INTERNATIONAL JOURNAL OF APPLIED BUSINESS RESEARCH
2023, VOL. 5, NO. 2, PP. 187–207
https://ijabr.polban.ac.id/ijabr/

POLBAN

Immersive Experience in the Metaverse: Implications for Tourism and Business

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Received 22 December 2022; accepted 9 March 2023

ABSTRACT

By providing immersive and interactive experiences, the metaverse has been changing how tourists spend their vacation. It also presents new business challenges, such as gaming, marketing, education, and smart city industries. This research explores the opportunities and challenges presented by the metaverse in the tourism and business industries. This research also discusses the metaverse implications that can transform people's experience and consumption when traveling and consuming. A comprehensive literature review was conducted to explore the implications of the metaverse for the tourism and business industries. This study's findings reveal several examples of applying the metaverse and its implications. In addition, this study also discovered that the emergence of the metaverse significantly impacts the tourism and business sectors. In practice, the review findings make tourism and business stakeholders aware of the potential of this immersive technology. Tourism providers and business leaders might consider using the metaverse to promote tourism destination and their businesses and develop a system that can maximize the benefits of this immersive technology.

KEYWORDS

Metaverse tourism
Metaverse implication
Metaverse business
Virtual reality tourism
Augmented reality tourism

INTRODUCTION

The metaverse has emerged as an interesting big technology that is appealing to investors. This technology refers to utilizing Virtual Reality and Augmented Reality to create a digital world that can be accessed and interacted with in real-time (Mystakidis, 2022; Wu et al., 2022). Various industries are using the metaverse, such as games, business, tourism, architecture, and even education, to create immersive and interactive user experiences.

As a number of large companies, such as Microsoft, Facebook, and Nvidia have realized the advantages of the metaverse, they start designing and manufacturing their own metaverse (Kraus., 2022a; Lee et al., 2021). Even Facebook founder, Mark Zuckerberg, changed his company name to Meta in mid-2021 (Yogesh et al., 2022), which the market positively welcomed. The latest report from McKinsey predicts that by 2030, the metaverse market can reach 5 trillion US Dollars, with users reaching five billion people worldwide (Filimonau et al., 2022).

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Apart from technology companies, the metaverse has also caught the attention of the tourism industry because it offers tourists new ways to explore places without the need to travel in person or physically (Buhalis & Karatay, 2022; Um et al., 2022). Its application, for example, can be enjoyed by tourists who participate interactively in virtual tours in the game Second Life (Ostrander, 2008). In addition, tourists can also use VR headsets to visit and explore the streets of the city of Paris, see famous landmarks, and feel the culture and atmosphere of the city (Vo-Thanh et al., 2022). The use of metaverse in tourism can improve tourists' travel experience by presenting significant interactions.

Apart from tourism, the metaverse also benefits the business sector by creating interactive experiences for its customers, such as virtual product demonstrations and interactive tours of the company's facilities. An example is done by IKEA, which launched an augmented reality application to provide an experience for consumers to try the appearance of furniture in their homes using smartphones or tablets. Companies can also collaborate with game makers to create virtual experiences related to their brand. Brands such as Gucci are collaborating with Roblox games to sell virtual bags that consumers can use on their avatars in games. The Gucci virtual bag is sold for 4115 US Dollars, exceeding the price of a physical bag of the same model, which is only 3400 US Dollars (Y K Dwivedi et al., 2022).

Talwar et al. (2022), Buhalis & Karatay (2022), Hsu et al. (2022), and Dwivedi et al. (2022) conducted research and reviews on the application of metaverse, AR, and VR in tourism and business. Dwivedi et al. (2022) located the primary critical application of metaverse, AR, and VR in tourism and many business sectors from different perspectives. The authors discussed the implications of the metaverse, AR, and VR in the tourism and business sectors. In addition, Buhalis & Karatay (2022) reviewed more in the usage of metaverse for the advance of smart tourism.

However, Bibri et al. (2022) highlighted that privacy issues due to a lack of regulation and oversight in the metaverse, AR, and VR, could be a potential problem. This creates opportunities for irresponsible groups or individuals to collect and sell personal data without consent. Another concern is the possible exploitation of users' data, leading to identity theft and online fraud. Besides privacy issues, ethical issues such as justice are potential metaverse problems. How the management works in the metaverse platform becomes essential to increase equality and reduce discrimination (Z Allam et al., 2022).

Given the fact that the metaverse is so broad and rapidly growing, research on its implications on various sectors is imperative to conduct. Investigating the metaverse implications can help identify various ways in which the metaverse is applied and recognize challenges ahead, particularly in the tourism and business sectors. Therefore, to explore this timely area of technological development and research, this study presents a systematic review of the current state of research in implication and application of the metaverse in tourism and business. This review collects relevant existing literature and selects it based on inclusion criteria, then synthesizes the selected material to answer research questions. Additionally, certain gaps in current knowledge are identified for future study. This review aims to build knowledge on what has been investigated regarding the implications of the metaverse and its application in the tourism and business sectors from existing literature. The results will be valuable for understanding the implication of the metaverse in tourism and business and their specific areas of interest. Identifying and mapping the recent application and implication of the metaverse will help researchers to identify the technology and essential research areas for further investigation.

