Moon, 2000). Anthropomorphizing decreases uncertainty around consumer-agent interactions and increases perceived social presence, meaning that interactions with virtual agents could be like human interactions (Edwards et al., 2019). This has been substantiated through research that maps consumer brain activity, revealing cognitive, affective, social, and behavioral reactions to virtual agents that are like other humans (Kramer, 2018). Studies have also shown that older users seek out virtual agents to alleviate distrust in online shopping (Venkatesh & Bala, 2008) and that age group stereotypes are applied to virtual agents (Edwards et al., 2019).

Conversely, other research argues that consumers react differently to human versus virtual agents (Shechtman & Horowitz, 2003). Evidence shows that as virtual agents become more humanlike through visual cues and cognitive abilities, consumers become uncomfortable with the uncanny resemblance (Wiese & Weis, 2020). This, in turn, can lead to decreased affinity and negative reactions. This skepticism could be fueled by the notion that virtual agents and advanced technologies have been demonized by pop culture, science fiction movies, and books (Stein et al., 2020). Therefore, to implement virtual agents successfully, a delicate balance must be struck; removing human characteristics completely could reduce anthropomorphizing and lead to a lack of personal connection (Haslam, 2006).

Despite positivity regarding virtual influencers among marketers—as an alternative to human influencers—research has consistently shown virtual influencers to receive significantly lower positive reactions (Arsenyan & Mirowska, 2021). Specifically, studies indicate that consumers show more affinity, trustworthiness, and preference for human influencers compared to virtual influencers (Seymour et al., 2020). Interestingly, however, whether the influencer is controlled by a human or by AI does not affect consumer responses. Given the potential benefits and challenges, it will help to understand how consumers react to virtual influencers when used for marketing purposes.

4. Opportunities associated with virtual influencers

As the technology powering digital and interactive characters continues to develop and become more accessible, opportunities to use virtual influencers as a marketing tool are emerging. Indeed, virtual influencers have the potential to go beyond acting

as mere brand ambassadors given that they can be designed to closely represent a brand's values and image (Bradley, 2020). In this way, virtual influencers are pushing the boundaries of possibility in influencer marketing, particularly in the lifestyle, fashion, and cosmetics industries (Naumann & Daubenbüchel, 2021). Virtual influencers are also demonstrating a range of positive brand effects, such as reaching new audiences, increased awareness and sales, positive publicity, and increased willingness to engage (Thomas & Fowler, 2021). We outline broad opportunity areas that are ripe to leverage virtual influencers for marketing purposes, including customer service, advertising, metaverse marketing, virtual communities, and proprietary virtual influencers.

4.1. Scale, standardize, and humanize virtual customer service

Historically, firms have relied on customer service agents to manage customer relationships. However, recent years have seen customer service delivery expand beyond service agents to include others that are closely connected to the brand, such as brand ambassadors and influencers (Guthrie, 2020). Further, digital technologies have revolutionized interactions between firms and customers (Wirtz et al., 2018), and virtual service agents are receiving increased attention in both theory and practice (Chung et al., 2020). We foresee numerous opportunities for brands and marketers to leverage virtual entities in general, and virtual influencers more specifically, for customer service—a critical organizational asset (Jerger & Wirtz, 2017).

First, there are customer service opportunities related to cost and control. A key benefit of using virtual influencers for customer service is a reduction in operating costs. Beyond the initial development stage and regular updates and innovation, virtual influencers have a relatively low incremental cost compared to human customer service agents. They can be scaled based on customer service demand without the need to hire additional human agents. In addition, the use of virtual influencers for customer service has the benefit of delivering consistent, predictable, and homogeneous service interactions with minimal error and high reliability (Grewal et al., 2017; Huang & Rust, 2018). When brands use human customer service agents, their personal life choices, emotional states, and other factors may influence the perception of the brand they work for, the customer they are interacting with, and how they respond to customer service requests. By

using virtual influencers for customer service, brands can minimize the risk of 'human errors' by enabling them to exercise greater control over their influencer's behavior and customer service responses.

