Metaverse as a driver for customer experience and value co-creation: implications for hospitality and tourism management and marketing

ABSTRACT

Purpose – Metaverse blends the physical and virtual worlds, revolutionizing how hospitality customers and hospitality organizations facilitate the co-creation of transformational experiences and values. This paper aims to explore the opportunities and challenges that Metaverse introduces for hospitality and tourism management and marketing as part of the customer experience and value co-creation process. This paper also discusses how the advent and development of Metaverse can potentially transform hospitality customer experience and value co-creation.

Methodology – A comprehensive literature review was undertaken to explore conceptual developments on Metaverse and best practice examples from around the world.

Findings – Metaverse opens many exciting opportunities for hospitality and tourism but also poses some great challenges. Hospitality and tourism organizations need to use the Metaverse strategically to customize and co-create hybrid virtual and physical experiences, allowing consumers to engage with them and also with other customers before, during, and after their visit. A range of research opportunities also emerge for the adoption and operationalization of Metaverse.

Implications – This paper critically analyzes the early applications of Metaverse in hospitality and tourism as well as promotes future solutions for hospitality and tourism management and marketing. The conceptual model in this study can help different stakeholders better understand the flow, logic, and potential of Metaverse in the hospitality and tourism industry.

Originality – The paper defines and conceptualizes the potential of Metaverse in hospitality customer experience and value co-creation. Besides putting forward a research agenda for further exploiting the full potential for both hospitality customers and hospitality organizations, this paper elucidates the impacts of Metaverse on hospitality management, rooted in the previous literature in value co-creation and technology-enhanced experience.

KEYWORDS – Metaverse; augmented reality; virtual reality; mixed reality; co-creation; hospitality.

1 INTRODUCTION

Hospitality consumer value or experience has been researched for decades (So *et al*., 2021). As value is hinged on the subjective evaluation of each customer, the idiosyncratic needs and wants held by different customer segments need to be thoroughly understood in order to identify ways to satisfy their needs and create value for them. Besides acknowledging the necessity of understanding customers' idiosyncratic needs, previous research on hospitality consumer value or experience has also highlighted the significance of context and customer involvement in value co-creation (Buhalis and Foerste, 2015). The concept of value co-creation highlights the significance of engaging various stakeholders, rather than the sole input from businesses, in the creation process (Rihova *et al*., 2019; Rubio *et al*., 2020). To facilitate the experience and value co-creation in the virtual context, adequate technologies must be in place in order to enable various stakeholders involved in the co-creation process, namely firms, consumers, and other users (Rubio *et al*., 2020). Therefore, technologies serve as an essential enabler for experience co-creation.

Information Communication Technologies (ICTs) play an unprecedentedly important role in the hospitality realm. ICTs have provided strategic tools for hospitality and tourism businesses to enhance customer experience through engagement and intelligence (Buhalis and Leung, 2018; Neuhofer *et al*., 2015). Customer experience is increasingly technology-mediated and even technology-enhanced (Anshu *et al*., 2022). Hotels use social media engagement and artificial intelligence to understand customer behaviors for a range of market segments in different decision-making stages (Buhalis, 2022). ICTs also empower hospitality businesses to personalize their offerings to customers based on customers' contextual data collected via different electronic means (Tomczyk *et al*., 2022; Zhang *et al*., 2018).

Enabled by the ICTs, the advent of social media also demonstrates that consumers are shifted from passive information receivers to active information prosumers. They make better purchase decisions via reviewing online reviews and online videos shared by past customers. They share their opinions and suggestions via social media platforms, impacting businesses and other consumers (Buhalis and Leung, 2018). With assorted interactive technology as enablers, consumers have never been so engaged in the business system as active contributors (Rihova *et al*., 2018). After the widespread impact of social media platforms, Metaverse is recognized as the next disruptive technology (Business Insider, 2022; Gursoy *et al*., 2022). Metaverse blends the physical and virtual worlds, revolutionizing how hospitality customers and hospitality organizations facilitate the co-creation of transformational experiences and values (Buhalis and Karatay, 2022). This paper explores Metaverse as a concept and examines its potential impact on hospitality customer experience. It also explores the impacts of Metaverse on hospitality management and marketing.

2 DEFINING AND EXPLORING METAVERSE

Metaverse is a digital space that empowers users to interact socially, using digital avatars, to generate value and co-create experiences (Gursoy *et al*., 2022). Using mixed reality (MR) technology, Metaverse combines technologies through ambient intelligence to provide the bridge between digital and physical universes, enabling users to amalgamate resources and holistic experiences (Buhalis, 2020). Metaverse provides three-dimensional (3D) immersive experiences and has a strong social interaction component, effectively leading toward blended living (Buhalis and Karatay, 2022). ICTs advancements enable both users and developers to introduce virtual and digital realities, as part of physical lives.

The name Metaverse first appeared in the science novel *Snow Crash* in 1992. Although the current literature on the Metaverse is still preliminary and scant, Narin (2021) conducted a content analysis on the Metaverse literature. The findings highlighted that the most linked keywords were SecondLife, virtual world, 3D, augmented reality, and art. Kim (2021) addressed how Metaverse can strengthen interactive advertising by posting potential research agenda, such as privacy and ethics concerns, goods and services valuation, and philosophical underpinning. Although much of the utilization of Metaverse remains aspirational, increasingly, hospitality and tourism organizations and destinations develop their presence on Metaverse platforms (as some did with SecondLife a decade ago) to establish interaction and trading mechanisms (Gursoy *et al*., 2022; Narin, 2021).