LITERATURE REVIEW

Metaverse technology is currently being massively discussed by the public. One of the factors is due to Zuckerberg's presentation at the end of 2021. However, the idea of metaverse technology has been introduced in 1992, when writer Stephenson wrote a novel entitled Snow Crash (Sparkes, 2021). Several years after the idea emerged, many researchers, innovators, and technology companies were trying to make it happen (Dwivedi et al., 2022; Hsu et al., 2022). Previous literature stated that the main attraction of the metaverse is its potential for serving immersive, interactive experiences (Han et al., 2022a; Kemec, 2022). Buhalis (2022) then affirmed that the use of immersive technology like virtual reality and augmented reality can increase user engagement and facilitate the transfer of knowledge. In the field of education, virtual worlds have been used to create interactive simulations and role-playing scenarios that allow students to learn through experiential learning (Fakharany & Salama, 2022; Mystakidis, 2022). In the corporate sector, the metaverse is used to do virtual test drives for consumers interested in buying a car (Lim et al., 2022). Therefore, using the metaverse can provide convenience for consumers and is also more cost-effective compared to making activities in the real world. Training programs have been developed to allow employees to practice skills and scenarios in a safe and controlled environment.

Han et al. (2022) claimed the motivation for using the metaverse in retail stores as the influence of consumers' perceived online atmosphere and making inferences about the retailer as well as formulating specific positive responses toward the store. In another research, Xu et al. (2022) described that virtual and augmented realities provide tourists with unique and immersive experiences in the city. The author discussed that visitors could explore virtual tours of historical sites and monuments, experience street life from a new perspective, or participate in interactive gaming experiences. This enhances tourism by providing people with an unconventional way to see familiar destinations while giving them a sense of community engagement that they may have yet to experience if visiting traditional tourist venues. Similarly, Lim et al. (2022) focused on the metaverse adoption in Hyundai. As a marketing tool, the metaverse provides Hyundai virtual test drives to potential customers. Customers can enter a virtual world where they explore different models of Hyundai cars and even test drive them in a different virtual environment. The motivation behind the Hyundai metaverse adoption is to provide customers with a unique and immersive experience, allowing them to explore the car’s features and capabilities in a way that traditional test drives cannot offer.

However, the use of the metaverse also raises concerns about privacy, security, and the potential for abuse. Virtual reality technology allows the collection and tracking of user data, which has led to concerns about data privacy and the potential for misuse. In addition, virtual environments can be vulnerable to hacking and other forms of cybercrime, which can pose a risk to users' personal information and financial accounts (Gadekallu et al., 2022; Wang et al., 2022). Finally, the anonymity of virtual spaces can also create opportunities for bullying and other forms of online harassment, which has led to calls for greater regulation and oversight of virtual environments skills (Bibri & Allam, 2022; Kraus, et al., 2022). While it has the potential to revolutionize industries and provide immersive, interactive experiences, the metaverse also presents challenges and concerns that must be addressed. Therefore, further study is needed to understand the full potential and limitations of the metaverse as well as the impact it may have on tourism and business.

RESEARCH METHOD

This study employed a qualitative method with a literature review technique, meta-synthesis. It was expected to present comprehensive synthesis results. The definition of literature review itself is a technique for summarizing a topic or theory by carefully searching for it; thus, it can be integrated into a study (Snyder, 2019).

A meta-synthesis literature review is a rigorous approach that allows identifying, evaluating, and interpreting relevant research to support study conclusions. This process has been used in studies involving the application of virtual reality/augmented reality (VR/AR) in tourism and business (Dwivedi et al., 2022), virtual commerce (Hopkins, 2022), and smart city (Bibri & Allam, 2022). With guidance from Shen et al (2021), this paper outlined the three phases of systematic review: planning, conducting, and reporting. This review included the following steps: (1) identifying a need for review, (2) specifying research questions, (3) developing a protocol for reviewing papers, (4) selecting papers to be assessed, and 5) evaluating paper qualities. Then, two research questions were proposed based on the objective in the introduction.

1. What are the implications of the metaverse in tourism and business?
2. What are examples of the metaverse applications on tourism and business?

This paper reviewed and discussed metaverse, metaverse tourism, virtual tourism, digital tourism, smart marketing, metaverse education, smart city, and immersive gaming in the metaverse to examine the implications of this technology for the industry and business sector.

The researchers prioritized the search in reputable journal indexes such as Emerald, Elsevier, and Taylor & Francis. In addition, they searched for articles in Google Scholar to obtain more data. However, the researchers set a minimum standard of 7 citations in those articles from Google Scholar using the publish and perish application. In addition, this research prioritized the latest research over the past ten years. Although several articles were published more than ten years ago, they were still used to broaden research views on the metaverse. An overview of the complete research years can be seen in Figure 1.

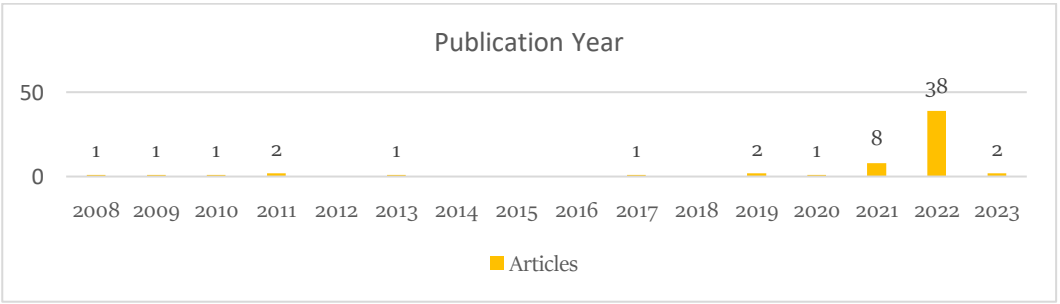

Figure 1. Publication year

In the early stages, according to the literature review research protocol, the researchers retrieved 33 articles from Emerald, 50 from Taylor & Francis, 10 from Elsevier, and 38 from Google Scholar using the keywords metaverse, metaverse business, metaverse tourism, smart tourism, virtual tourism, and digital tourism. After careful screening by title, 49 articles were excluded, leaving 82 articles for further screening. The omitted articles did not discuss the tourism metaverse or the implications of the metaverse for various types of businesses.

