

Metaverse for Tourism and Hospitality Goals: A Critical Reflection

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Metaverse in Hospitality and Tourism: A Critical Reflection

Abstract

Purpose – This work discusses the current context, scope, and impacts of a metaverse in the hospitality and tourism industry. Although existing literature discussed the potentials of the metaverse in this context, the ways the metaverse work is still being defined and accessing a complete metaverse is still not yet possible. This existing knowledge will become increasingly sophisticated and complex as developments in the metaverse continue, eventually contributing to a knowledge gap in knowledge, and its implications in shaping how the future digital environment should take form.

Design/Methodology/Approach – This work is based on a critical reflection of the existing developments and applications of the metaverse. Drawing from authors' experiences, and synthesis of existing works and narratives, this work discusses the applications of the metaverse, critical factors for considerations and applications of the metaverse and proposes the way forward for potential users.

Findings – The metaverse provides new opportunities for the hospitality and tourism industry but the impact of the technology may not be felt immediately. The real challenge lies in developing a responsible digital environment for users and suppliers. While the aspects to be considered are many, a lack of preparedness is a great obstacle.

Research limitations/Implications – This paper comprehensive evaluation of how the Metaverse can be applied in the hospitality and tourism sector aiming to provide diverse stakeholders insights into the associated opportunities and pitfalls.

Originality/Value – This paper is among the first attempts to critically reflect on the possibilities of the metaverse and contributes to the discussion on the attributes of the metaverse for tourism and hospitality (e.g., SSIs, decentralization) and includes discussion on special needs users, sustainable usage and climate change and presents several agendas for further actions.

Keywords: Hospitality and Tourism, Metaverse, Critical Reflection

1. Introduction

In October 2022, FIFA and Roblox Corporation, an online gaming platform and creation system announced a partnership granting the Roblox community and football fans, free access to a digital environment, FIFA World (2022). This collaboration allows players to access an immersive virtual environment within Roblox for experiencing the event, providing a communal social gathering place for fans to engage and earn rewards and collectibles while celebrating FIFA's history of pinnacle events. While not everyone will be able to visit Qatar in person during the period, avid football fans will understand the thrills of watching a live football match in the stadium amid the big crowds cheering for their favourite teams and VIP aerial views with snacks and drinks. The launching of FIFA World is only one of the many examples of virtual worlds as an additional delivery channel (e.g., Virtual Osaka, Seoul Metaverse) that integrates the physical and the digital worlds for a unique and interactive experience for its users. This concept is referred to as the metaverse. (Buhalis and Karatay, 2022) define the metaverse as a “parallel, virtual universe that uses ambient intelligence to enhance physical spaces, products and services, emerges as a collective, virtual shared space of value cocreation”. Industries have begun embracing and experimenting with metaverse technologies (Wei, 2023; Kraus *et al.*, 2022) due to its seamless potential for social connection, entertainment and regional governments including Japan, China and South Korea have featured metaverse in their economic plans (Kulasooriya *et al.*, 2022). For example, South Korea's investment of US167 million into the metaverse industry will focus on arts, culture, education, K-pop, and tourism aimed at propelling the country to become the fifth largest metaverse market by 2026.

But is the metaverse truly a world of opportunities for the hospitality and tourism industry? According to the Accenture Technology Vision 2022, Meet Me in the Metaverse: The Continuum of Technology and Experience Reshaping Businesses report (2022), a majority (90%) of retail executives anticipate the increase in the need for seamless physical and virtual world navigation and one-half (50%) of consumers indicated they would be interested in a travel experience such as a hotel stay or sightseeing. Metaverse in tourism is expected to provide next-generation employee experiences, revolutionize engagements with stakeholders via combined physical and mixed reality (Buhalis and Karatay, 2022), deliver the duality of indoor elegance and outdoor travel experiences (Dwivedi *et al.*, 2022) to better realize digital tourism and exhibition (Wei, 2023). The tourism and hospitality industry is essentially grounded on host and guest relationships – the core of which is meeting customer

expectations, from seamless bookings to delivering memorable experiences to value-added package offerings. According to Buhalis (2022), a well-optimized tourism ecosystem encompasses the full spectrum of value chains and optimizes the advantages for the entire system and secures the welfare of both tourists and local communities. Hence it is not surprising that innovations and rapid proliferation of technologies including digital transformation and adoption of disruptive technologies such as augmented reality, mixed reality and haptic gears are being used to increasingly enhance the sensory perceptions of customers.

