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**Embracing Falsity through the Metaverse:  
The Case of Synthetic Customer Experiences**

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# **Embracing Falsity through the Metaverse: The Case of Synthetic Customer Experiences**

## **Abstract**

The metaverse has been heralded as a next frontier for fuelling strategic business opportunities. At the same time, recent months have witnessed explosive volatility in the market potential of proposed metaverse offerings. As a result, businesses are struggling to set a meaningful strategic course through an uncharted landscape of fast-paced change. We argue that the success of developing and scaling the metaverse as a vibrant new business ecosystem is largely dependent on the understanding that it is a unified and immersive reality where the physical and synthetic customer experiences seamlessly converge. In turn, crucial to this understanding is the notion that businesses and their customers need to be able to suspend their disbelief that synthetic elements are inherently false. We, thus, advance the metaverse as a differentiated experience by exploring the promise and perils of falsity. We discuss how businesses can strategically embrace falsity by harnessing its intended, as well as mitigating unintended, consequences, while manoeuvring through major technological challenges in capturing customer value. We offer a diverse set of examples that illustrate how these strategies translate into managerial actions to competitively succeed in this new reality.

**Keywords:** Metaverse, Falsity, Synthetic Customer Experience, Augmented Reality, Virtual Reality, Neuro-enhanced Reality

## **1. THE METAVERSE – IS THIS FOR REAL?**

Facebook's latest re-branding to Meta has set the business world abuzz with talk of the metaverse as the next stage in the evolution of an ecosystem for new products, services, and emerging synthetic customer experiences. At the same time, there is widespread confusion about what the metaverse actually is and what opportunities it offers businesses. Recent market reports reveal that businesses and their customers struggle to come to terms with the metaverse, and conceptual confusion is rife, obscured by legacy effects of previously heralded 'metaverses' (Lacey & Jackson, 2022; Proulx, 2021). As a result, many businesses are predicating their strategies on a narrow interpretation of the metaverse as a virtual mirror-world to physical reality, akin to Linden Lab's 'Second Life'. In the early 2000's Second Life offered an online world for users to interact through avatars and create and exchange digital artefacts or goods (Kaplan & Haenlein, 2009). Despite enthusiastic uptake in some sectors (e.g., paramedic training, banking and education), Second Life did not quite reach the mainstream, and eventually saw user numbers dwindle. Due to offering synchronous and persistent experiences to highly customisable digital avatars, Second Life is often seen as a proto-metaverse (Ball, 2020). Yet, its scope and scale are narrower than the emerging concept of the metaverse. While Second Life is a 3D virtual space on a 2D screen premised on the creation of a different reality, the metaverse and its underpinning newly emergent technologies offer the possibility to have a truly immersive experience that transcends a single virtual space and connects the physical with the virtual.

Cornerstones of the metaverse, such as, cryptocurrencies, digital collectibles (e.g., Non-Fungible Tokens - NFTs), blockchain and reality enhancing technologies (e.g., Augmented Reality - AR, Virtual Reality - VR, and Neuro-enhanced Reality - NeR) help us to demystify the idea of the metaverse and to separate the reality from the hype. AR, VR and NeR are particularly crucial technologies that progressively extend a user's view of physical reality,

for instance: by altering their appearance (e.g., wearing a digital-only garment with AR overlays); by immersing them into real or fantasy-based environments to meet friends, colleagues, or strangers (e.g., Spatial VR); or by generating a sense of touch within their brain when they interact with a digital object (e.g., through a Neuralink implant) (Hilken et al., 2022). These technologies can be (and are) used separately outside of the metaverse, however, the metaverse offers an opportunity to utilise them in a scalable and networked environment that can accommodate many customers and offers customers a service with more sustainable content and social meaning (Park & Kim, 2022). While the metaverse is presented as “the biggest opportunity for the modern business since the creation of the internet” (Charlton, 2022), its success will depend on the acceptance that the virtual and physical are sensorily similar and that the metaverse thus represents a *genuine reality* in which users can socialize, work, and play. In other words, customers will need to suspend their disbelief that synthetic experiences are inherently 'false' to prevent discounting the value of a technology-enhanced reality (Hilken et al., 2017).