The first filter was conducted by reading the research briefly from the abstract section, resulting in the omission of ten more articles. They were excluded because they contained similarities and less-relevant research results. Then, the researchers read all the articles and 20 of them could not be

used, leaving 62 articles for thorough analysis and synthesis for literature review research. After reading in entirety, four articles were again excluded because they did not contain an in-depth discussion on the implications of the metaverse for tourism and business. Therefore, 58 articles were analyzed and noted of their theme and code to synthesize the literature review. The process of selecting articles can be seen in

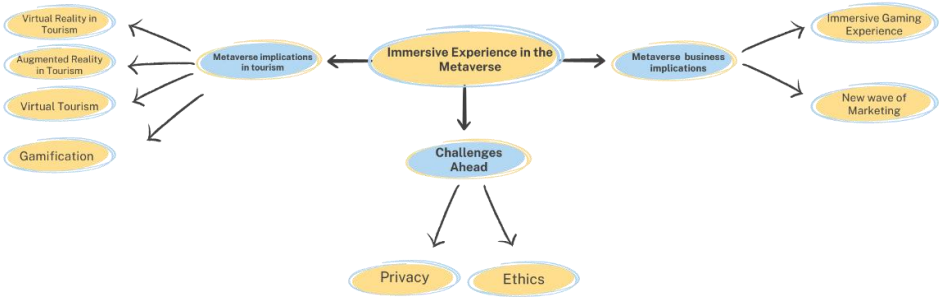

Figure 2. Article selection process

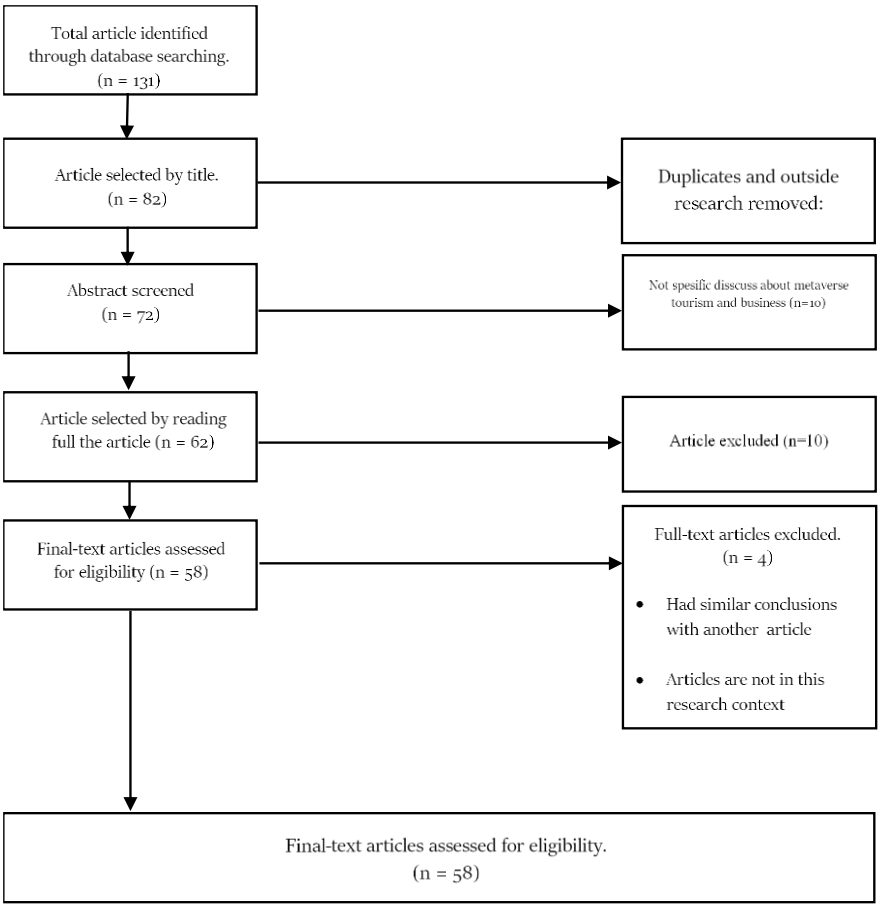

Figure 3. Research mindmap

After the article collection, a review was carried out to identify and select data from the indicated sources and extract, synthesize, and discuss the data in literature review articles. The synthesis

process included coding, theming to note, and managing important discussions in the article collection (Patton, 2015). The final step was the reporting and distribution step, which concentrated on conducting the analysis, observing the results, and evaluating the practical consequences of the researcher's findings. The mindmap of this research is demonstrated in Figure 3.

Table 1. Theme source

Theme	Source/Author
Metaverse implication in tourism	D Buhalis & Karatay (2022); Dimitrios Buhalis et al (2022); Cowan & Ketron (2019); Y K Gaafar (2021); Gursoy et al (2022); Y. Han et al (2022b); Hazan (2010); Hsu et al (2022) Ostrander (2008); Penfold (2009); Pratisto et al (2022); Solakis et al (2022); Talwar et a 2021; Um et al (2022); Vo-Thanh et al (2022); M. Xu et al (2022); Zaman et al (2022)
Metaverse business implication	Adams (2022); Alvarez-Risco et al (2022); Brown et al (2011); Dominguez-Noriega et al (2011); H. Han et al (2022); Hawkins (2022); Hopkins (2022); H J Lee & Hwang (2022); U. K. Lee & Kim (2022); Lim et al (2022); Maria Kovacova & Veronika Machova (2022); Mystakidis (2022); Nalbant & Uyanik (2021); Shen et al (2021); Xi et al (2022); F. Xu (2013); F. Xu et al (2017); Zertuche et al (2020)
Metaverse challenges ahead	Allam et al (2022); S E Bibri (2022); S E Bibri et al (2022); S E Bibri (2022); Gadekallu et al (2022); Kemec (2022); S Kraus, et al (2022a); Kye et al (2021); L. H. Lee et al (2021); Ning et al (2021b); Wang et al (2022)