Academic inquiries on topics surrounding the metaverse are recent and those that advance our comprehension of the metaverse's impact on hospitality and tourism are urgently needed (Wei, 2023). Gursoy *et al.* (2022) broadly explained metaverse focusing on staging experiences, understanding shifts in consumer behaviours and marketing as future research priorities; Koo *et al.* (2022) presented the outcomes of metaverse tourism in terms of experiences immersion, realistic expectations, tourist profile identification and creative economy; Dwivedi *et al.* (2023a) discussed consumer research and practice from a marketing perspective while Koohang *et al.* (2023) presented views of experts from various disciplines on various aspects of a metaverse. While the paradigm shift due to the metaverse requires a critical reflection on its ethical, social, environmental, and economic impacts; and some directions on practices or future areas of interests that can help leverage the metaverse will be cognizant of the risks it carries given its transformative potential (Buhalis, Lin *et al.*, 2021). There are still many open challenges and uncertainties regarding the metaverse that warrant our attention. Especially since it is still being defined, and our opinion is that we should not avoid treading on the same grounds, as the metaverse is still new and yet to reach a maturity stage. That said, it is not entirely the same ground and there is a need to recognize the metaverse's spillover effects (Wei, 2023). Building upon extant discussion, this paper synthesizes, analyses, and evaluates the available information within the structure that has been defined. This paper (1) discusses the catalytic potential of the metaverse on the hospitality and tourism industry, (2) highlights areas that call for attention while navigating the metaverse adoption decision, and (3) suggestions for firms to navigate the challenge. Critics have raised issues on the viability and desirability of the metaverse claiming that it is overhyped, and unsustainable in addition to ethical, technical, and social challenges as stakeholders lose interest in the concept. Collectively, the scope and content of this paper itself lay the grounding for future research. The industry has yet to sustainably implement

metaverse therefore we argue that all aspects are underrepresented still. We hoped that the deeper we scratch; we may just uncover more information as the topic is still evolving rapidly and dynamically.

The Metaverse Catalyst

Integral in the metaverse refers to a “parallel, virtual universe that uses ambient intelligence to enhance physical spaces, products and services, emerges as a collective, virtual shared space of value cocreation” (Buhalis and Karatay, 2022; Tan et al., 2023). Inherent in this definition lies 3 key components: 1) convergence and interaction of digital and virtual worlds and their activities, 2) the use of ambient intelligence that supports elements of the physical world such as people, objects, and environments, and 3) value cocreation for multiple stakeholders. The first component refers to the development of large-scale, high-fidelity digital twins that replicate the physical environments, assets, core business processes as well as humans. The digital twin is replete with emotions and movements that are like their physical counterparts thereby delivering a parallel, virtual universe that successfully integrates the physical and virtual. Hotels, airlines, and vacation spots can use digital twins to elevate promotions, drive occupancy rates and increase engagements. Through ambient intelligence, consumers can virtually experience amenities as though they are present beyond what photography and videos can show. Real-time data transfer means real-time information about customers can be obtained and used for estimating and lowering wait times. For managers and hoteliers, behavioural data from customers will be useful for understanding facilities usage and improving operational efficiencies and staff productivity. Further, the metaverse will be live and persistent providing a consistent and cocreation experience for all its users in a fully functioning economic space. Hence, we opine that the metaverse offers economic benefits to the tourism and hospitality industry allowing new marketplaces, new opportunities, and new ways of working at individual, organization, and industry levels.

The metaverse is both a technological and cultural phenomenon that is evolving rapidly. In its nascent form, the metaverse is envisaged as a convergence of multiple technologies to offer a fully immersive, smooth rendering of visually pleasing aesthetics for simultaneous users across distances and barriers. The metaverse offers a digital environment where seamless interactions and engagements are possible with far-reaching implications. In the context of hospitality and tourism, the metaverse is an unprecedented opportunity for

transformation. One of the major challenges of the hospitality business revolves around meeting guest expectations, especially with the tech-savvy generation. For example, the 2021 Tokyo Paralympic Games was launched with an avatar role-playing game where users can try out Paralympic sports and watch live performances. Sports enthusiasts can experience and be a part of the game even during the COVID-19 global travel restriction. Along with many regional governments, Shanghai's 14th 5-year plan featured a metaverse in areas such as public services, and social entertainment while Thailand's "Amazing Thailand Metaverse: Amazing Durian" allows consumers to explore a virtual durian orchard through an avatar without needing a virtual reality headset (Kulasooriya *et al.*, 2022). Drawing from a comprehensive review of sensory marketing literature, (Fong *et al.*, 2023) examined the impact of five senses on hospitality operations in hotels and restaurants. Their study outlined the relevance of sensory marketing in various hospitality sectors and highlighted the need for further insights indicating that this is still an understudied area, especially in terms of its implications of sensory experiences, mental stimulation, and congruence for managing customer behaviour and encounters. The Metaverse thus, offers unique opportunities for guests to "try-before-buying". Buhalis, Leung *et al.*, (2013) anticipated the metaverse to have a profound impact in the management and marketing efforts of travel and tourism through elevated destination awareness, branding and management using digital twins, support trip planning, interaction and engagement. The impacts certainly extend beyond gaming and entertainment but there remain many uncharted territories.