In traditional conceptualisations of falsity, which is a neglected area of research, it is most often defined from a dichotomous perspective, that is, as the extent to which something is not ‘true’ (Scharp, 2010). Conceptualising falsity as something that lacks attributes, rather than defining its attributes, poses a significant obstacle to achieving firm and customer value in the metaverse. So, businesses need a better understanding of not only what the metaverse is, but also how the concept of falsity plays out in this new reality. In this article, we shed light on these issues and offer a fresh look at falsity by advocating that in the metaverse falsity needs to be embraced as a business strategy. We begin by discussing what the metaverse is and how it gives rise to ‘synthetic customer experiences’. We then reflect on falsity in the metaverse and the need to move away from the traditional view of falsity that assumes only physical experiences are ‘real’, instead shifting the firm’s strategizing for the metaverse towards

actively designing synthetic customer experiences to provide value in the Metaverse. In this context, we discuss the potential for both positive and negative impacts of falsity for consumers and businesses, and provide corresponding guidelines for managing synthetic customer experiences through embracing falsity at a strategic level.

## **2. THE METAVERSE - A NEW KIND OF EXPERIENCE**

The term metaverse—coined by Neal Stephenson in his 1992 science-fiction novel “Snow Crash” to refer to a dystopian virtual world where avatars can interact—has made the list of top 10 words for the year 2021 (Collins Dictionary, 2021). Despite increased media, corporate and public interest, and a general agreement that the metaverse will transform how people shop, work, socialise and are entertained, no common definition exists as to what the metaverse is (Kim, 2021; Lee et al., 2021). Some pundits limit the metaverse to a “shared online space that incorporates 3D graphics, either on-screen or in virtual reality” (Sparkes, 2021), while others see it more broadly as a network of 3D virtual worlds that is interoperable, massively scaled, and experienced synchronously (Ball, 2021; Kim, 2021). Emerging definitions describe the metaverse as “a new Internet application” (Ning et al., 2021, p. 12), still others envision it as the next-generation Internet (Duan et al., 2021) or a successor to the Internet (i.e., Web 3.0. or the spatial web) that users will feel as though they are living ‘within it’ rather than having to actively access it (Ball, 2021; Zuckerberg, 2021). One of the most comprehensive definitions of the metaverse has been offered by Ball (2021) who suggests that the metaverse is “a massively scaled and interoperable network of real-time rendered 3D virtual worlds 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.”

In light of rapid developments in reality-enhancing technologies (i.e., AR, VR and NeR) that support the metaverse, we can extend Ball's (2021) definition with regards to an overlooked aspect, namely that the metaverse will not take place inside one or more 'locked' virtual worlds, but will permeate every aspect of everyday life, seamlessly blending digital and physical realities dissolving perceptions of the traditional dichotomy between 'real' (i.e., physical) and 'false' (i.e., synthetic) experiences. Accordingly, we propose that the metaverse is an ecosystem of interconnected, shared digital and physical environments, which can be experienced synchronously, persistently and interoperably, and in which physical and technology-enhanced realities are seamlessly combined.

Instead of framing the metaverse as an alternative reality or a virtual space that one enters and exits, as is the case with Second Life (cf. Kaplan & Haenlein, 2009), our definition implies that in the metaverse physical and digital worlds converge to form a new, fundamentally enhanced experience of reality. In this new reality, value is predicated on developing *synthetic customer experiences* (SCx), that is natural/physical experiences (PCx) extended through technology (Robinett, 1992), so as to enhance customers' cognitive, emotional, behavioural, sensorial, and social responses (Lemon & Verhoef, 2016). An example, of a synthetic customer experience could be where a customer responds to an AR hologram of a piece of furniture placed in their physical environment. Another example is a customer smelling the (physical) scent of bread through a computer-brain interface that is integrated on their VR headset. SCx holds unique implications for the development of new virtual products, collection of new types of consumer data, and innovative forms of payment and financial transactions. While this paper focuses on SCx brought about by current VR, AR and NeR capabilities (for an overview of other underpinning technologies see Ning et al., 2021), it should be stressed that the metaverse is a more complex network of physical and technological assets (Park & Kim, 2022). Rather the reality-enhancing technologies are