The dramatic growth of the utilization of ICTs for a range of functions in everyday life propels the development of virtual services. During the COVID period, more people experimented and used both digital tools in their physical life and physical artefacts in their virtual lives (Gaur *et al*., 2021). During lockdowns, people used video conferencing extensively for tele-working, tele-studying and tele-transacting. Communicating and interacting with colleagues and loved ones became the norm as social communication was performed solely online. Although many are forced to perform tasks digitally, users gradually appreciated the range of benefits and potential that the digital universe brings in terms of resources, time and travel cost savings. Since the tapping of the keyboard shortened the distance between people in time and space, increasingly, people expect to be interoperable in both physical and virtual environments. This was evident in teaching-learning experiences, health services, banking and business meetings (Dwivedi *et al*., 2022). Recently two tourism and hospitality scholars depict how Metaverse can influence tourism and hospitality research (Dwivedi *et al*., 2022). In particular, immersive interactions before, during, and after

consumptions were highlighted to shed light on the potential of Metaverse. Hence, Metaverse empowers organizations to engage with all their stakeholders and customers virtually as well as physically. Virtual engagement enables them to provide a range of immersive experiences using multisensory content as well as to scale their operations in terms of location, space, time zone and expert capabilities.

With the support of Virtual Reality (VR) headsets, users are immersed in virtual 3D environments. They can interact with avatars, virtual surroundings, objects, organizations as well as other users. The virtual environment is supported by powerful technologies and computation abilities. Beyond the VR experience, Metaverse can provide a near-realistic experience via integrating sensory feedback for sight, hearing, smell, taste, and touch. Metaverse effectively extends the Augmented Reality (AR) and VR into MR by integrating 3D projection technology (Rauschnabel, Babin *et al*., 2022; Rauschnabel, Felix, *et al*., 2022, Yovcheva, et al, 2014). MR introduces "a very realistic augmentation of the real world, ideally so realistic that a user can no longer distinguish virtual content from physical objects. MR usually requires special hardware (i.e., smart glasses) where the lenses are replaced by transparent screens and contain multiple sensors to track the user's environment" (Rauschnabel, 2022). Metaverse is developing as "a parallel reality where humans can work, play, and communicate" (Gursoy *et al*., 2022). Hence, MR bridges the virtual and real worlds by creating connected and interoperable functionality in real-time, creating new opportunities for social, economic and cultural activities in this hybrid space, and introducing a range of disruptions (Buhalis *et al*., 2019). Consumers can co-create value, combined with blockchain, cryptocurrency, and NFT, performing actual economic activities in the virtual world. Gursoy *et al*. (2022) suggest that "the metaverse is a collective, persistent, and interactive parallel reality created by synthesizing all virtual worlds to form a universe that individuals can

seamlessly traverse. People can inhabit the metaverse using their digital avatars and experience the virtual world in multiple forms, including augmented reality, VR, and mixed reality"

3 METAVERSE FOR HOSPITALITY

Metaverse will have considerable impacts on the hospitality and tourism, as it transforms guest experience before, during and after their trips. Hospitality services in particular include a very wide range of services, including accommodation, food and beverage, entertainment, and MICE services. Blending the real experience with the virtual world is disruptive and transformational, bringing major opportunities and challenges for all stakeholders in the ecosystem. Metaverse propels a dynamic transformation of the hospitality ecosystem, forcing a business process reengineering in all functions and processes as well as in operational and strategic hospitality management.

Metaverse developments in the hospitality and tourism context are at a very early stage. Gursoy *et al*. (2022) suggest "Metaverse applications such as these are revolutionizing the hospitality and tourism industry as virtual hotels, destinations, and tours alter how people select lodging and destinations, make bookings, and even attend concerts. Although the metaverse cannot replace in-person travel, improvements in technology and sophistication in the quality of virtual reality (VR) headsets have made metaverse hospitality and tourism apps increasingly immersive." Hospitality and tourism researchers focused on the existing practices that were part of the vision in Metaverse. For example, Buhalis and Karatay (2022) conducted 18 semi-structured interviews to examine the cultural heritage experiences of Generation Z in the MR setting. The findings suggested cultural heritage destinations should consider using MR to enhance consumer

experiences, which creates the foundation for Metaverse in the future. In addition, Um *et al*. (2022) used an early case study of Incheon, South Korea to explore the relationship between Metaverse and smart tourism development. They expanded the Metaverse concept in the smart tourism context into real-based Metaverse and virtual-based Metaverse by providing examples of smart tourism development in Incheon. Furthermore, Gursoy *et al*. (2022) examined the creation of Metaverse experiences from the angles of motives (i.e., hedonic vs. functional) and interactivity (i.e., low and high) to provide additional insights for hospitality researchers. The potential and importance of the Metaverse will attract more researchers' attention in the near future (Gursoy *et al*., 2022).