The rise of hybrid events that became popular during the COVID-19 crisis means companies can leverage the technologies of metaverse to reach more potential customers thereby consolidating the divide between in-person and virtual attendees. Physical boundaries are no longer a barrier, giving way to social interactions across geographical regions in the forms of 3D avatars, and immersive technologies. According to Cheng *et al.* (2023), virtual technologies enable consumers to thoroughly explore a hotel through immersive environments. Both virtual and augmented technologies offer the potential for consumers to access various aspects of the hotel and allow them to gain insights into the hotel's current standards. Tourism enterprises can harness these technologies for various purposes. Participants can now attend events comfortably within their "personal spaces" and engage in meaningful interactions. This flexibility promotes brand awareness and allows hotels to reach new target groups by offering customized experiences for virtual clients. The capability for offering customised virtual experiences is not only a key feature in events and conferences.

Ultimately, the metaverse shall mirror the physical offerings. Whilst facilities, aesthetics and atmosphere, design styles, layouts and materials can be tried and revised digitally, they must subsequently be consistent with offerings of on-site management capabilities (Buhalis, Lin *et al.*, 2023). Brand integrity and consistency will be crucial for ensuring consumers get to enjoy similar offerings, both online and offline. Companies can involve customers as co-creators in service customization for a value-rich experience. The inclusion of metaverse can transform service-based industries into experience-based and hoteliers must be able to create memorable experiences that match physical ones, if not better (Koochang *et al.*, 2023). Done right, hoteliers can enhance existing travel services and connect with customers in innovative ways, creating new investment and revenue streams.

In summary, the positive potentials of metaverse for hospitality and tourism can be discussed in many aspects. First, it allows consumers to experience hospitality services prior to making physical travel, or when physical travel is constrained or not possible. Realistic gamification technologies can offer customers an experience of the ambiance and atmosphere consistent with the actual site. This will provide consumers the opportunity to gather information and assess the suitability of services. In this manner, the booking experience is enhanced as virtual tours of locations and virtual showcases of properties and/or facilities can be offered before confirmation. Further, virtual customer representatives can provide personalized customer service to develop their (customers') confidence and assurance prior to booking. Hence, planning can be made and finalized for physical onsite visits, and post visits. Additionally, the metaverse can be designed such that memorable experiences can be revisited, resources and people re-engaged and reconnect with acquaintances post-travel (Buhalis, Lin *et al.*, 2023; Dwivedi *et al.*, 2022). We acknowledge that there is extensive literature on the potentials and promises of the metaverse even within the tourism and hospitality industry. It is not the intention of this article to reinvent the wheel and repeat what has already been propagated.

Technology has always been strategically important for driving value creation and business returns. (Ozdemir *et al.*, 2023) suggested that the adoption and value creation of digitalization in the hospitality and tourism industry are currently at an early stage. But there are many opportunities that exist for all stakeholders to reap the rewards of both established and emerging digitalization. Likewise, Vo-Thanh *et al.* (2022) studied the perceived value of service digitalization in fine-dining restaurants. Their qualitative analysis of 24 restaurant managers and 29 customers underscores the importance of optimising digitalization of

services to enhance the uniqueness of the dining experience for an enhanced customer journey. (Wong *et al.*, 2023a) studied Airbnb’s online experience initiative of virtual tourism by considering the nature of virtual experiences sought by tourists and how their needs are met. Their study reported four themes to be of importance: hedonism, attention restoration, social relatedness and self-exaltation which are linked to well-being. Their work outlined the importance of agility during challenging circumstances which we posit augers well with the affordances of the metaverse. Finally, Liu *et al.* (2023) assessed the assistance needs of visually impaired customers in hospitality and tourism contexts and highlighted both negative and positive aspects of technology-assisted experiences. Their study highlighted the need for improvement to enhance the quality of life and travel experiences for this often-overlooked demographic, calling for further inquiries and innovation. We believe that the metaverse will have a profound impact on tourism and hospitality contingent upon enterprises being able to optimize their leverage. The temptation will be hard to resist. A selection of recent literature examining the adoption of a metaverse specifically in the hospitality and tourism industry is presented in Table 1 below.