important for the customer-facing aspect of the SCx in the metaverse. As such, VR, AR and NeR do not ‘make’ the metaverse but rather each of them represents a potential way to experience it (Ball, 2021). Accordingly, these technologies can (and should) be used concurrently (and in an integrated way) to bring about and shape a diversity of rich and novel SCx. For example, utilising AR and NeR as access points, some metaverse experiences will have a particularly strong physical reality component.

As the integration of physical and SCx results in the metaverse, from the customer’s perspective, so do the boundaries between the ‘real’ and the ‘fake’. Thus, traditional dichotomous views of falsity as being ‘not true’ and real as being ‘true’ are inherently challenged. Indeed, as synthetic experiences, underpinned by AR, VR, and NeR, become progressively more vivid (i.e., approaching the resolution of physical sensations) they could lead to customers becoming perceptively unable to distinguish between organically and technologically-simulated experiences.

### **3. FALSITY IN THE METAVERSE – A REFLECTION**

Our concept of the metaverse elevates SCx to a strategic role in how businesses interact with their customers in this new reality. Specifically, as the focus of customer interaction shifts towards greater reliance on synthetic sources of customer experience through AR, VR and ultimately NeR (see Figure 1), critical questions are raised in relation to how stakeholders, including customers, managers, and regulators, should view SCx in the metaverse. For instance, when basic service functions rely on a customer’s access to SCx, such as pricing information displayed using AR in physical stores (Canales, 2021), or sales assistants connecting from distant locations in the form of holographic avatars, SCx takes on an essential role in the customer’s life within the metaverse. Yet, the notion of SCx as essential to customer’s life is still controversial. A recently publicised incident involving a female beta



tester in Meta's VR platform exposed what she claimed was virtual 'groping' (Sparks, 2021), and highlighted the controversy. While SCx can be psychologically real to the person immersed in the metaverse, it is often discounted by outside observers because no physical activity takes place. Such discounting of SCx stems from traditional views of falsity which assume that only physical experiences (i.e., those derived using unaided biological senses like sight, hearing, touch, taste, and smell) are real (Ross & Ward, 1996) and any form of SCx is imaginary, inconsequential, and, thus, 'not true'. This discounting perspective arises due to an interaction between sources of SCx that allows an observer to, for instance, judge VR experiences from the point of view of physical reality.

However, the traditional view of falsity is inherently problematic and potentially counterproductive to businesses trying to succeed in the metaverse. The problem with the traditional perspective of falsity is its denial of the embedded and persistent nature of SCx for those customers immersed in the metaverse. A customer who adopts an alternate identity using an AR face filter (e.g., to become a Queen of Hearts character instead of their usual physical self), likely integrates the qualities of this avatar into their persona and uses those qualities to achieve goals and objectives in the metaverse otherwise not possible in the referenced physical reality. A brand that naively considers this alternative persona, and its related goals and objectives, as 'false' fails to appreciate the customer centricity of SCx, where digital object relationships acquire meaning from the customer's perspective (Wolfendale, 2007). Accordingly, brands that disregard the customer centric view of SCx risk destabilizing customer-brand relationships in the metaverse (Molesworth et al., 2016). This means that the traditional view of falsity fails to recognize the primary role of SCx, which actually empowers customers into new types of behaviours, preferences, and values (see Figure 1). Accordingly, a more nuanced perspective on falsity for managers, customers, and regulators is one that acknowledges the *empowering* role of SCx towards fundamentally

novel ways of interacting and expression. Businesses that recognize this potential to empower customers can unlock unique opportunities for value creation in the metaverse, and those that do not risk alienating customers and destabilizing customer-brand relationships.