Source: Research Data, 2022

RESULTS AND DISCUSSION

Table 2. Definition of the technology behind the metaverse

Concept	Definition
Augmented Reality (AR)	Real-time display of content produced through a combination of the real world and the digital world using only a smartphone (L. Xu et al., 2020)
Virtual Reality (VR)	Simulation of an interactive, immersive virtual world featuring a 360° view that requires a dedicated device called a Head Mounted Display such as the Oculus Rift (Tayal et al., 2022)
Extended Reality (XR)	Dynamically merging virtual reality with augmented reality (Buhalis & Karatay, 2022)
Artificial Intelligence (AI)	A technology capable of imitating and replicating human intelligence for problem-solving, decision-making, and learning (Lee et al., 2021).
Cloud Computing	A type of internet-based computing that provides access to a pool of computing resources that allows users to access and use resources without the need for a local server infrastructure (M. Xu et al., 2022)
Blockchain	A decentralized digital record technology that securely records and verifies transactions across computer networks (Kemec, 2022)
Internet of Things (IoT)	A network of physical objects such as vehicles, buildings, and equipment embedded in software, sensors, and technology in order to connect and exchange data between other objects and systems via the internet (Bibri & Allam, 2022b)

Source: Research Data, 2022

The metaverse is not a new concept. It began when Neil Stephenson wrote a novel entitled Snow Crash in 1992. Stephenson described the metaverse as a merger between the physical and the digital world into one side-by-side reality (Kraus et al., 2022b). Since then, many scientists and large companies have tried to realize Stephenson's idea, one of which is the game Second Life, released in 2003 (Dionisio, 2013).

After the Second Life, Facebook became a technology company that was highly interested in the metaverse. Such interest is reflected in the changes of its name to Meta (Bibri & Allam, 2022a; Kraus et al., 2022a). Meta CEO Mark Zuckerberg explained that the metaverse is a technology that will be the successor to the internet in the next few years, making it the main focus of all lines of the Meta business strategy. The metaverse itself is an integration of various advanced technologies, such as Augmented Reality (AR), Virtual Reality (VR), Mixed Reality (MR), Extended Reality (XR), Artificial Intelligence (AI), Cloud Computing, Blockchain, and the Internet of Things (IoT), making the metaverse the most advanced technology (Shen et al., 2021).

Metaverse Implications in Tourism

Before the metaverse became popular, Buhalis et al. (2022) designed a basis for implementing smart technology in the tourism industry. According to their research framework, the process is important to create added value for tourists (see Figure 4). In line with this research, Dwivedi et al. (2022) stated that the use of smart technology can enhance the experience and value given to tourists in a tourist destination. One of the technologies is the metaverse, whose implementation extends not only to the technology industry but also to the tourism industry.

The metaverse allows travelers to create avatars and navigate virtual worlds using VR and other immersive technologies. Visitors can also explore city streets, visit popular tourist attractions, and interact with other visitors in real time (Buhalis & Karatay, 2022; Hsu et al., 2022; Zaman et al., 2022). The experience of visiting a tourist destination virtually without the need to travel physically is a key attraction of tourism in the metaverse (Gursoy et al., 2022b).

The metaverse has gained momentum since the COVID-19 pandemic significantly impacted the tourism industry. Many popular tourist destinations were closed, and governments tightened travel requirements in various countries. This led to tourists' hesitancy to take physical trips, so they try virtual tourism experiences instead (Niu & Feng, 2022). Due to the pandemic, the tourism industry, through the metaverse, experienced a surge in interest and investment. Thus, VR and AR technology companies are now focusing on creating more immersive and realistic virtual experiences for tourists (Talwar et al., 2022).