Authors	Title	Purpose
Buhalis, Lin <i>et al.</i> (2023)	Metaverse as a driver for customer experience and value co-creation: implications for hospitality and tourism management and marketing	This paper discusses the opportunities and challenges of the Metaverse for the industry from the perspectives of customer experience and value co-creation
Buhalis, Leong <i>et al.</i> , (2023)	Metaverse as a disruptive technology revolutionising tourism management and marketing	This paper highlights the potential of metaverse in providing immersive experiences that enable users to explore various scenarios from historical events to pace explorations, engage in work, learning and socialising and transactions.
Dwivedi <i>et al.</i> (2023a)	Metaverse marketing: How the metaverse will shape the future of consumer research and practice	Narratives of 14 experts on the marketing potentials of metaverse, with a research agenda for

		hospitality
Go and Kang (2023)	Metaverse tourism for sustainable tourism development: Tourism Agenda 2030	Suggest that metaverse can potentially expand tourism resources and support sustainable tourism practices via alternative profitable resources that aligns with UNWTO Sustainable Development Goals.
Koohang <i>et al.</i> (2023)	Shaping the Metaverse into Reality: A Holistic Multidisciplinary Understanding of Opportunities, Challenges, and Avenues for Future Investigation	Implications-based perspectives on areas and possible impacts by the adoption of the metaverse covering in detail opportunities, challenges, and potential research agenda
Wei (2023)	A buzzword, a phase or the next chapter for the Internet? The status and possibilities of the metaverse for tourism	Viewpoint paper that discusses metaverse-related research, with research agendas around topics on marketing, reconceptualizing service quality, attitude behaviours, electronic customer-to-customer interactions, well-being, and societal impacts.
Gursoy <i>et al.</i> , (2022)	The metaverse in the hospitality and tourism industry: An overview of current trends and future research directions	An opinion paper that explicates the concept of the metaverse along a framework for metaverse experiences, research gap identifications and proposals on how the industry can benefit from the technology with 3 research agendas: staging experience, consumer behavioural changes and

		marketing and operation strategies.
Koo <i>et al.</i> , (2022)	Metaverse tourism: conceptual framework and research propositions	Presents 4 propositions of metaverse tourism: enhancing immersive experiences, realistic expectations during a pre-trip stage, metaverse tourist multi-profile and a new business model for a creative economy.

Table 1. Selection of significant literature on Metaverse in Tourism and Hospitality

2. Tourism and Hospitality Metaverse: Factors of Enlightenment

The rise of the metaverse is exciting, especially the post-COVID-19 crisis. While international and domestic tourism has restarted, many are still coming to terms with new social distancing requirements, amid an accelerated acceptance and adoption of technological innovations to make tourism accessible to all. The unprecedented speed of technological innovations has propelled economies into fully autonomous societies and the realization of the potential of virtual worlds. In the new economy, the metaverse drives forth a simple promise: improving customer experience. Tourists and travellers can experience fully immersive digital environments such as retail, concerts, museums, and ancient cities, meet new friends and generally build a virtual life in the metaverse in the comfort of one's bedroom, couch, cafes and even in the office. The promise is huge, but do we have a clear understanding of the roles of respective authorities and how to govern to drive the vision? To share some perspectives on this, we pose several salient questions to readers. In our opinion, they address the crucial gaps between technical issues, business risks and control requirements and it is our hope that it enlightens readers on the viability of metaverse for tourism and hospitality.

Decentralization

At this point, at least two types of metaverses are being discussed. One that is centralized and controlled by large corporations and another that is decentralized and controlled by people who inhabit the metaverse. In an open tourism and hospitality metaverse, each identity (avatar) should be able to control its own identity(ies) and enforce its

right(s) to ensure values are communicated and accrued to users and businesses and not the technical platforms. People should be able to act freely and there must be equity and diversity among stakeholders. Participants should not be extractive and there should not be any powerful intermediaries that host captive economies. Neither should there be any dominant technology players. The control must be truly decentralized and not owned or governed by a centralized entity. This is a crucial point to ponder as it has important implications for user security and well-being, and the sustainability of tourism resources. For example, in decentralized finance models (DeFI), users can access a wide range of financial services via public blockchains using cryptocurrencies and non-fungible tokens (NFTs) without needing to interact with a bank exchange. Here, a social networked decentralized autonomous organization (DAO) that is not constrained by borders can create new models of tourism with decentralized access and stewardship. Users will have an ownership stake in the platform and receive a share of the reward hence the incentives are aligned. The disruption of the metaverse will essentially transform industry players from a single-dimension market perspective to a multi-dimension with multiple worlds where users are free to create and consume (sell or exchange) virtual assets. All players considering or ready to jump on the metaverse bandwagon should not underscore the importance of the liquidation of assets. Hence, our question is – is the tourism and hospitality metaverse envisioned as one whole metaverse or multiple metaverses?

Governance.