[Insert Figure 1 about here]

#### **4. SYNTHETIC EXPERIENCE IN THE METAVERSE – THE PROMISE AND PERILS**

The nuanced view of falsity acknowledges new opportunities, but also novel risks for customers and companies engaging in the metaverse. As Figure 1 and the sections that follow illustrate, SCx can help to bridge imagination gaps and enhance services and people by harnessing falsity. At the same time SCx has the potential to negatively impact the person, service, or products and must be mitigated to limit adverse effects.

##### **4.1 Positive Impacts of Falsity**

Fostering customer empowerment is one of the positive consequences of the nuanced view of falsity in the metaverse. That is, harnessing SCx to help customers more easily achieve their goals and objectives in the metaverse empowers them, creating value in the process.

Harnessing falsity to drive such value creation in the metaverse relies on utilizing various reality-enhancing technologies.

In the context of AR, for example, using holograms allows customers holographic-trial (product preview or virtual-try on), when the physical product is absent. Such ‘false’ experience supports the customer’s imagination on how a product or service would look like in a specific room (e.g., furniture, wall-paint, interior design) or when worn by the customer (e.g., cosmetics, eyewear, new haircuts). For example, companies such as IKEA allow customers to view, using a mobile computing device, digital holograms of furniture or interior design products in their own homes, fulfilling the need of the customer for contextual

information when making product decisions. Previous research has shown that, while customers acknowledge that these holograms are missing sensory attributes such as tactile information about the materials (e.g., the feeling of the wood of a desk or the textile of a couch), holographic-trial significantly increases customers' comfort when making purchase decisions, and promotes higher willingness to pay, while encouraging positive word-of-mouth intentions towards a retailer (Heller 2019a,b). Similarly, products or services that require the customer to assess how the product would look and feel when worn are often offered in a virtual-try on option. While in the physical setting the customer would usually go to a retailer to try on a pair of (sun-)glasses or try out a new colour of a lipstick, AR offers a SCx without the costs of traveling to a store. Similarly, with AR-face filters, customers can accelerate information processing by trying an almost unlimited number of makeup options in a short space of time with the ease of a finger click, receiving immediate feedback from peers who could be physically distant by sharing their virtual try-on-looks over the digital network.

VR—the technology most often associated with the metaverse in the popular press—provides novel opportunities to harness falsity in services, such as education, business communication, or even after-sales services (in B2C as well as B2B contexts). This is in contrast to established online solutions, for example, universities offering online classes using video conferencing that typically results in effects like 'Zoom fatigue', lowered engagement, and decreased learning outcomes (Ramachandran, 2021). Instead, embracing SCx, education in VR can not only replicate lecture halls and even laboratories in the metaverse, but it can simulate an educational experience by adding falsity, for example digitally highlighting parts of the body during an anatomy lecture, animating inner workings of a cell in a biology presentation, and transporting students into the Amazon rainforest to experience its beauty and its rapid destruction during a geography lecture; all done with students and teachers

physically living thousands of miles from each other. As another example, some companies that shifted to a remote working model find lower levels of employee engagement and reduced levels of effort and productivity (Wang et al., 2021). As the current costs of VR devices continue to decline, providing employees with a VR-capable headsets may be cheaper than providing each employee with an average smartphone. Yet, VR headsets open new opportunities for immersive engagement, that can simulate presence and interactivity between employees and foster collaboration as people embody movement and navigation through virtual spaces in which they co-create (Tham et al., 2018).