More broadly, there is an increasing shift away from face-to-face customer service encounters toward virtual customer service encounters. This has been accelerated further by the COVID-19 pandemic, which forced many physical service centers to close temporarily. As a result, customer service interactions are increasingly taking place via online chat, on dedicated apps, or within social media platforms. More and more, the interactions on these platforms are being facilitated by virtual agents (Gnewuch et al., 2017; Söderlund & Oikarinen, 2021). Many brands are employing conversational AI to facilitate customer-chatbot service interactions in real-time. For instance, Royal Bank of Scotland created a bot, Cora, that converses with over 40,000 customers per day. Cora successfully answers more than a quarter of all conversations and can hand off those that require more specialized help (LivePerson, 2021). This general shift toward virtual customer service encounters means virtual influencers are in a unique position to be accepted by consumers as brand ambassadors. The opportunity for brands is to create autonomous virtual entities that can bring together the function of the brand ambassador and the customer service agent to further "humanize brands" (Caldwell, 2019). Such technology would provide a single, familiar point of contact for customer service while also allowing the virtual influencer the opportunity to engage customers as a brand ambassador.

4.2. Leverage for mainstream and native advertising

There is a range of opportunities for virtual influencers in advertising. The use of virtual entities to act as a spokesperson for a brand is not new and many customers can relate to brands that employ easily recognizable animated characters, such as the Gecko in GEICO commercials. However, recent years have increasingly seen virtual influencers transcend social media platforms and extend their influence on other ad formats, bringing with them their large online followings. One of the most prominent ad partnerships is between Lil Miquela and Samsung, in which she appears as the only virtual influencer among human celebrities like Steve Aoki and Millie Bobby Brown. For Samsung, the inclusion of a virtual influencer in the ad speaks to the brand as an innovator of culture and

technology. Virtual influencers also frequently star in fashion campaigns. Shudu has been featured in the Balmain virtual model army since 2018. She has also been the face of numerous campaigns and fashion collaborations, including Salvatore Ferragamo, Christian Louboutin, and Ellesse. The agency that manages Shudu goes so far as to describe itself as a virtual modeling agency (Dans, 2019).

In addition, virtual influencers provide an opportunity for brands to engage in more effective *native advertising*, which is a form of in-stream advertising that seeks to minimize the disruption to the user's native platform experience (Campbell & Marks, 2015). Consumers are typically angered when they discover that seemingly genuine content from a human influencer is sponsored or a form of native advertising. However, by knowingly following and interacting with a virtual influencer, who is typically a known commercial entity, consumers could be more salient and therefore less surprised or annoyed by sponsored content, product recommendations, and brand endorsements (Hanus & Fox, 2015). Referring again to the Lil Miquela and Samsung example, the partnership means that Lil Miquela is only ever depicted using a Samsung phone on her Instagram account (Rasmussen, 2021), a form of native advertising that her followers have accepted given her brand ambassadorship.

4.3. Replicate ambassadors in the metaverse

The metaverse—a three-dimensional virtual world inhabited by avatars of real people—has been gaining traction since 2020 (Kim, 2021). It can be defined as any digital experience on the internet that is persistent, immersive, three-dimensional (3D), and virtual (Balis, 2022). The metaverse offers experiences around play, work, connection, and consumption. Recently, brands have been reporting initial success in the metaverse. For instance, Gucci developed a virtual garden exhibition in Roblox that attracted more than 19 million visitors. Users were able to traverse different themed rooms and could buy 'skins' (aesthetic treatments) for their avatars. The Gucci skins initially sold as limited runs and can be resold by players, with one Dionysus GG shoulder bag—originally priced at 475 Robux (USD \$5.50)—selling for 350,000 Robux (USD \$4,115), which is much more than the retail price of the real-world bag (USD \$2,450; Hobbs, 2021).

The metaverse provides many opportunities for brands to leverage virtual influencers. Specifically, a brand can create proprietary virtual influencers, work with existing virtual influencers, or extend

real-life influencers, brand ambassadors, or celebrities into digital doubles that can interact within the metaverse. These virtual brand representatives can connect with consumers in the metaverse, with the potential to shift virtual showrooms, fashion shows, and dressing rooms from fringe experiments to mass adopted, brand-building experiences.

The fashion brand Dior recently created a digital double of real-life ambassador Angelababy to virtually attend its Shanghai 2021 show. Other brands are also leveraging digital doubles, generating Common Gateway Interface (CGI) versions of models such as Kendall Jenner and Naomi Campbell for Burberry (Chitrakorn, 2021). Importantly, virtual influencers offer brands greater longevity beyond a single campaign and can be leveraged for transmedia storytelling, allowing a brand to tell a single-story experience across multiple platforms and formats using digital technologies.