The foundation of the metaverse is built on the concept of digital identities. Individuals interact with one another as they move from domain to domain, harnessing the metaverse to fully immerse in and express themselves freely with their digital counterparts. They can embrace multiple personalities deepest to their cores whereas in the physical realm, they may not have been accorded the same autonomy. In the realm of the metaverse, a single user can maintain decentralized identities with multiple avatars and assets across different systems. This identity is independent of any authority, akin to a digital passport except that in this case, a single user can own several of such “passports”. Proving the person is who he or she claims to be, what they have access to and what information can be collected and how they can be transferred from one ecosystem to another becomes an uphill task. In any, the persistence of individual information is necessary for proof of ownership and to mitigate fraudulent activities. We would think the same is needed for the tourism and hospitality industry. The metaverse, however, allows users to hide behind avatars and remain

anonymous. It brings to one's mind the question of legal systems in metaverse space for governing and regulating acts of avatars. What are the civil liabilities of avatars on metaverse? Certainly, disputes in the tourism and hospitality industry will also likely happen in the metaverse, no? As the metaverse technology is still in its nascent stage, we could not help but wonder if it is possible to double book a hotel room. Or would the same room operate in a parallel universe with multiple avatars? Would this require the agency to be able to keep track, identify or track the avatars? Does it seem to be an onerous task that would then lead to several other issues, perhaps? Self-sovereign identities can be achieved through cryptographic association with crypto wallet addresses such as Metamask and Coinbase in which one's identity credentials can be verified via standards like EIP-4361 and ENS. The verified self-sovereign credentials are transferred to metaverse applications so that users can securely log in to multiple metaverse platforms. This approach can ensure a sense of security. That said, although anonymity can be maintained in the metaverse, the digital footprint that users leave on the metaverse exposes one to malicious actors. Failure to appropriately regulate access could be likened to a ticking time bomb. Contrary to the popular narrative, we argue that the use of blockchain in the metaverse does not represent true decentralization which is a result of governance. In the metaverse, the community should have a proportionated say in the governance of the ecosystem. As the use of avatars grows and the incentive for customization continues, representations for individuals will become more diverse – is this drive for diversity and inclusion in the realm of metaverse a boon or bane for tourism and hospitality? What are the unknown trade-offs, if any? That's theoretically speaking. What is needed is a form of governance and with that, standards to inform and guide the governance.

The promise of the metaverse is big. The risks are formidable. Implementing the metaverse is not a walk in the park. Governments or companies that are exploring opportunities within the metaverse will have a large plate of items to consider. From technologies that the metaverse needs to offer the right user experience, to financial models, these agencies are on a continuous track of finding better and more engaging experiences for users to ensure longevity. Perhaps the larger question that should be addressed is “What are we missing if we are not on the metaverse?” and “How will the metaverse revolutionize tourism?”. Is it ever possible to feasibly realize the metaverse? Are our risks exceeding risk appetite and tolerances? The (Metaverse Standards Forum, 2022) proposed 8 areas of interest for the development of metaverse that will have the most industry impact. While not

specifically aimed at the tourism and hospitality industry, the areas can also be considered by any players looking to venture into the metaverse, including the focus of this paper. The areas covered technical challenges such as interoperable 3D assets, privacy, safety, security and inclusion, user identity, Geospatial and Real/Virtual integration, XR and User Interface, Avatars and Apparel as well as broader challenges such as payments and economy, metaverse ethics, privacy and governance, and education. Interoperability is needed for platforms to interact seamlessly and for users to cross between platforms with their identities at the same time. But the complex reality is for that to materialize, a common standard around infrastructure, devices, interfaces, and representations must be adopted. As with any technology, there will be new regulations to protect governments and citizens as well as ownership, intellectual properties, and privacy and security (Dwivedi *et al.*, 2022) and implications for governance, and trust (Koohang *et al.*, 2023; Wong *et al.*, 2023b). The same could be said for the metaverse. But that's not all. As people's lives become increasingly immersed between the digital and physical worlds, there is an increased chance for malicious actors to act due to extended attack surfaces and entry points to data breaches and attacks. Problems like social engineering will worsen simply because it has become harder to distinguish the real from the fake ones. Metaverse operators need to be alert to infiltrators' impersonations that misdirect users. For example, an impostor officer can cause mischief. Malicious users may gather in the metaverse to interact and facilitate activities that are difficult for law enforcers to intercept. And yes, we also wondered whether travel insurance would be applicable in the realm of metaverse when for instance, there is a defect in the technology that resulted in material implications. What are the chances of insurance fraud?

Immersion.

In the realm of the metaverse, the virtual space should be realistic enough such that the avatars are able to interact through their senses and bodies and feel psychologically and emotionally immersed (Wang *et al.*, 2022). As stated earlier, the core of tourism and hospitality lies in relationships, specifically between the host and guests. Although extended reality and social spaces have existed for decades, they will undoubtedly become more useful in people's daily lives. Technological advances and societal transformations have accelerated but most experts are of the opinion that the adoption of these reality technologies will be limited to smaller but enthusiastic user bases, especially gamers and entertainment seekers in