Currently, NeR is the least developed of reality-enhancing technology, yet it affords the highest potential for reality-enhancement and harnessing of falsity, as it directly interfaces with the human brain. While AR and VR typically require users to interact with external interfaces such as tablets, smartphones, smart glasses, for example, by viewing and manipulating a touchscreen, NeR bypasses this intermediary stage allowing direct experience. NeR also has the potential to enhance sensory experience and supplement any missing information from AR or VR interactions (e.g., what an AR hologram's texture will feel like, what the atmosphere and scent at a restaurant will be) (Hilken et al., 2022), but also to create hyper-real SCx where the flavor of a virtual dish is perfected while the smell of freshly baked bread is made especially appealing by simultaneously stimulating pleasure centres in the brain. Such potential for falsity, enhances customer experience and, if done ethically, enriches the customer's life creating value from SCx in the process. For instance, research has shown that although customers can form feelings of ownership towards AR holograms (Carrozzi et al., 2019), they are always aware that these are only visually projected on the screen of their smartphone or tablet. In contrast, because NeR bypasses these sensory stages of perception, it makes communication with digital content seamless (e.g., thinking of trying various products instead of scrolling through products on a screen) or even substitutes

the need for sensory perception (e.g., VR environments directly feed a full multi-sensory experience including visual, audio, touch and smell into the brain) to the extent that it becomes virtually impossible to distinguish between SCx and physical reality. This holds significant potential to overcoming the current limitations that AR and VR face.

#### **4.2 Negative Impacts of Falsity**

Falsity in the metaverse cuts both ways, while it can be harnessed to enrich customer experience and create value, there is equally a potential for negative consequences that managers must be aware of when transitioning into the metaverse. Depending on the context, it is crucial for managers to understand when and how falsity would result in negative consequences for the consumer and subsequently the business.

For example, AR face filters on social media platforms, while primarily linked to hedonic experiences, have been repeatedly flagged as potentially harmful, especially for teenagers and young adolescents. The ‘beauty filters’ that customers can use to digitally augment their faces, often referred to as distortion filters because they allow customers to change features of their face (e.g., enlarge lips or eyes), have been heavily criticized in the past few years. In 2019, Facebook banned distortion filters in light of public debate about potential negative impacts on users’ self-image, and the resulting behaviours that can spill over from the virtual realm into the physical world resulting in physical harm (Seargeant & Tagg, 2019). Research has demonstrated that such behaviours can harm customers and reduce their well-being, for example by decreasing self-compassion (Javornik et al., 2021). The rising awareness about body dysmorphia and filters that allow customers to mark up their faces as a cosmetic surgeon would (“FixMe” was an app that was banned from Facebook and Instagram in 2019) highlight the potential dark side of AR when approaching the metaverse (Ryan-Mosley, 2021).

Similarly, VR allows customers to fully replace their own looks using virtual avatars that interact in virtual environments. Foreshadowing potential harm in the metaverse, Jeremy Bailson, founder of the Virtual Human Interaction Lab and professor at Stanford University, pointed out in 2016 that “VR feels real, but there are no rules and consequences” (Bailenson, 2016). As on current social media platforms, the metaverse seems to invite behaviour such as trolling and bullying, as the negative consequences can be avoided through the relative anonymity of false avatars or fake names linked to a customer’s profile. Such behaviour however, next to the tremendous negative social impact, also harms the service experience in the metaverse, and managers need to prepare for service recovery that goes beyond what is known about the PCx.

Lastly, NeR raises vast ethical considerations and an unprecedented risk for deception or manipulation, which users might have limited or no opportunity to counteract (Wexler & Thibault, 2019). For instance, marketers could ‘neurally’ overstate the actual reality of their offerings. When providing SCx of missing sensory input (e.g., the scent at a tropical vacation resort) the resulting falsity could be used to deceive rather than ethically enrich customers’ well-being. NeR could add sensorily deceptive information to both physical and digital products, nudging or even directly influencing customers to buy products that have limited value outside of NeR. This could, in the long run, result in customers investing a disproportionate amount of their income into the metaverse, while potentially reducing their spending physical settings that are beneficial to their physical well-being (e.g., doctors’ visits, health insurance, pension investments).