One of the most attractive selling points of Metaverse is the seamless connections between physical and virtual worlds in the experience enhancement. Specifically, the hospitality experience is both tangible and intangible (Kandampully *et al*., 2022). A real bed should be provided for accommodation, and real dishes and meals should be provided for eating. The inseparability of services means that guests cannot enjoy these experiences unless they consume the service at the place that is offered. However, hospitality also offers a range of intangible elements including atmosphere, ambience, feelings, service, connections, kindness and emotional engagement (Stoyanova-Bozhkova *et al*., 2020). Instead of actually staying, sleeping, eating, drinking or meeting people at hotels, consumers often want to just experience the feeling of staying in a luxury hotel, eating delicious food and appreciating luxury surroundings. They may not actually be able to visit in person because there are factors preventing them from doing so. Examples include restrictions due to the health risk; wars and terrorism attacks; lack of time; cost and lack of funds; unavoidable restrictions when people are farmers or carriers; or severe disability may prevent the actual travel experience. With the support of the Metaverse, people can stay at home or in other

places but experience some of the intangible elements of hospitality virtually. These intangible consumer experiences can be accessible anytime and anywhere. Virtual hospitality experiences can only simulate the real physical experience, and therefore cannot be considered as an attractive replacement. Travellers will be using Metaverse extensively before, during and after visiting hospitality organizations to undertake a range of functions as illustrated in Table 1.

Table 1. Metaverse hospitality services before, during and after physical visit

BEFORE physical visit	• Experience hospitality services virtually when real travel is not possible • Enjoy ambience and atmosphere through realistic gamification • Information collection and fact-finding before visiting • Assessment of suitability and fitness of services to needs and requirements
DURING physical visit	• Planning of daily itineraries • Explore local resources for visiting • Use AR for interpretation and understanding • Engage with additional knowledge sources to appreciate history or nature
AFTER physical visit	• Re-experience places and recharge their memories • Re-engage with people, places, resources, cultures • Reconnect with service providers and also fellow customers • Demonstrate destinations and organization and show them to others • Plan further trips and exploration

Sources: Adapted from Buhalis and Foerste (2015), Dwivedi *et al*. (2022) and Neuhofer *et al*. (2015)

Within the process of before, during, and after the physical visit, hospitality investors, designers, builders, and managers therefore should take advantage of opportunities emerging through Metaverse to develop their digital presence and their competitiveness. In real life, investors need to buy land, raise funds, develop attractive concepts and experiences, and set up projects in order to build hotels. Hotel owners choose a good land in an ideal geographical space at an appropriate price and invite an innovative design company to build attractive hospitality

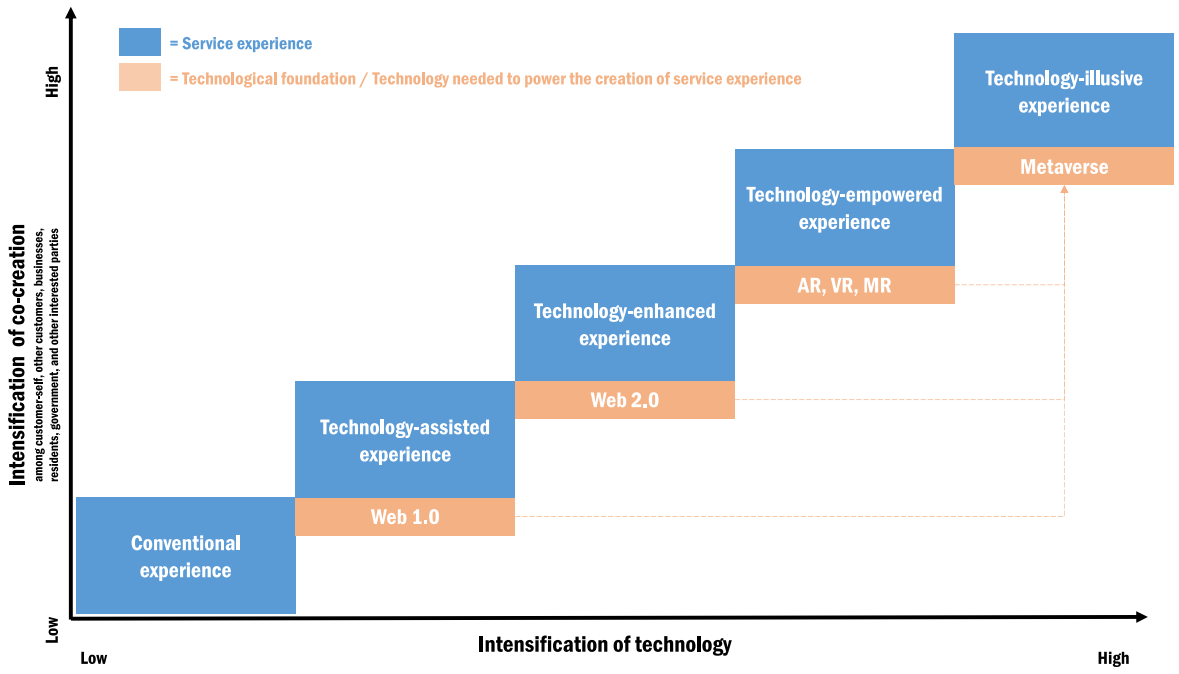
propositions. Designers and builders need to conceptualize design concepts and develop appropriate constructions. Managers need to recruit human resources to utilize operant resources (e.g., skills and knowledge) to operate operand resources and tangible assets. They need to develop management systems to operate the hotel property. They also need to develop marketing strategies to attract and retain customers whilst optimizing profitability.