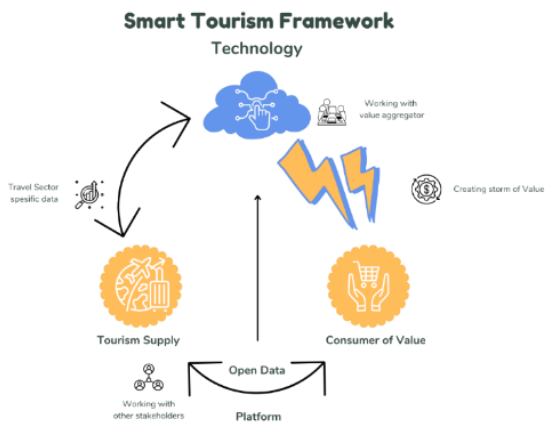

Figure 4. Smart tourism framework. adaptation from Buhalis, (2022) research

Table 3. Summary of prior review article

References	Scope	Protocol	Database	Keyword	Keyfindings
Dwivedi et al (2022)	Metaverse, VR and AR application in various business sectors	Systematic Literature Review Expert Opinion	Scopus, Elsevier, and Emerald	Avatars, Augmented reality, Extended reality, Metaverse, Second life, Virtual reality, Virtual world	Metaverse the potential impact of metaverse technology on our interactions with brands and others are likely significant. As physical and digital boundaries become less discernible from one another, society as a whole will experience a pervasive transformation.
Hsu et al (2022)	Smart tourism and VR implication in smart hospotiality	Literature Review	Emerald, Elsevier, and Taylor&Francis	Internet of Things, Smart Tourism, Smart Hospitality	Virtual reality offers a unique experience similar to what people find in a real-world environment. As the metaverse becomes more popular, user data and content ownership concern have arisen. The decentralized, immutable and transparent characteristics of blockchain make it an ideal platform for metaverse applications.
Buhalis & Karatay (2022)	Mixed Reality and metaverse application in cultural heritage tourism	Qualitative Research	Elsevier	Mixed reality, Generation Z Cultural heritage tourism, Co-creation, Immersive technologies	This research conclusion is that cultural heritage experiences can be enhanced with immersive technology. Metaverse allows developers, service providers, digital marketing operations managers (DMOs), and consumers to work together in creating unique experiences.
Bibri (2022)	Smart City, Metaverse, Privacy, Smart Technology	Systematic Literature Review	Scopus, Elsevier, Emerald, and Google Scholar	Metaverse; science and technology; society; data-driven smart cities;socio-technical imaginaries; fictional representations; democracy; privacy; utopia; dystopia; surveillance	The Metaverse is increasingly shaping the socio-technical imaginaries of data-driven smart cities, which is the outcome of radical transformation in dominant structures, processes, pratices, and cultures. At the core of this systematic exploration are scientific knowledge, technological systems, values, and ethics from various perspectives.

Overall, the COVID-19 pandemic has catalyzed tourism growth in the metaverse, providing new opportunities and possibilities for individuals to experience the world in virtual environments. The metaverse has offered new ways to plan and carry out tourism trips, by employing Virtual Reality Tourism, Augmented Reality Tourism, Virtual Tourism, and Gamification.

Virtual Reality in Tourism

Virtual reality is one of the popular technologies used to access and enjoy the metaverse. Using VR allows users to immerse themselves in virtual worlds fully. In addition, they can interact with other metaverse visitors and experience the technology as if they were in the real world (Kemec, 2022; Ning et al., 2021a). Companies and service providers in the tourism industry take benefit from this by creating more exciting and interactive experiences.

Tourism interaction in the metaverse refers to how people interact with each other and the virtual environment within the metaverse (Papez et al., 2022). Tomás (2022) explored various metaverse interaction topics, including social dynamics, communication, identity, and community building. It is similar to other research conducted by Lv et al. (2022), who discovered that in the metaverse, people tend to form close relationships and communities based on shared interests and experiences. They also adapt and create new forms of communication to fit the virtual environment.

One example of the application of the metaverse in virtual reality tourism is conducted by the Egyptian embassy in the United States, which uses VR as a promotional tool for visitors who are interested in exploring famous destinations in Egypt. Some visitors who have experienced the promotion using VR said that promotions in the 3D world are remarkably interactive and exciting (Gaafar, 2021). The government of the city of Nova Scotia, Canada, also provides various virtual videos that can be watched from home. These virtual videos present popular attractions in Nova Scotia, which are delivered in various languages ranging from German and Mandarin to English, in 360° (Buhalis & Karatay, 2022). The city of Seoul in South Korea also applies a similar thing in implementing the metaverse in its smart city. The Seoul government has created an application that allows local people to visit city halls, tourist destinations, and social service centers virtually (Xu et al., 2022). In addition, tourists can enjoy a virtual tour of the location and experience the celebrations and festival events in Seoul using the provided VR headset. Some examples are shown in Figure.5.

Figure 5. Screenshot of metaverse implementation in seoul, south korea (2022)

Not only by state and city governments, but metaverse VR is also used by hotel corporations such as Hyatt, Hilton, and Marriot to provide new customer experiences. This technology is used to assist customers in getting additional information before booking a room. This information is provided through a virtual room tour; customers can view the entire tour in 360° (Solakis et al., 2022). VR can attract customers to revisit hotels and tourist destinations because it provides a more personal and different experience. This can make destinations more attractive and memorable, thus encouraging customers to visit them in person in the future (Han et al., 2022; Pratisto et al., 2022; Zaman et al., 2022).

Augmented Reality in Tourism

In contrast to VR, Augmented Reality (AR) provides a different traveling experience for visitors. While VR allows users to be completely present in the virtual world, AR presents graphics or videos in the real world interactively using only smartphones and tablets (Hsu et al., 2022). Thus, this technology can make tours to tourist attractions more enjoyable. An example is that visitors can use AR to view maps digitally. AR also makes information about local areas of tourist destinations more complete and interactive (Buhalis, Papathanassis, et al., 2022; Um et al., 2022), which is possible to assist visitors in navigating their tour.

Holiday Inn, for instance, uses AR to assist visitors gain complete information about the hotel, starting from the layout of the hotel, spa, and swimming pool to the restaurant (Solakis et al., 2022). In addition, the AR application of Holiday Inn allows visitors to virtually catch a glimpse of places where celebrities have stayed at the hotel.

The government in the city of Incheon, South Korea, has also implemented AR to provide information and tourist guides to assist visitors in navigating their travel. AR technology is available in various corners of the city, from airports, city halls, and national parks to bridges, all of which are equipped with AR technology that visitors can utilize (Um et al., 2022). A graphical example of using augmented reality when traveling can be seen in Figure 6.

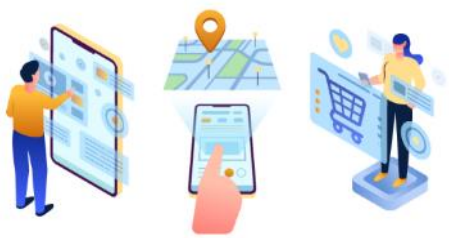

Figure 6. An example of using augmented reality (AR) in tourism

AR can also facilitate first-time visitors to interactively find information such as restaurants, shops, and popular destination locations, as described by Balakrishnan et al. (2021). This view is also supported by Pratisto et al. (2022), who stated that AR makes tourists more curious and explore different tourist destinations to experience a more immersive experience. Additionally, AR can create immersive experiences with interactive tours and games. Therefore, developing and expanding AR technology applications will become an important part of the tourism industry (Talwar et al., 2022).