## **5. EMBRACING FALSITY – MANAGING THE SYNTHETIC CUSTOMER EXPERIENCE**

Embracing of falsity in the metaverse is a unique approach that managers can take to position their brands in a world dominated by SCx. A business strategy predicated on embracing

falsity requires that firms (i) harness the value creating aspects of falsity, (ii) mitigate its negative consequences, and (iii) manoeuvre through the technical challenges within the metaverse to achieve meaningfully rich and consistent SCx. In Table 1, we suggest managerial actions that can capture value for each of the requirements of a falsity embracing strategy and provide illustrative examples of current and future developments to support those actions.

[Insert Table 1 about here]

### **5.1 Harnessing Falsity**

When harnessing falsity to positively impact business and customer outcomes, there are three key pathways to capture value in the metaverse. First, harnessing falsity via '*reality precision*', managers want to ensure that the synthetic experiences are perceived as real, or consistent within a reality, irrespective of what that reality may be. The precision with which the synthetic experience is consistent with a version of reality allows the customer to explore the metaverse for its own benefit and will enable businesses to charge for realness. For example, if a VR educational experience of sitting in a lecture hall of a university is interactive, authentic, easy-to-use, and engaging, value can be captured by businesses as the synthetic educational experience comes without the costs of the physical experience (e.g., commuting to university, relocating if the university is abroad) and scales more efficiently through offers that are more difficult to bring about in the physical world (e.g., students and educators from all over the world can interact). Similarly, if a digital piece of art in AR or VR is as realistic across realities (including the physical reality), and ownership is regulated (e.g., via NFTs), value is captured by digitally replacing objects and making them appear (or even feel and smell) like a (physical) counterpart. This is not, however, to say that the goal of harnessing falsity is to emulate the physical experience.

Second, acknowledging the *market making* of falsity in the metaverse allows business to develop new service experiences and offerings. SCx offers experiences that cannot be practiced in the physical world, for example, a VR visit to Mars, or a VR time travel to experience a location or an event in the past. Falsity is truly harnessed by developing new synthetic service experiences and expansion to new markets. In addition, businesses will be able to expand their brands in the metaverse to further support their market making activities when harnessing falsity. For example, brands could allow all their customers to virtually tour their production lines or supply chains to connect further with their customers and enhance transparency and a focus on responsible sourcing.

Third, the metaverse, being an advanced and new form of online connectedness, allows for data collection that revolutionizes data availability as we currently know it and will *enrich customer understanding*. Designed for customers to not only play, but also work, chat, shop, or workout in the metaverse, a wide array of additional datapoints and types of data is emerging. Interacting with holograms of products while shopping allows businesses to track voice-commands or hand gestures of customers, the latest VR glasses have built in facial tracking that allow companies to present a customer with, for example, an advertisement and immediately track facial responses. The data goes beyond common online metrics such as views, clicks, and conversions, but expands into the realms of live tracking of movement and emotional expressions. For example, imagine a VR store with a knowledgeable shopkeeper who is there to help customers by engaging them in conversation. The shopkeeper gets to know customers' personal needs, preferences, goals, and interests. Then, with the customers' permission, the retailer uses that data to provide a more personalized experience with the brand. The promise of a fully decentralised metaverse is that consumers will own their data and other assets and will decide where to share them as well as have a chance to accrue monetary value from them.



## 5.2 Mitigating Falsity

To deliver good synthetic experiences and so capture value in the metaverse, managers, policymakers and customers have to manage falsity in its multiple facets. By taking an active approach toward mitigating the negative effects of falsity, managers will build trust in their brands and in this new type of brand experience and diminish the potential financial, physical, and psychological harm to customers that could arise out of un-managed falsity.