In the virtual world of the Metaverse, similar roles and processes need to be developed to enable the co-creation of experiences. Virtual world operating principles need to be adopted to integrate the real/physical world with the digital world through multiple layers of innovation. Virtual world hospitality managers need to design digital hotel facilities, aesthetics and atmosphere, create new brands, and support on-site management capabilities. Various types of design styles, colors, layouts, and materials can be tried and revised on virtual platforms. Usability needs to support efficiency, learnability and satisfaction from the interface. Designing intuitive user experiences should also ensure functionality, findability, trust, value, accessibility and ultimately delight (Villarreal, 2022). Metaverse has an unlimited virtual geographical space for users to choose and explore. They will also need to develop their marketing strategy to develop service propositions, pricing strategies and distribution mechanisms to recruit and retain virtual users. Designers need to generate maps of this space that are not available in the real world, whilst remaining completely consistent with the real world in the form of a digital twin. Brand integrity and consistency are critical for ensuring consumers enjoy similar offering propositions both online and offline. Various economies, entities and natural persons, can play completely different roles in a virtual world, according to their own ideals, interests, abilities, energy, and financial resources.

4 THE EVOLUTION OF EXPERIENCE TOWARD METAVERSE

The development of the experience typology matrix was suggested by Neuhofer *et al*. (2014) to correlate the level of intensification of technology with experience co-creation. Such a matrix has guided hospitality and tourism researchers in analyzing and planning dynamic engagement with consumers by illustrating how technology transforms and empowers experience. The intensification of experience co-creation, is empowered by the intensification of the use of technology to illustrate the holistic evolution of experience. It included four types of experience: conventional experience, technology-assisted experience, technology-enhanced experience, and technology-empowered experience. Given the novelty of current technology from Metaverse, this study suggests adding an extra layer of technology-illusive experience. Figure 1 illustrates the technology-enabled evolution of customer experience co-creation towards Metaverse. The growth of technology and co-creation intensification leads to technology-illusive experiences powered by Metaverse technology.

Figure 1. Technology-enabled evolution of customer experience co-creation towards Metaverse



Source: Adopted from Neuhofer *et al*. (2014)

Conventional experience depicts the basic consumer experience, supported by face-to-face interactions and analogue technologies (Neuhofer *et al*., 2014). In the early days of the experience economy, physical and interpersonal experience enhancement was adopted by tourism and hospitality companies to increase the product and service value and strengthen consumer satisfaction. Technology-assisted experience, the second experience layer, emerged from the growing usage of technology. In this layer, Web 1.0 is characterized by static websites, reservation and distribution systems and one-way communications organizations that facilitate and assist the advancement of experience by allowing convenient consumer access and efficient transactions. The third layer illustrates technology-enhanced experiences, with the usage of Web 2.0 in consumer decision making and consumption process. Web 2.0 involves social media and user-generated content, dynamic websites and systems empowered by smart devices. This technology infostructure encourages consumer active participation and engagement (Buhalis, 2020). It

supports value co-creation through enabling personalization and customization of experiences (Neuhofer *et al*., 2015). In the technology-empowered experience, the fourth layer, technology goes beyond the supporting role in the second and third layers as it brings virtuality to the tourism and hospitality experience (Buhalis *et al*., 2019). New technologies integrate AR and VR to enhance real environments or recreate spaces (Buhalis and Karatay, 2022; Gursoy *et al*., 2022, Jung *et al*., 2021, Rauschnabel, Babin *et al*., 2022). Technology integrates virtual elements within the experience creation process as a prequisite part. In the technology-empowered experience stage – the reality is enhanced or reproduced and therefore cannot be generated and felt by the consumers without such technology (Buhalis *et al*., 2019).

In the analogue world, the example of a cinema projection enables viewers to be passive participants in storytelling, for the duration of a film; raising their feelings and stimulating their emotional state. In a theatre or a concert situation, the spectator experiences a higher level of immersion as all lights are dimmed to facilitate a closer connection with the performer. Using immersive technologies such as MR, tourism and hospitality organizations can achieve "a very realistic augmentation of the real world, ideally so realistic that a user can no longer distinguish virtual content from physical objects. MR usually requires special hardware (i.e., smart glasses) where the lenses are replaced by transparent screens and contain multiple sensors to track the user's environment" (Rauschnabel, 2022). Therefore, MR propels technology-illusive and transformative experiences.

Metaverse propels a range of innovations which drive the technology-illusive experience and empowers users to step from the physical world to virtuality and vice versa. Metaverse takes advantage of MR allowing travelers to blend physical and virtual worlds. It effectively creates a bridge to facilitate the integration of real and virtual presence and experience. MR blends the

physical and virtual universes and allows transforming users to different fantasylands. Metaverse, therefore, transforms the universe into a blend of physical and simultaneously a virtual environment, where tourism and hospitality organizations and destinations, are expected to interact with different stakeholders in real-time. Both physical and virtual environments need to be coordinated for this experience.