4.4. Attract and manage brand communities

Having a higher engagement rate compared to human influencers, effectiveness across a wide range of categories, and the ability to gain the attention of young consumers in new ways (Hiort, 2021a; Naumann & Daubenbüchel, 2021; Nguyen, 2021), virtual influencers are effective at creating consumer gathering around a brand. Indeed, virtual influencers can marshal brand communities at scale by engaging effortlessly across platforms and responding to each comment in real time (Guthrie, 2020). By using virtual influencers in this way, brands become part of the influencer's engaging storylines, personalities, and ultimately their emotionally invested communities (Arsenyan & Mirowska, 2021).

Captivating character biographies, intriguing storylines, and relatable personas are keys to success in keeping virtual influencers and their content interesting and helping to maintain a high level of engagement (Guthrie, 2020). A prime example is Cade Harper from Los Angeles, California, a virtual influencer who is portrayed as a typical 15-year-old. His message of positivity is designed to encourage self-esteem and respect within the Gen Z community, with his experiences and storyline resonating strongly with his loyal fanbase. Other important considerations in leveraging virtual influencers to build a brand community include transparency about the influencer's nonhuman status and commercial and brand affiliations, connection to art over advertising, thoughtfully engaging with human identity markers such as race and identity, and encouraging discussion between community members (Wagman, 2020).

4.5. Develop on-brand proprietary influencers

To closely represent brand identities, product values, and the target audience, individual brands can design their own virtual ambassadors and influencers. In doing so, brands can ensure the influencers' backstories, language, tone of voice, values, personality, and beliefs reflect those of the brand, leading to a deeper emotional connection between the brand and influencer (Guthrie, 2020). For example, global luxury brand Prada recently introduced its virtual model Candy to represent the relaunch campaign for its perfume line, Prada Candy. Prada described the initiative as an opportunity to stimulate digital interaction with young consumers and reach new digital heights, with plans to develop her further as a brand ambassador to connect to target customers and their lifestyles (Hiort, 2021b). Another prominent example is Balmain. In addition to its two virtual models, Margot and Zhi—who embody the beauty, individuality, and confidence of the 'Balmain woman' and exclusively promote the French brand's high-end collections—Balmain recently created its own 'virtual army' to model its clothing (Cook, 2020).

Beyond fit, proprietary influencers also afford brands reputational safety. Stories of human influencers behaving transgressively and subsequent damage limitation by brands are pervasive in media discourse. Creating virtual influencers eliminates the risk of both past and future indiscretions given their media presence is carefully crafted and allows control of intellectual property rights that can span generations and build brand familiarity with minimal risk (Rasmussen, 2021). For these reasons, many fashion, food, sports, and automotive brands have created their own virtual ambassadors.

5. Challenges associated with virtual influencers

Despite the opportunities afforded by virtual influencers, challenges exist. We outline five broad challenges, including consumer reservations, unrealistic notions of beauty, inauthenticity, regulatory and ethical considerations, and consumer subversion.

5.1. Neutralize consumer reservations

In the context of the virtual world colliding with the real world, some consumers experience a sense of uneasiness about virtual influencers'

human resemblance. The more lifelike virtual characters appear, the greater the level of discomfort they can create. In some cases, an avatar can be so lifelike that it is indistinguishable from a human being (Bradley, 2020). Further, some consumers are resistant to technology-mediated experiences (Mani & Chouk, 2018), whereas others are open to it but prefer certain characteristics (Söderlund & Oikarinen, 2021). Accordingly, brands must strike a fine balance between creating humanlike influencers, but not so humanlike that they cause uncertainty.

Beyond physical appearance, virtual influencers' inability to produce emotive storytelling also contributes to the unease some consumers hold. This was seen in consumer reactions to virtual influencer Lil Miquela's vlog about her experience of sexual assault—a very traumatic and real human experience that was perceived as fakery (Klein, 2020). Thus, consumer reservations about fully engaging with virtual characters, content creators, and narratives pose a challenge (Bradley, 2020). In response, organizations are creating virtual characters that test audience readiness and preparedness to embrace lifelike avatars (Guthrie, 2020).

5.2. Avoid unrealistic notions of beauty

Another challenge associated with virtual influences is rooted in social media's dark side (Sands et al., 2020); specifically, in users' reliance on social approval, the need for positive feedback, and the negative effects of self-evaluation and body image. This dark side could be intensified by virtual influencers, given that they are mostly women who present unrealistic beauty standards and body type expectations (Moustakas et al., 2020). Virtual influences have also been identified as a potential risk to the future of culture and media in that they create unrealistic expectations about what constitutes beauty, style, and culture (Wong, 2018). However, some virtual influencers are defying this trend. For instance, Noonoori, a more animated virtual influencer has bucked the trend of becoming too lifelike and flawless. In contrast, Noonoori has oversized eyes and a doll-like body. Importantly, brands working with virtual influencers or building their proprietary virtual influencers have a unique opportunity to consider the possible negative effects of influencer marketing and avoid the perpetuation of unrealistic notions of beauty.