Virtual Tourism

Metaverse tourism does not require the use of certain technology such as VR and AR to enjoy the experience of traveling in a virtual world. With their smartphones and computers, tourists can experience the sensation of virtual tours using applications such as SecondLife, Decentraland, Roblox, and Fortnite. Those applications and websites allow users to explore tourist attractions, attend concerts, and do historical tours only via smartphones and personal computers.

SecondLife application, which was launched in 2003, exemplifies the implementation of virtual tourism. Using this application, tourists can carry out various interactions, such as sending short messages, visiting other tourists' homes, attending communal events, and purchasing as well as

selling goods virtually (Kraus et al., 2022b; Ostrander, 2008; Penfold, 2009). They can also visit virtual representations of popular tourist destinations, including museums and landmarks, for instance, a virtual replica of the Louvre Museum (Hazan, 2010). Tourists can virtually explore and see famous works of art at the Louvre Museum, such as the Mona Lisa and Winged Victory of Samothrace, without physically visiting Paris.

The blockchain-based website, Decentraland, is the next example of the metaverse virtual tour that does not require using VR and AR technologies. Virtual tourism presented on this website allows tourists to explore various virtual locations, such as cities, beaches, and outer space, in real-time with other tourists (Xu et al., 2022). Apart from that, tourists can also go swimming and build sandcastles together on the Decentraland virtual beach. Besides sightseeing, visitors can participate in virtual educational seminars and workshops on various topics.

There is also an application called Telkomverse, created and operated by the Indonesian telecommunications company, Telkom. Telkomverse creates a digital world where tourists can interact and participate in community events and activities. In addition, the Telkomverse virtual world offers various features and services, including games, entertainment, social networking, shopping, and education (Syahputra, 2022). The examples can be seen in Figure 7.

(a) Screenshot of louvre museum in secondlife (2016)

(b) Screenshot of a virtual world in decentraland (2021)

(c) Screenshot of a virtual concert in telkomverse (2022)

Figure 7. Screenshots of (a) secondlife, (b) decentralland, and (c) telkomverse

Gamification

Another interesting element in metaverse tourism is gamification. It is proven to increase tourist engagement and motivation to explore destinations and experiences virtually. Gamification elements such as badges, points, and prizes can encourage tourists to continue to visit and interact with other tourists to earn prizes and recognition (Lee & Hwang, 2022). In addition, gamification can provide a sense of achievement and progress for tourists after completing challenges and getting prizes.

According to Xu (2013), there are two objectives for implementing gamification in the tourism industry. First, gamification will influence tourists buying behaviors at tourist destinations. Second, it facilitates tourists to create shared values and, in the end, generates intrinsic motivation. This statement is supported by Dwivedi et al. (2022), who stated that gamification can increase tourists' involvement and motivation to visit new tourist destinations.

An example of applying gamification in the tourism sector is when a tourist destination plans a treasure hunt. This activity allows tourists to explore various areas and collect points, photos, memories, and new experiences (Xu et al., 2017). Thus, such gamification activities can provide a personalized travel experience for tourists and increase the likelihood of repeat visits.

In metaverse tourism, gamification can also be combined with blockchain and Non-Fungible Token (NFT) to develop new virtual economy models (Lee & Hwang, 2022). According to Wang et al. (2021), NFT is a digital asset that represents unique asset ownership. It is often used to represent

collectibles, digital arts, cards, and other virtual goods (Belk et al., 2022). This research further explained that prizes in the form of NFT gotten from gamification activities in a tourist destination can be collected and traded with other tourists. This creates new virtual markets and economies, increasing tourists' desire to visit these destinations. Therefore, gamification makes traveling no longer just for leisure or esteem but also for economic motivation.

Metaverse Business Implications

The emergence of the metaverse is a breath of fresh air for businesses, specifically in the fields of game development, marketing, education, and smart city. This technology provides a new business platform to create immersive experiences for customers. This can make products, services, and promotional activities attractive and personal. The metaverse also removes the physical barriers limiting businesses from operating in certain geographic locations (Mark Hawkins, 2022). In short, the metaverse allows businesses to reach the global market. This technology presents opportunities for businesses to create new revenue streams through the sale of virtual goods and services (Zaman et al., 2022). For example, a vehicle business owner can create a virtual showroom, allowing customers to test the vehicle virtually. Apart from vehicle business owners, the metaverse can also assist marketing companies in gathering data and insights widely (Akour et al., 2022; Arpaci et al., 2022). By looking at customer interactions across the metaverse, companies can gain valuable insights about preferences, which will increase the effectiveness of marketing efforts and product offerings (Kovacova et al., 2022).

Businesses can also make use of the metaverse for the potential to be a major new market platform, with virtual goods and experiences becoming valuable commodities. As such, it is crucial to create new economic models that consider the metaverse's unique characteristics, such as virtual goods and services, the ownership of digital assets, and the transfer of value (Barrera & Shah, 2023). One key economic model explored in the metaverse is token economics. Tokens are digital assets that represent ownership or value in a virtual world. They can be used to purchase virtual goods and services and traded between users (Tomás, 2022). This creates a new market for virtual goods and experiences, with tokens acting as a currency for these transactions. Token economics also allows decentralized virtual economies, where users can own and trade virtual assets without intermediaries.

Another usage of the metaverse is in the education industry. With the ability to create interactive learning environments, the technology is able to increase student engagement. It also allows access to more inclusive education for students from various regions and backgrounds to come together and learn from one another, leading to increased cultural understanding and collaboration.