Metaverse will increasingly support illusive experiences by seamlessly transferring users/visitors between the physical and virtual environments. Consumers may have an illusion of where they are, because experiences cannot be separated and clearly identified in which environment they occur. Co-creation can therefore be enhanced to new levels, given that such a staged experience can yield higher value with active participation. Having ultimate control of the virtual space supports the development of customizable, personalisable and context-aware environments that can be used to co-create experiences to reflect customer requirements, needs and desires. A "global wedding" theme, for example, may allow participants to experience their wedding in multiple locations surroundings, from Sydney to Oahu, all from the convenience of their headsets, regardless of their physical location. Projections of real-time activities facilitate near-realistic, virtual participation, for people that are not present in the physical world. Virtual presence can be enhanced with a physical presence, where the happy couple is located in one place (e.g. London), whilst clusters of guests may gather in different locations to enjoy both a physical (e.g. wedding banqueting) and virtual (e.g. immersive projection) value co-creation. Allowing guests to both virtually and physically celebrate and co-create experiences from home or other convenient locations provides a great opportunity for hybrid experiences.

Consumers can use Metaverse to increase their satisfaction because of high experience customization and easier accessibility to their customizable, desirable, immersive, virtual

environments. Insightful interrelations between consumers and businesses can be captured anytime and anywhere driving further personalization and contextualization. In addition, this layer of experience is elusive because it exists in all the possible stages of a hospitality experience. Metaverse allows consumers to be actively involved, participate, and co-created using immersive technologies with all stakeholders. However, given the innovativeness of Metaverse, a limited number of firms have hitherto provided a technology-illusive experience for hospitality businesses. It is critical for hospitality businesses to strategically plan for this experience and collaborate with technology companies to accomplish the advancement in order to serve their customers in the Metaverse hybrid world.

5 BEST PRACTICES IN METAVERSE HOSPITALITY EXPERIENCE CUSTOMER JOURNEY

Hospitality businesses, including hotels, restaurants, MICE facilities, and event planners, need to re-evaluate their relationship and engagement with consumers, given the new Metaverse capabilities. They should actively develop a strategy that includes an active presence in Metaverse and adjust their operations with the view to co-create virtual and physical experiences with their consumers. They should also learn from the gaming industry and explore how game engines such as Unreal Engine or Unity co-create virtual experiences.

Metaverse-enabled hospitality processes revolutionize the interaction between consumers and service providers. With the support of Metaverse, hospitality businesses can interact with consumers in both virtual environments and physical environments seamlessly. In the business-to-consumer (B2C) interactions, hospitality businesses should enable consumers to co-create their

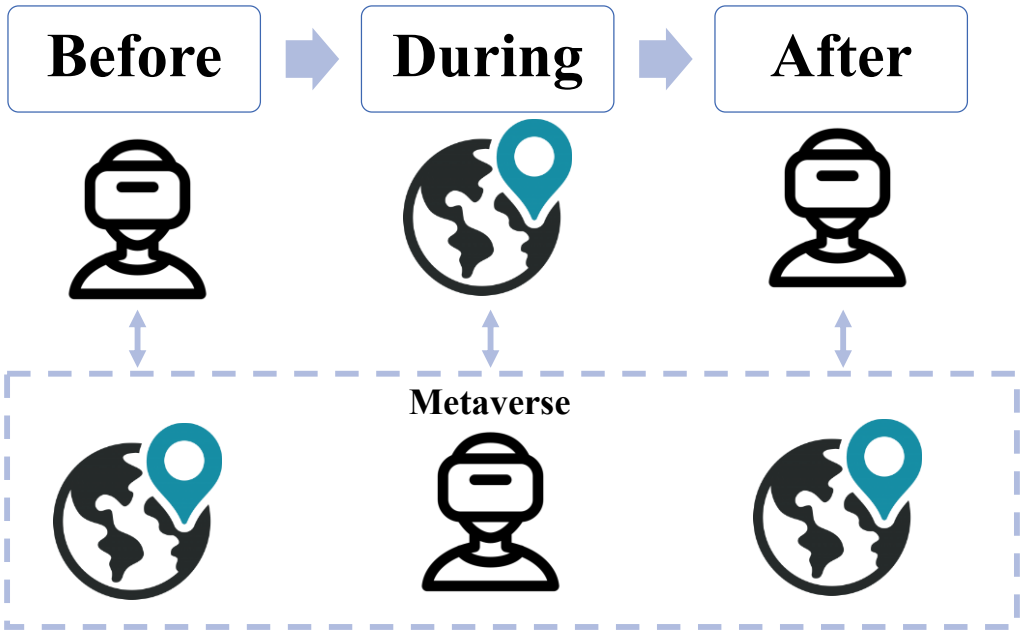
experience via the empowerment of technology. Hospitality businesses can promote their business to consumers in a more immersive way, whilst facilitating co-creation to enhance experience formation.