First, companies doing business in the metaverse should avoid contributing towards *false expectations and beliefs about and of customers*. For instance, while some managers might assume that customers will not be prepared to pay a full price for a digital version of a product or a service (Westerman, 2022), a recent example of a digital-only Gucci bag being sold for \$4,115 USD on Roblox suggests that some customers might actually be prepared to pay more for virtual goods than their physical alternatives. After all, such objects do not physically degrade, although guarding against digital obsolescence is more complex. To develop successful strategies for the metaverse, managers will need to reconsider the potentially false assumptions about what customers want and expect from brands in the metaverse. At the same time, managers play a crucial role in influencing how SCx is described to customers. SCx should not be communicated as an experience that cannot be false. Indeed, communications strategies may also need to embrace an approach based on continuously building consumer knowledge and understanding of the new ever-evolving reality as technology continues to develop. That said, managers should be cautious not to (un)intentionally contribute to false and unrealistic customer expectations by creating hype-building marketing communications that over-promise and under-deliver on SCx.

Not all falsity is created by the brands, however. Managers in the metaverse need a strategy and a toolkit to tackle a plethora of falsity-related customer misbehaviours where customers (un)intentionally act in a manner that deprive the company, its employees, or other

customers of safety, resources, image, or an otherwise successful customer experience (Fombelle et al., 2019). Examples of misbehaviour include making counterfeit synthetic replicas of physical products, using deep fakes (i.e., using AI-based deep learning as a means of creating fake entities) to impersonate another avatar, employee or a famous person, or guiding and controlling the movement of an immersed user without their knowledge (Casey et al., 2021). While not all misbehaviours in the metaverse are new, many come with an added complexity and the potential for an amplified impact. Due to the realness of these impacts, managers need *to set 'the rules of play'* within their respective metaverse communities. Considering the decentralised nature of these communities (see Duan et al., 2021), the rules should be co-created with the community members and enacted by the mix of technological tools (e.g., blockchain-based identity verification solutions, algorithmically-powered fake news detection) and human-based support. The vastness of the metaverse and richness of data will likely lead to the development of new 'safety tools' (e.g., spatial protection of avatars) and 'punishments' that will be underpinned by the peer-provided and system-provided data continuously evaluating avatar's behaviour on multiple dimensions (e.g., voice, movement).

Finally, to generate value and mitigate against the potential (un)intended damage or consequences of the metaverse, managers need to *acknowledge the boundaries of falsity*. In some instances, falsity should be designed out from the metaverse. For instance, some products, services, and ideas might be too sensitive to appear in the context of the metaverse (e.g., recreating a real-world war in real time) or could lead to negative societal consequences (e.g., a possibility to eliminate people of different races from our view in the metaverse would lead to a distorted and less inclusive society). When designing their metaverse solutions, managers need to be aware of the potential unintended consequences and risks of their products. On the other hand, while SCx can afford sensorily similar experiences as PCx,

this does not mean that these two types of experiences are interchangeable. For instance, during the pandemic, first year students felt that their university experience could not be replicated online as the sense of community was negatively impacted by the lack of physical presence. This example indicates that an important part of any metaverse strategy will be a consideration of how physical and technologically enhanced realities should be meaningfully integrated and complementary of one another.

### **5.3. Manoeuvring Through Technical Challenges**

There are several practical challenges that influence the capacity of firms to capture and generate value through harnessing and mitigating falsity in the metaverse. To ensure a SCx, where a customer can seamlessly travel between digital and physical spaces, the metaverse will have to be built in an *interoperable way*. The challenge of achieving interoperability cannot be understated but is essential. The interoperable framework for identity and property will, for instance, allow users to be consistent in different metaverse spaces and to move digital assets from one space to another. While such possibilities will pose additional challenges for brands in ensuring consistent omniverse and omnichannel customer experience, they will also create value by creating personalised versions of the metaverse.

User's ability to traverse the metaverse poses challenges for *identity protection and integration*. One of the key questions remains as to what elements make up a user's identity in the metaverse and how can users, when needed, prove that their identity is real. This challenge fuels the development of new verification methods such as biometric authentication techniques where customers can prove their identity by, for instance, hand and body motions (Sawers, 2022). In addition to authentication issues, brands will need to rethink their segmentation and targeting efforts (e.g., development of personas) to capture the possibility of metaverse users having separate or hybrid representations, revealing different identity attributes in different contexts (Sawers, 2022).