The emergence of the metaverse presents challenges and opportunities for businesses in various industries. Organizations must adapt and take advantage of the unique capabilities of the metaverse for increased profit, growth, and social impact in the future.

Immersive Gaming Experience

The gaming industry is a perfect embodiment of the metaverse (Risco et al., 2022; Dwivedi et al., 2022; Kemec, 2022). Most of the elements in the metaverse come from role-playing games (RPG) and massively multiplayer online (MMO) games. They provide a creative platform, and both game genres embody examples of how to create exciting content and interactions. Even the first versions of the metaverse materialized in games like Roblox and Fortnite (Lim et al., 2022). In both games, users can fully immerse themselves in the virtual world and interact with other users in real-time.

Even though the game industry already has many elements in the metaverse, this technology still modifies a few things. One of them is how games are developed. Games are designed to be played on one platform only, but in the metaverse, games can be accessed and played on multiple devices (Bibri et al., 2022; Ning et al., 2021). This could lead to a shift in business models and new revenue streams for game developers and publishers. The metaverse can also provide opportunities for collaboration and partnerships with competitors in the gaming industry. A game developer, for example, can collaborate with other developers to create games that provide immersive and interactive experiences across all devices.

The application of the metaverse to the gaming industry can be seen in Roblox. This game allows users to create virtual worlds and different experiences on their platforms. Roblox also allows users to make item transactions that can be used on their avatars (Gadekallu et al., 2022; Hawkins, 2022). That is why Roblox offers not only a gaming experience and social activities but also business activities among its users. Roblox developers make traded items, and well-known brands such as Gucci and Nike also make and sell their virtual items on Roblox. Virtual items such as clothing and accessories from Nike can be found in the avatar shop in Roblox (Figure 8a). Users can use and customize these items with their avatars.

a) Screenshot of Nike sale virtual item on roblox (2021)

(b) Screeenshot Travis Scott concert in fortnite (2020)

Figure 8. Screenshots of (a) roblox, and (b) fortnite

Apart from Roblox, Fortnite has also implemented metaverse elements on its platform. The implementation can be seen from user activities to interact and be involved in various actions, such as building, looking for resources, and watching concerts. Besides, in April 2020, the famous rapper Travis Scott performed a virtual concert in Fortnite. The concert featured interactive elements such as challenges and rewards for users attending the event (Figure 8). Travis Scott's concert on Fortnite was a success, with 12.3 million users attending it from around the world (Buhalis & Karatay, 2022; Dwivedi et al., 2022; Lee & Kim, 2022).

The New Wave of Marketing

The new wave of the marketing industry is marked by a shift towards more personalized and targeted strategies. One way is to use technology to collect data that better understand consumers. The metaverse is one of the things that can improve the performance of marketing companies in analyzing consumer behavior and preferences in real-time (Adams, 2022; Kraus et al., 2022; Kovacova & Machova, 2022). The focus of using the metaverse is to create experiences that can be personalized and relevant as well as engaging for consumers, not merely conveying general messages.

Shen et al. (2021) explained that the use of the metaverse in promotional activities can increase consumer interaction and sales. This statement is supported by Zaman et al. (2022), who stated that

the metaverse could create a more personalized experience, and the data obtained by marketers can be used to track and measure the success of a company's marketing strategy.

VR and AR, two metaverse technology, are widely used in marketing to create interactive brand experiences. The technologies allow consumers to virtually interact with the products and services being promoted. In addition, the metaverse can also be used for virtual conference events, allowing companies to connect with consumers and partners from around the world (Pratisto et al., 2022). This can provide a more convenient alternative for marketing companies with global consumers and partners worldwide.

One of many examples of applying the metaverse in the marketing industry can be seen in the promotional agenda of real estate agents. They offer potential buyers a virtual tour of the house and provide many furniture selections (Nalbant & Uyanik, 2021). Besides, car maker Hyundai has also started experimenting by providing a virtual test drive for consumers who are interested in buying a car (Lim et al., 2022). It can be seen that applying the metaverse as a marketing tool can provide convenience for consumers and is also cost-effective compared to making activities in real.

Challenges Ahead

Numerous sectors have started to take advantage of the metaverse in their organizational activities; however, the technology implementation still poses several challenges. Creating a fully immersive and interactive metaverse, for instance, requires advanced technology yet to be developed (Wang et al., 2022; M. Xu et al., 2022) as no technology allows integration between VR and AR. In addition, the uneven network connectivity in several developing countries also reduces the level of immersive and interactive experiences from the metaverse (Oh et al., 2023). Therefore, according to this research, companies that develop metaverse platforms must be able to create and develop technologies that enable the full and equitable implementation of virtual worlds throughout the world.

The metaverse also carries questions about privacy, ownership, and regulation. Some parties have concerns about the potential for misuse of personal data by irresponsible parties (Bibri & Allam, 2022; Gadekallu et al., 2022; Y. Wang et al., 2022). User privacy is one of the challenges that many prospective users are worried about. Meta (Facebook), the largest metaverse developer company, previously also experienced problems with personal data, thereby reducing consumer trust in the metaverse.

This research highlights that sensitive data such as financial information, location data, or biometric data are the most vulnerable to abuse. This is due to the lack of clear regulations and standards for data protection in the metaverse, causing much abuse of user privacy. Therefore, organizations developing the metaverse must be able to define new governance structures and processes to ensure a fair and stable virtual environment.

Privacy Concern

One of the concerns regarding privacy in the metaverse is the potential for tracking and surveillance. The increased use of VR and AR technologies has led to a growing concern about the ability of companies and governments to track and monitor individuals across the metaverse (Zaheer et al., 2022; Bibri & Allam, 2022; Dwivedi et al., 2022). This potentially leads to a loss of individual privacy and autonomy.