The hospitality experience customer journey consists of before, during, and after the visit (Stylos, 2022). Information and media content is produced across the journey, making consumers prosumers that create, distribute and consume content simultaneously. Most consumers spend time researching, communicating and seeking information before the visit. This is particularly the case when dealing with a destination and a service provider for the first time (destination-naïve travelers). Once they purchase their hospitality and travel arrangements, they experience a range of products and services. During the visit they consume products and services purchased or prebooked in advance (such as transportation and accommodation); whilst at the same time, they consume a range of services that they select dynamically, as they go. These are typically food and beverage decisions, as well as entertainment or leisure. They are typically context-based and influenced by stimuli at the destination (Buhalis and Foerste, 2015). Travellers share their experiences with other people after the visit, when they return home, creating multimedia content, reviews and word-of-mouth (Arica *et al*., 2022). However, increasingly travelers share experiences in near real-time, as they use networks and smart devices to upload content or even live stream their experiences. With the enhancement and development of technology, information sharing before, during and after the visit can be done in multiple virtual environments and platforms generating user-generated content (UGCs) and eWOM (Zhang *et al*., 2018).

Metaverse essentially blurs the boundary between the virtual environment and the physical environment. It makes the transition between virtual and physical settings easier and effortless, enabling users to operate in hybrid mode. It effectively generates the bridge that interconnects

digital and physical worlds empowering virtual-physical-virtual hospitality experience patterns by ensuring that all elements are interoperable in a new, blended, comprehensive hybrid universe. Therefore, Figure 2 illustrates that travelers can interact with consumers virtually before visiting to facilitate the inspection of facilities and reservations; physically when they are on location but also virtual to showcase local resources and attractions, historically information or behind the scene processes; and virtually again after they leave. Hence, different hospitality experience processes can take place using Metaverse, before, during and after travel as illustrated in Figure 2. Hospitality businesses and consumers, therefore, are likely to develop a more immersive relationship than ever using hybrid means of communication and experience.

Figure 2. Hospitality experiences co-creation process in Metaverse

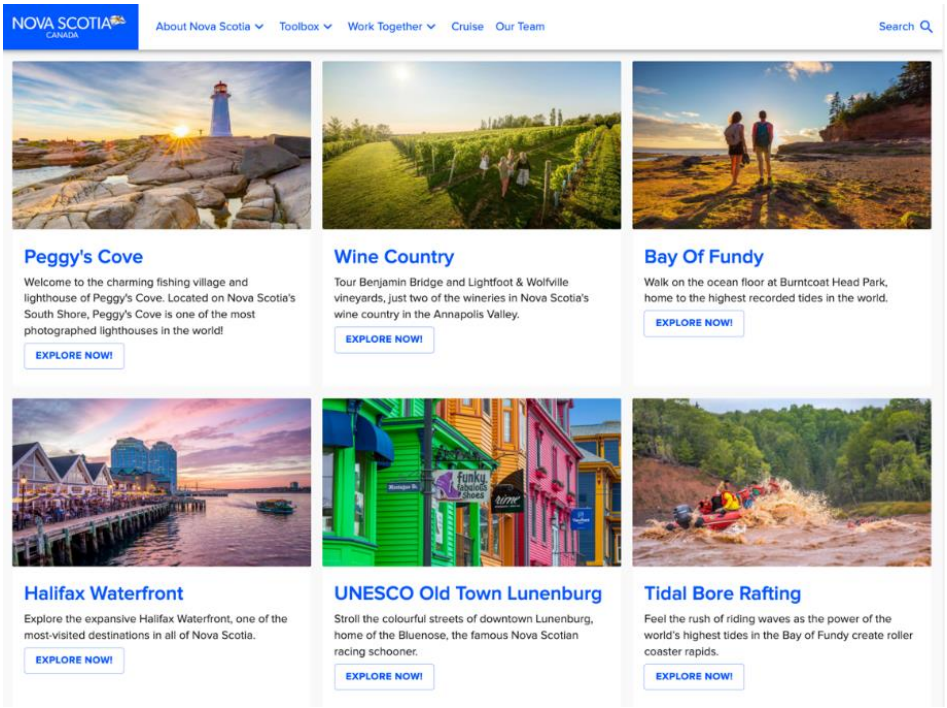


Before travelling, consumers often review User Generated Content (UGC) and electronic Word of Mouth (eWOM) information by searching on review platforms, such as TripAdvisor or

social media platforms, including Facebook, Twitter, and Instagram, WeChat and TikTok. Increasing co-creation is not only led by the consumer who purchases the products or services but is also impacted by the interaction with other consumers. Metaverse can provide the opportunity to have an elusive experience for hospitality customers to sample both the tourism and hospitality experience and help them to make the right decisions and co-create the experience. Consumers can select and customize their travel, destination and hospitality experience by sampling different places and designing their visit in the Metaverse environment.

Best practice examples of a destination include the Nova Scotia region in Canada, which provides a range of VR videos online to be watched from home (Figure 3). The 360 Virtual Reality videos explore several of Nova Scotia's most popular sites and attractions in English, German and Mandarin. They enable prospective travelers to immerse themselves in Nova Scotia attractions such as a ride on the tides of the Bay of Fundy for exploring Nova Scotia's wine country. In hospitality, Marriott Hotels have been experimenting with “teleportation” since 2014. Using the VR headset Oculus it used virtual reality technology to showcase destinations and hotel facilities. As seen in Figure 4, Marriott Hotels set up a "Get Teleported" booth outside of New York's City Hall in 2014 to enable the 100 couples that are married there each day to virtually experience hospitality properties in Maui, Hawaii and London, UK and explore honeymoon plans in their hotels.