5.3. Be authentic and avoid falsity

Stemming from the increasing difficulty in distinguishing between a virtual and human influencer,

consumers are demanding greater authenticity and transparency from creators and advertisers. In terms of authenticity, virtual influencers can lack an authentic connection with their followers given their fictionalized personality, content, and their primary motivation being profit (Moustakas et al., 2020). This inauthenticity has prompted the creation of imperfect virtual influencers such as Angie, who can be seen yawning on screen and with a pimple or two on her face. To date, she has amassed over 280,000 followers on Douyin, China's version of TikTok (Florian, 2021). As is the case with human influencers, consumers also question the authenticity of virtual influencers' true affinity with the advertised brand (Wong, 2018). In terms of transparency, consumers expect to know the motivations, values, and identity of the advertising brand (Guthrie, 2020). This is evidenced by incidents in which virtual influencers have been accused of deceiving followers, such as the Calvin Klein campaign featuring Lil Miquela and Bella Hadid accused of 'queerbaiting' (Stewart, 2019). The need for greater transparency and authenticity is a risk to consumer-brand relationships over time and could lead policymakers to take a more conclusive stand regarding the use of virtual influencers (Powers, 2019).

5.4. Anticipate regulations and ethical requirements

As virtual entities—from synthesized versions of real people to wholly invented virtual influencers—become more commonplace, regulation and ethical requirements will increase. This consideration is especially important as virtual influencers continue to develop huge follower counts, collaborate with some of the world's biggest brands, fundraise for organizations, and champion social causes. Technological developments will continue to evolve virtual influencers to become even more human-looking, and stricter regulations could be set to protect consumers from the potential harm these technological advances might bring (i.e., full disclosure about a virtual influencer's identity) and to avoid false or misleading advertising and impersonations.

Meta, Facebook's parent company, is already working to establish ethical boundaries on the application of virtual entities. Such guidelines and boundaries could, for example, take the form of a virtual influencer code of ethics and individual tags to explicitly identify the influencer's fictional nature, as well as the owners to establish who is responsible for the content and the motivations behind it (Guthrie, 2020). Regulators and

lawmakers in the EU, U.S., and elsewhere are already examining the not-dissimilar issue of AI's patentability, with policy crafted to address those matters a foundation for similar regulations specific to the use of virtual influencers as a marketing tool. As such regulations are set around the world, brands (i.e., the advertisers) and virtual influencers (i.e., the publishers) will need to comply and ensure that any claims communicated are truthful, not misleading, and substantiated (Powers, 2019). With regulation, consumers will also be in a better position to discern the difference between real and virtual influencers, making it a more acceptable marketing approach. Finally, marketers may also need to consider copyright or trademark issues when seeking to create proprietary virtual influencers.

5.5. Secure against consumer subversion

Virtual influencers are typically controlled by AI, making them susceptible to being targeted by consumers or activists to subvert, sabotage, or troll. Recent years have seen a wide range of public AI platforms give in to these vulnerabilities and become targets of consumer subversion and sabotage (Demsar et al., 2021). ML algorithms, like those underpinning virtual influencers, are designed to respond to consumers contextually and in real-time. This functionality enables consumers to hack and manipulate the algorithm, making it respond in unexpected ways, go against its original intentions, or become offensive to others. A popular example of this is Microsoft's Tay AI, a sophisticated conversational AI Twitter chatbot designed to converse with