select businesses with one specific comment there is no perceived value-added to metaverse (Anderson and Rainie, 2022). While having coffee at Notre Dame, Paris in the morning and a romantic dinner with the Eiffel Tower view seem appealing, how would one remember the smell and taste of the coffee? Or the authenticity of the cuisine? Or the spirit of the place? Being there physically, or the feeling of being fully immersed in the aroma of coffee while equipped with smart wearable devices? Would current technologies for ambient intelligence be adequate? A review of extant literature would report many “*would-be*” of the metaverse, but it is our conviction that the metaverse could not and should not ever replace real tourism and hospitality. Rather, what it can offer is new ways to engage and complement existing industries. Technologies may become popular, but their social impacts will persist and are too important to neglect. The capability of immersive technologies is impressive, but is it sufficient for tourists and travellers to repeatedly visit the place in virtual 3D without ever requiring a physical visit? How far can the metaverse complement physical travel? And whether it will become an integral part of the travel ecosystem remains questionable at this point. In a nutshell, will the metaverse help to create a more meaningful travel experience for customers? The questions are perhaps as many as the possibilities.

Sustainable Usage and Climate Change.

Powering and ensuring the metaverse’s supporting infrastructure operate sustainably creates challenges of decarbonization (Kulasooriya *et al.*, 2022). The amount of data that is created, transferred, and consumed is huge. Data storage and powerful processing systems will be required to support real-time interactions and applications in the metaverse. The demand for devices and hardware will result in greater demand for ecosystem resources and cause further environmental damage. The issue of sustainability and climate change is not new to the tourism and hospitality industry. Human activities have long been acknowledged as the main cause of climate change. That said, it is still possible to offset the climate impacts of the metaverse through behavioural changes that reduce carbon emissions. Air travel and emissions caused by tourism such as food wastage, and facility constructions are the industry’s Achilles’ heel. The metaverse is an opportunity to be green and its use can add to reducing carbon footprint. Reducing the amount of physical commute and consumption also reduces the climate impact. Drawing from (Go and Kang, 2023), we posit that leveraging the metaverse’s immersive virtual experience can reduce the environmental impact associated with traditional travel, contributing to SDG 13 (Climate Action), and SDG 11 (Sustainable Cities and Communities) via promoting urban tourism and reducing overcrowding and

fostering inclusivity (SDG 10) where tourism experiences are accessible to individuals with disabilities. However careful planning is required, and a roadmap to adoption is crucial.

3. Towards Metaverse Enlightenment: How?

Keep pace with technology.

The use of metaverse will primarily rely on the integration of various technologies and systems and management of data streams, pervasive user profiling, activities, and outcomes. Users will experience the metaverse via AR/VR devices equipped with sensors for brain-computer interactions, movements, expressions, and other biometric signals. While 3D penetration devices may not be as accessible to many at this moment, we expect the adoption trajectory to remain like other technologies such as smartphones, and social media. Lower cost of technologies, increasing user-generated content, and usability will continue to drive adoption. Customer demands for better and more innovative experiences will motivate companies to level up. Further, expectations on privacy and security will propel the development of creative solutions in the trade-off between control of data and personalized experience against connectivity (Giordani, 2021; Akinsanmi and Salami, 2021). Ideally, systems should guarantee security without compromising user privacy; but security and privacy trade-offs fall into trade-off between security and money and trade-off between privacy and money. Meeting the diverse and evolving needs of users and businesses will drive innovation and improvement of technological solutions that maintain a balance between the benefits. Therefore, brands will need to define their technology strategy and determine the path that will be undertaken. This entails consideration of whether investments in technology such as creators, technical expertise, training and so forth sit well within the budgets and constraints and whether they will result in improved consumer engagements, operations efficiency, and creation of new opportunities.

Create a meaningful customer experience.

Hoteliers and tourism operators should leverage the metaverse to build positive customer experiences (Buhalis, O'Connor and Leung, 2023; Cheng *et al.*, 2023). The metaverse allows greater personalization through immersive experiences and real-time engagements with customers on potential products, and services. While the experience takes place in the virtual realm, the sense experience must be sufficiently real to form pleasant memories. This means operators in the metaverse must strategize engagements with customers that allow technologically empowered co-creation. Unparalleled user experience

means switching costs can be higher when customers have positive experiences with brands, and some may even be more willing to spend more in exchange for one. The principle of practice herein lies in creating memorable experiences. When users can carry out an act deeply, and authentically – it becomes real. An important aspect highlighted by (Liu *et al.*, 2023) addresses the need for assistive technology for special needs customers. Existing discussions have often concentrated on mainstream applications of the metaverse (Buhalis, Lin and Leung, 2023; Dwivedi *et al.*, 2023a; Go and Kang, 2023; Koo *et al.*, 2022), its transformative impact on special needs customers are worth considering. For example, the metaverse can potentially offer a unique opportunity for visually impaired customers to use integrated screen readers, haptic feedback, and audio descriptions to explore digital replicas of sites. Various braille signages or tactile elements within virtual environments, offering collaborative assistance by sighted individuals can be considered to make the metaverse more accessible to these individuals. The same can be done for virtual guide tours so that the users can make informed decisions about their choices.