Figure 3. Nova Scotia's 360 Virtual Reality videos



Source: https://www.novascotia.com/travel-trade/toolbox/VR/english-VR

Figure 4 Marriott Hotels: A Virtual Honeymoon to London and Hawaii #GetTeleported

Source: https://youtu.be/i6yMqXLnpN4

Given the illusiveness of the Metaverse, the customized and co-created experience can be close to an authentic physical environment, allowing consumers to co-create their experience by selecting different hospitality businesses, such as restaurants, event locations, and recreation outlets. Thus, hospitality businesses can use the Metaverse for consumers to try out the product and service before the actual visit, creating additional touchpoints. They can also use metaverse to prepare them for dealing with real experiences that may find disturbing (Antón, Camarero, Laguna, Buhalis, 2019). Consumers can invite other consumers into co-designing their experiences, especially with those they plan to travel together. In this sense, a family may plan their trip together by virtually examining destinations and hospitality facilities, before making purchasing decisions. Interactions can also be with people who have experienced services in the past and would like to share their experiences – similarly to Destinations Experts in the TripAdvisor Forums.

During the visit, the Metaverse can provide a hybrid environment where consumers can enjoy the products and services physically and virtually. Hospitality businesses may have a hard time changing the setting in the physical environment easily. Information and virtual content and interaction can be organized and provided beyond the physical environment. Hence, the Metaverse can use virtuality to enhance their satisfaction by supporting consumer experience co-creating and co-design in the virtual environment. Metaverse can also bring consumers back to the physical environment by providing more opportunities beyond the virtual environment. Consumers can co-create experiences in the physical environment by interacting, ordering and providing valid feedback to hospitality businesses. For example, consumers can provide their feedback in an AR-enabled review system for businesses. Such a review system can provide additional information for other consumer experience co-creation. Although there is no evidence of a hospitality organization that has implemented immersive environments to be used when visiting the premises,

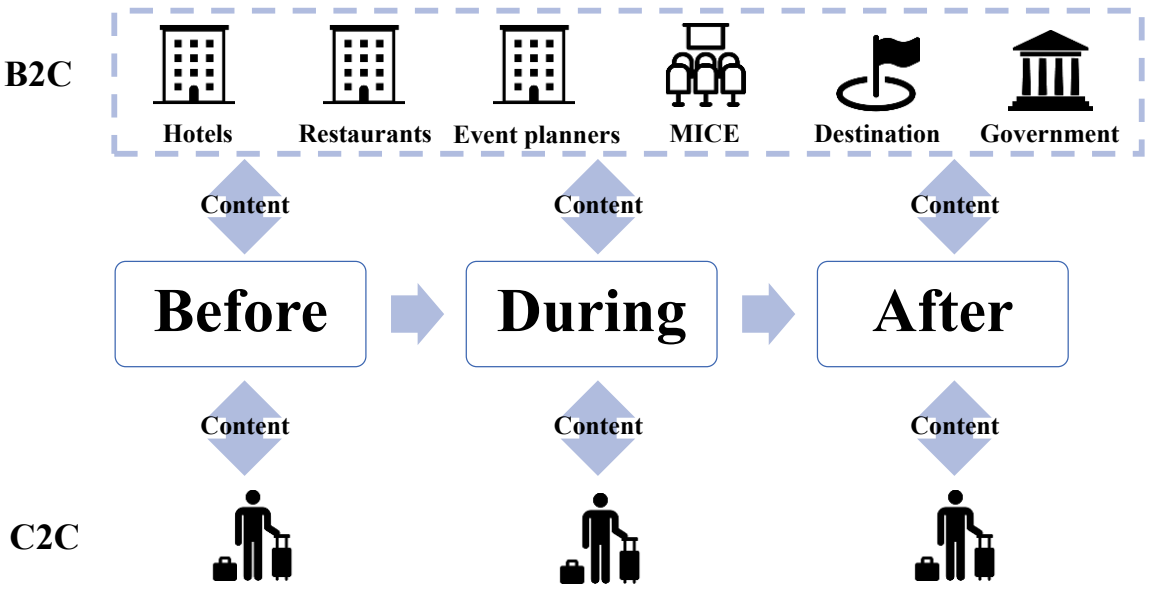
Inamo restaurants in London have been pioneering a technology-enhanced Pan-Asian restaurant and bar experience since 2008. Their ground-breaking technology is based on interactive projections on the table surface, as demonstrated in Figure 6. This enables them to select different dishes through images, content and information projected on the table; order through a virtual menu that includes a range of animations; watch the chefs cooking in the kitchen live. They also allow to set different moods and table cloths; discover the local neighborhood; play games and interact with others.