Finally, to encourage users to join the metaverse, firms will need to *build trust in the system*, convincing individual and business users that metaverse applications are safe to use and ‘worthy of use’. Towards this aim, managers should continue developing AR/VR technologies that will afford a realistic immersion (i.e., SCx) with minimised negative side-effects such as disorientation or dizziness. In ensuring the trustworthiness of the metaverse, managers should build customer awareness about the safety-promising technologies powering the metaverse (e.g., blockchain), use technological tools to build trustworthiness throughout the customer journey (e.g., during long immersive experiences users could be reminded to take breaks to keep them in touch with the physical world), and empower users to make risk-informed decisions on their own. Trusted metaverses will be built by a joint effort of firms, customers, and regulators who will recognise that the key to generate and capture value in the metaverse lies in embracing falsity in all its glory.

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**Table 1. Managerial actions to embrace falsity in the metaverse**

Strategy	Value capture/value generation strategies	Examples of managerial actions
Harnessing falsity	<ul style="list-style-type: none"> <li>• Providing reality precision</li> <li>• Market making</li> <li>• Enriching customer understanding</li> </ul>	<ul style="list-style-type: none"> <li>• Creating offerings that intentionally differ in the level of reality-enhancement (e.g., from high- to low-fidelity offerings where people need to pay more for high-fidelity ones).</li> <li>• Developing metaverse products/services that provide an engaging SCx and not SCx that attempts to imitate PCx.</li> <li>• Segmenting users based on their ‘reality preferences’.</li> <li>• Developing segmentation strategies for non-human avatars.</li> <li>• Exploring new business models enabled by the decentralised metaverse (e.g., play-to-earn model where user participation is rewarded with NFTs or cryptocurrencies).</li> <li>• Conducting metnography (metaverse ethnography) to better understand expectations of metaverse customers and the indicators/metrics of quality SCx.</li> <li>• Understanding customers through metaphors, games, ‘enlived’ brand concepts such as better understanding of customers via evaluating the interactions between the customer and animated brand avatar.</li> </ul>
Mitigating falsity	<ul style="list-style-type: none"> <li>• Managing false expectations about and of metaverse customers</li> <li>• Setting the rules of play within communities</li> <li>• Acknowledging the boundaries of falsity</li> </ul>	<ul style="list-style-type: none"> <li>• Marketing materials presenting SCx as an experience that cannot be false.</li> <li>• Not overstating the experience of physical sensations (e.g., how will something smell, feel) in advertising.</li> <li>• Providing clear labels that content/experience has been reality-enhanced.</li> <li>• Using falsity as a tool to ensure responsible user behaviour (e.g., providing less vivid SCx to users who intentionally misbehave).</li> <li>• Mitigating user misbehaviour by developing a system where an aggregation of peer-to-peer and system-collected multi-sensory data points is used to evaluate and rank users on their appropriate/responsible conduct.</li> <li>• Identifying the products/categories where falsity should not be fully embraced due to negative societal consequences.</li> </ul>
Manoeuvring through technical challenges	<ul style="list-style-type: none"> <li>• Building interoperable systems</li> <li>• Supporting identity protection and integration</li> <li>• Building trust in the system</li> </ul>	<ul style="list-style-type: none"> <li>• Building a metaverse marketplace (exchange) where users will be able to meaningfully trade their digital assets.</li> <li>• Collecting, storing, and using data in a way that does not violate people’s reasonable expectations about how data is collected/stored/used.</li> <li>• Providing clear indicators of the trustworthiness of a particular place within the metaverse.</li> <li>• Developing mechanisms that help customers to stay in touch with physical reality.</li> </ul>

**Figure 1. Metaverse – a new kind of experience that embraces falsity**