Ensure brand authenticity.

Having a first-mover advantage is nice. Firms can leverage metaverse to increase visibility to new marketplaces in addition to strengthening existing ones. This will open other opportunities such as airdrops, and participation rights that can add value, and purpose to existing services and open new revenue streams. Digital assets are an important part of the metaverse. With NFTs, digital items can be acquired through various platforms and add them to their digital wallets thereby retaining full ownership and control of their items. In this manner, users no longer need to worry that they will lose assets such as avatars, skin and other digital objects should the publisher or platform cease operation. When people can purchase their own assets from their own decentralized wallets, they are also aware of the organization and community thereby increasing brand awareness.

Build trust.

Trust is the core of all businesses for sustainable relationships, especially in tourism and hospitality. The marketplace in the metaverse is global and seamless, data collection is pervasive. The challenge herein lies in maintaining and providing a sense of security as transparency grows. For (virtual) tourists and travellers, they need to gain the assurance that their data and activities are safe. They need to know that the avatars and entities they interact with are verified and authentic. This may require an evolution of trust already formed on

existing physical brands and the formation of trust in the platforms that are used to deliver the experience and service. Concern about security and privacy deters adoption. Any form of innovation should be designed to impact social response in a positive manner with a need to address accountability when a problem occurs (Wong *et al.*, 2023b). Inherent in this lies many implications for the need to manage threats surrounding the metaverse. Integrating various cutting-edge technologies in the metaverse increases the attack surface, amplifies existing threats as well and fosters new threats to emerge. As a result, users may be exposed to more privacy threats and higher impacts from a breach. A platform that is responsible for growth, fosters safe decision making and sustainable advances lies at the heart of bringing metaverse initiatives to customers and protecting companies' investments. Having an inherent set of principles to address these will be critical. Without trust, there will not be customer engagement or sales. We contend that the metaverse will be impactful but building a responsible metaverse requires further attention on many important issues.

4. Discussion and Conclusions

Conclusion

The metaverse is set to challenge the perceptions we have and disrupt the tourism and hospitality industry, reshaping both tourist behaviour as well as how the industry operates. If all of humanity's existence is in the metaverse, would that then be a self-illusory cage? Real insight liberates. Although we now have more players in the metaverse, they still operate in their own competition spheres within the metaverse space. The decision to enter or not to enter the metaverse landscape, upon entry and how to maintain will continue to be marred by many questions on how it will grow, inter-operate, be governed, and be regulated. Virtual Shibuya opened in May 2020 to an aggregate of over 1 million participants. Many events were hosted on the replica of Tokyo's Shibuya District. Like Virtual Osaka, most of the events are free. Generating revenue is a prime concern along with maintaining a steady stream of visitors. The appeal of the metaverse is not so much about visiting and touring, it is that they empower us to create, recreate, cocreate and change, and augment our base layer reality. But how can hotel and tourism operators and governments capitalize on the metaverse? There are many hurdles, undeniably. The point should be on progressive development. Foresight and developments on applications of the future that offer awesome spatial experiences for socializing, entertaining and trades. Drawing from a review of extant literature, this critical reflection aims to present a comprehensive exploration of how the

Metaverse can revolutionise the industry, elucidating the changes it instigates and defining the various opportunities and challenges the revolutionary technology introduces. Furthermore, potential research avenues are included that serve as a possible direction for various researchers (academic and industry) to harness their full potential.

Theoretical Implications

This critical reflection paper documents our opinion on a nascent area based on academic and practitioner perspectives through a synthesis of existing published works on the metaverse. Some of the areas highlighted such as technological aspects, services, governance, business continuity and sustainability can be further expanded but there is much more that can be done to address potential issues on the adoption of metaverse, policy and governance, user interface interaction and experience, co-creation, and value exchange. From a theoretical perspective, this paper advances understanding of the transformative potential of the metaverse as well as the challenges of the metaverse from technical, governance, business, and social aspects. As a start, existing theories on technology adoption, eco-tourism, and customer experiences can be adopted and applied into the context of metaverse as suggested in the section on future research. The effects of digitalization in the hospitality and tourism industry have received great attention from researchers such as Ozdemir *et al.* (2023), Cheng *et al.* (2023) and Dwivedi *et al.* (2023b). This critical reflection contributes to the ongoing discourse on how immersive digital experiences can reshape traditional practices, customer interactions and business models. Drawing from the works of Fong *et al.* (2023) and Wong *et al.* (2023a), this study adds to the body of knowledge on the importance of exploring new avenues and research work that examines how users engage with virtual environments, derive satisfaction and understand the motivations of metaverse users and that of Liu *et al.* (2023) by implying that the metaverse can present opportunities for tourism and hospitality industry as well as special needs individuals through discussion on integration of assistive technologies and accessible virtual environments for users. This article also touches on sustainability benefits of virtual tourism experiences by discussing how virtual tourism can be a more sustainable alternative in light of Sustainable Development Goals (SDGs) as in (Go and Kang, 2023)