Figure 5. Inamo restaurant interactive tables

Customer to Customer (C2C) interactions are becoming critical for the experience co-creation across all phases of hospitality (Rihova *et al*., 2018; 2019). Metaverse multimedia immersive content makes C2C interactions so much easier, safer and more collaborative, as illustrated in Figure 6. In Metaverse, users can create communities and share the context of common interest. For example, animal lovers can share media-rich information about pet-friendly

hotels and restaurants, whilst nature lovers can illustrate hiking routes and wildlife information. Interactions can benefit from gamification techniques and users can compete in virtual games, such as treasure hunts (Xu et al., 2017). They can also share sensory information with each other empowered by Metaverse. During the visit, Metaverse enables smooth and interchangeable experience co-creation between virtual and physical environments. Consumers can share their information in real-time with other consumers to influence each other and engage in a real-time dialogue. Metaverse offers additional opportunities for hospitality businesses to collaborate and form strategic alliances with other organizations in their ecosystem to offer seamless experiences. After visiting, consumers can freely share their experiences and multimedia immersive content in Metaverse, impacting both virtual and physical environments through the development of communities and sharing a common interest and digital material.

Figure 6. The roles of stakeholders in hospitality experience in Metaverse



Members of the tourism and hospitality ecosystem should therefore use Metaverse to demonstrate how they interact collaboratively to provide more immersive customized and coordinated products and services. Apart from hospitality organizations, destinations and governments should become the facilitator of the hospitality experience co-creation process and support the necessary infostructure development as well as the legislative framework for the success of Metaverse usage for both customers and suppliers. Co-creation becomes more complex by inviting more stakeholders into the experiences.

6 Conclusions and implications

6.1 Conclusions

Given the notable potential of Metaverse, hospitality and tourism stakeholders need to gain a better understanding of how Metaverse can help co-create transformational experiences. In order to initiate this discussion in academia, this paper conceptualizes the potential value of Metaverse on hospitality co-creation and suggests a research agenda via a comprehensive literature review and best practice examples from around the world. The value co-creation process involves multiple stakeholders: consumers and hospitality business organizations in different stages (i.e., before, during, and after the actual physical visit). In particular, this paper examines the impacts of the Metaverse on hospitality management from a seamless mix of physical and virtual worlds for consumers. Hospitality businesses and organizations need to embrace and plan for Metaverse strategically in order to keep up with the competition and the surging needs of consumers.

6.2 Theoretical implications

Metaverse is expected to be a huge game-changer in hospitality consumer experience as the Internet was. Therefore, hospitality researchers should aim to incorporate theories to identify the potential research questions in the adoption of the Metaverse. Prior literature has examined value from different perspectives, such as perceived value (Vo-Thanh *et al*., 2022), economic valuation (Tomczyk *et al*., 2022), and human and technology interaction and co-creation (Jiménez-Barreto *et al*., 2021). This critical reflection paper provides our opinion on the future of Metaverse based on the previous literature in value co-creation and technology enhanced experience (e.g., Doborjeh *et al*., 2021; McCartney and McCartney, 2020; Wong *et al*., 2022). These streams of research are rooted in the technology acceptance model and innovation adoption theories and will further expand their theoretical foundation into the research of Metaverse. Metaverse opens many exciting opportunities for hospitality and tourism researchers. Many exciting research questions remain to explore the impact of Metaverse on consumer experiences. This study defines Metaverse in hospitality and suggests some future research directions to start discussions about the consumer experience enhancement in the era of Metaverse. Metaverse is an innovative concept for the field of hospitality and tourism. Therefore, the characteristics may need a long time to adjust to the needs of different stakeholders.

6.3 Practical implications

Hospitality businesses should plan for the adoption of Metaverse in their business operation and appreciate the hybrid mode of hospitality service offering. However, different types of hospitality businesses, including hotels, restaurants, event planners, and MICE, should tailor specific business strategies to their strategic needs and requirements and plan accordingly. Metaverse should be examined holistically throughout innovation adoption research that includes management, strategy, human resources, food and beverage, revenue management, and

entrepreneurship to appreciate the full impact of Metaverse adoption in hospitality businesses. Exploring opportunities in business model innovations (Kraus *et al*., 2022; Noone et al., 2022), should ensure that sustainable business opportunities emerge based on the co-creation of value for all stakeholders.

Technology cannot be fully functional, without legitimate support and legislation from the government. Local destinations and governments should serve as regulators to enhance the trustworthiness of consumers. Ethical and legal issues in Metaverse adoption should also be explored to reinforce stakeholders' rights. Future research can examine the impact of local policy support in Metaverse adoption on hospitality and tourism businesses and ensure that smaller players are also empowered to participate in the new hybrid ecosystems.

6.4 Future research for Metaverse in hospitality and tourism

Future research should look into the potential application and how practitioners can configure it based on the views of other stakeholders. ICT researchers have experienced the development of ICT tools, and gamification in particular and therefore can develop suitable methodologies to develop the Metaverse development road map. Hospitality consumer behavior researchers should be ready to examine the acceptance level, perceived usefulness, and challenges in adoption to help refine the advancement of the Metaverse. The opinions from other stakeholders can also help to develop the direction of the Metaverse development in the hospitality and tourism industry. In essence, future research should reengineer the hospitality servicescape and experiencescape (Kandampully *et al*., 2022) to ensure that the new Metaverse potential is capitalized.

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