Figure 1. Opportunities and challenges associated with virtual influencers

OPPORTUNITIES	CHALLENGES
<p>Scale, standardize, and humanize virtual customer service</p> <ul style="list-style-type: none"> • <i>Customer service provision and delivery beyond service agents to include others that are closely connected to the brand, like virtual brand ambassadors and influencers</i> 	<p>Neutralize consumer reservations</p> <ul style="list-style-type: none"> • <i>Consumers can experience a sense of uneasiness about virtual influencers' human resemblance; the more lifelike virtual character appears, the greater the level of discomfort</i>
<p>Leverage for mainstream and native advertising</p> <ul style="list-style-type: none"> • <i>Virtual influencers afford the ability to transcend social media platforms and extend influence into other ad formats, bringing with them their large online followings</i> 	<p>Avoid unrealistic notions of beauty</p> <ul style="list-style-type: none"> • <i>Virtual influencers have the potential to reflect unrealistic notions of beauty and body image to consumers</i>
<p>Replicate ambassadors in the metaverse</p> <ul style="list-style-type: none"> • <i>The metaverse provides opportunities for brands to leverage virtual influencers- and extend real life influencers and celebrities to digital doubles in the metaverse</i> 	<p>Be authentic and avoid falsity</p> <ul style="list-style-type: none"> • <i>Virtual influencers can lack an authentic connection with consumers given their fictionalized personality, content, and primary motivation being brand promotion or profit</i>
<p>Attract and manage brand communities</p> <ul style="list-style-type: none"> • <i>Virtual ambassadors and influencers can be developed to represent existing brand identities, product values and the target audience</i> 	<p>Anticipate regulations and ethical requirements</p> <ul style="list-style-type: none"> • <i>As virtual influencers become even more human looking, stricter regulations could be set to protect consumers from potential harm and avoid false or misleading advertising claims</i>
<p>Develop on-brand proprietary influencers</p> <ul style="list-style-type: none"> • <i>Virtual ambassadors and influencers can be developed to represent existing brand identities, product values, and the target audience</i> 	<p>Secure against consumer subversion</p> <ul style="list-style-type: none"> • <i>AI and machine learning (ML) raise the potential for consumers to manipulate algorithms and go against a brands' original intentions</i>

young consumers on the platform. The chatbot was famously targeted by consumers from the 4chan and Reddit forums, who figured out that they could train the ML algorithm by sending politically incorrect tweets (Price, 2016). Virtual influencers could be susceptible to similar vulnerabilities and, if they were targeted, experience negative public backlash. Learning from similar incidents, brands must ensure that virtual influencers—particularly those controlled by AI—cannot be manipulated into performing transgressive behaviors.

6. Preparing for the virtual future

For convenience, Figure 1 provides a visual summary of the opportunities and challenges for brands using virtual influencers.

In line with the increased traction of influencer marketing, the existence and applications of virtual influencers will undoubtedly continue to grow in the foreseeable future. This likely evolution is aligned with the general belief that brands must adapt to embrace the new reality of interactive content and emerging media (Sheehan & Morrison, 2009). Indeed, the growth of virtual influencers, along with the increasing number of brands engaging them, makes the marketing tactic difficult to ignore. Consumers expect that the future will hold a degree of falsity, with many anticipating virtual entities and holograms to be commonplace in the next decade (Harding, 2019b). Hence, marketing managers should be prepared and consider the use of virtual influencers within their marketing mix, including how this emerging marketing phenomenon may enhance brand strategies.

Appendix. Exploratory survey investigating consumer reaction to virtual influencers

	Reported gender			Reported age					
	Total	Male	Female	18-24	25-34	35-44	45-54	55-64	65+
General behavior									
<i>Sample size¹</i>	2,160	1,105	1,055	200	367	427	392	344	430
Use Instagram	46%	32%	60%	84%	72%	57%	43%	25%	15%
Follow any influencer	23%	13%	33%	61%	46%	28%	13%	6%	2%
Aware of virtual influencers	8%	6%	10%	23%	17%	8%	4%	3%	1%
Follow virtual influencers	3%	3%	4%	10%	7%	4%	2%	0%	0%
Attitudes toward virtual influencers									
<i>Sample size²</i>	997	359	638	168	265	243	170	87	64
Engage with promoted	11%	14%	10%	13%	15%	14%	9%	1%	0%
Interested in brand promoted	11%	14%	9%	12%	15%	15%	7%	2%	2%
Trust recommendations	11%	15%	9%	12%	14%	14%	8%	2%	2%
Trust content from virtual influencer	13%	16%	11%	14%	13%	19%	12%	5%	3%
Trust content from human influencer	34%	31%	36%	36%	32%	29%	39%	38%	41%
Entertainment appeal	20%	23%	18%	23%	25%	21%	18%	7%	6%
Recommendation appeal	14%	16%	14%	20%	18%	17%	13%	6%	5%
Customer service appeal (compared to bot)	16%	20%	15%	20%	16%	21%	15%	7%	5%
Customer service appeal (compared to humans)	14%	19%	11%	16%	14%	20%	11%	3%	3%

Notes: ¹Total sample (2,160); 49% female, average age of 48 years

²Participants who use Instagram (n=997).

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