Practical Implications

In practice, the concept of the metaverse is a concoction of the most bleeding-edge technologies. But this is not a regular off-the-shelf solution, and neither can this be quickly

designed nor rushed to production. Acknowledging the many use cases that have been reported both by academia and practitioners, we caution against parlaying current business value propositions onto the metaverse. Proponents of the metaverse are focused on a future market that holds as many promises as possible. The value propositions are compelling, one-of-its-kind, pragmatically untying many of the knots of the tourism and hospitality industry. Players who have been in the industry for decades would still need to brave the storm of technological evolution and should be forewarned of any tendency to underestimate, assume, or presume what metaverse transition entails. Intuitions on what and how things can be may backfire. As such, foremost, there is an urgent need for domain knowledge.

Second, to prepare for the metaverse, there needs to be a shift in mindset from selling and purchasing to co-creation and co-consumption. The possibility of unilateral decision-making and violations signifies one important aspect – managing will not be a walk in the park. Many aspects such as intellectual property, and copyright will remain in principle but how that will manifest along with the metaverse paradigm shift will be interesting. That said, the elements of value propositions are subjective and vary from one company to another. A popular notion is that value determines how much the client will pay. And value (like beauty) lies in the eye of the beholder. Whichever side of the spectrum one lies on, it is important that one understands the pain points, the values, and the system of value trading. Another dire situation is when pain points become the norm. The metaverse should not replace physical tourism and hospitality, but it is an interesting phenomenon that changes the relationship between host and guest with offers of new inspirations, and aspirations. For providers, it offers an opportunity to experiment with new revenue-generating models. At the end of the day, the proof is in the pudding and the pudding is the record.

This paper first examines and evaluates the theoretical significance of metaverse adoption followed by implications-based discussion. First, this paper discusses the concept of metaverse and its characteristics. The impacts of dynamic platforms like metaverse are still evolving, the paper enumerates the factors of success for metaverse adoption. This paper aims to link theory to practical insights by discussing how the metaverse can be an enabler and driver for the industry. As stated earlier, literature shows studies are still needed to understand how the metaverse can be gainfully adopted for profitability and sustainability. The Metaverse is both interesting and exciting for the tourism and hospitality industry and the need to shift into metaverse activities is growing but there remains a lot to be understood to adjust and take the leap.

Limitations and Future Research

The limitation of this paper offers opportunities for future research. First, this study calls for future work to consider how the metaverse can be used to promote ecotourism and responsible travel and tourist behaviour. Tourists in the metaverse realm can experience the impacts of their actions and can be educated on conservation efforts in fragile areas. While scholars have long discussed the role of technologies in sustainability conservation efforts, the negative consequences of tourism-specific developments are perhaps as many. The use of metaverse technologies such as augmented reality, virtual reality and immersions offers the much-needed capacity to complement if not yet, substitute tourism experiences. Virtual tourism offers inclusivity for minority populations and can also play a significant role in the health and well-being of societies.

Secondly, the Metaverse can empower and enrich cultural heritage that allows society to have a higher functional capacity than ever. The transitional effects of metaverse tourism extend beyond physical realms but also promise a cultural revolution where people can express and redefine community engagements while adapting to both physical and virtual worlds. As the metaverse is still unfolding, whether this will be a utopian or dystopian change – remains to be seen. The technology itself is only part of the story, its long-lasting impacts are the real potential. Leveraging the metaverse for understanding and transforming consumer behavioural patterns can enable tourism operators to optimize marketing effectiveness. Further, research can investigate the potentials of the metaverse and its associated technologies in engaging with visitors prior to, during and post-visit for meaningful experiences.

Thirdly, as the metaverse becomes the basis for the industry, there is a need for information on how the development can be rolled out nationally and globally. There need to be standards that inform and guide the interoperability of operators as well as sovereign governments. As the metaverse gains traction, there is a need for research to catch up and provide insights on how organizations can enter the metaverse game and leverage its potential. How might organizations tread along these uncharted paths, and in what roles do they undertake? Further, what are the implications such a decision will have on existing business models, and how do organizations know they have the maturity to enter the market?

Fourthly, we would like to specifically call the pursuit of future research in the context of special needs users in the Metaverse. Studies are needed to evaluate the

accessibility of Metaverse and develop accessibility guidelines and standards for this group of users to ensure inclusive virtual tourism and hospitality experiences. This would necessarily include user-centered designs, and integration of various assistive technologies to offer immersive sensory experiences in the Metaverse to be seamlessly integrated into the services. It is also worthwhile to consider how user-generated content from this group of users can be facilitated which would not only ensure they are represented and also potentially, lead to positive economic and social opportunities.

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