Another important aspect of privacy in the metaverse is the potential for identity theft and fraud. As users increasingly engage in financial transactions and other sensitive activities, they are susceptible to becoming targets for hackers and other criminals. To protect users against this threat,

metaverse platform developers must create systems that can secure virtual identities and user data (Gadekallu et al., 2022; Y Wang et al., 2022).

Privacy concerns in the metaverse are complex issues and require ongoing attention and dialogue (Wang et al., 2022). Taking steps to maintain personal privacy can help ensure that the metaverse can be a safe space for all users.

Ethics

Ethical issues in the metaverse involve various problems, including consent, fairness, and responsibility (Mystakidis, 2022). Users can create and manipulate virtual environments and experiences within the metaverse, which may lead to real-world consequences. Developers of the metaverse platform, therefore, need to pay attention to the potential consequences to provide the proper mechanisms, accountability, and oversight.

Users are also concerned about the potential for discrimination and bias in the metaverse. Those who are part of marginalized communities, for example, are probably more vulnerable to discrimination and harassment in the metaverse (Kye et al., 2021; Lim et al., 2022; Ning et al., 2021b). To address this issue, developers must develop policies and practices that promote inclusivity and diversity.

Fairness is another ethical consideration as some individuals have more access to resources and opportunities than others (Allam et al., 2022; Bibri & Allam, 2022). Metaverse developers, therefore, must provide equal opportunity and access to all individuals, regardless of their background or circumstances.

The last aspect is addiction, which also becomes a potential ethical problem in using the metaverse. If users use the metaverse for a long time, this can cause a disconnect from reality and negatively affect mental health (Lee et al., 2021). It can also create addiction and dependence on cyberspace.

CONCLUSION

The results of this review indicate that the metaverse has implications for revolutionizing the tourism and business sector by providing immersive and interactive experiences. The main implication dimensions are illustrated in Figure 9. The metaverse utilizes technologies such as Virtual Reality and Augmented Reality, allowing tourists to visit and explore the world virtually. These can range from famous tourist destinations and museums to outer space. Metaverse tourism also offers visitors to experience the world in a more personal and interactive way than traditional tourism. Additionally, the technology offers more accessibility and affordability as users can visit virtual destinations from their homes.

Gamification elements can be an effective strategy to enhance the travel experience in metaverse tourism. Incorporating game elements into tourism activities, such as badges, challenges, competitions, and awards, can increase tourist motivation. Apart from that, gamification can also provide valuable data and insights for tourism companies to improve their services and offerings. It can be combined with non-fungible token (NFT) technology to create new tourism economic models. This research affirms that by combining NFT technology and gamification elements, traveling is no longer just about fulfilling leisure or esteem but can also foster economic motivation for tourists.

In the business field, the metaverse offers opportunities to create new revenue streams and business models. Business actors can create virtual products and services to be purchased and used across the metaverse. Business organizations may also charge customers for access to premium

virtual experiences. This can help them generate additional revenue and increase profitability. In addition, the metaverse also allows businesses to access new markets and customer segments globally. By creating a virtual environment that can be accessed from anywhere worldwide, businesses can reach new customers and expand their customer base. This can help a business increase its market share.

However, there are also challenges and limitations to implementing the metaverse. One of the main issues is the potential lack of regulation and oversight, leading to concerns about privacy and security. There are also ethical issues, such as inclusivity since not everyone has access to the technology and equipment needed to experience the metaverse. In addition, there are concerns about the potential misuse of personal information and the potential for individuals to be exploited in virtual environments. Therefore, metaverse developers must establish clear guidelines and safeguards to address these issues.

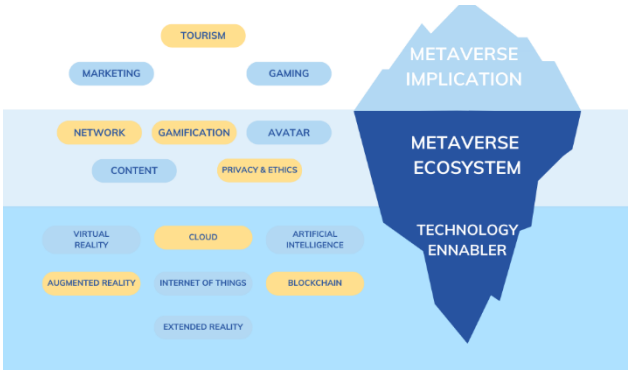

Figure 9. Technology enabler, ecosystem, and implication from the metaverse (development from Lee et al. (2021))

MANAGERIAL IMPLICATION

The results of this study are expected to guide future research and inform practitioners in tourism and business, particularly on how to use and obtain benefits from the metaverse. For tourism, there will be a need for companies and organizations to manage and oversee the virtual tourism industry. This involves developing and maintaining virtual destinations, organizing virtual events and experiences, and ensuring that the metaverse is a safe and enjoyable environment for tourists. One major opportunity for the tourism industry is the ability to offer virtual reality experiences for travelers. This could include virtual tours of destinations, immersive experiences of historical events or cultural festivals, and even virtual vacations to exotic locations. These experiences can be accessed from anywhere with a VR headset, allowing travelers to have a taste of a destination without being physically present. This can be especially appealing for those who may not have the means or ability to travel due to financial or health reasons. However, with these opportunities come challenges and considerations for managers. One major challenge is the potential for competition from other virtual reality experiences and destinations. Thus, it is important for managers to ensure that their virtual offerings are unique and immersive to stand out in a crowded market.

For businesses, one of the primary considerations when entering the metaverse is how to monetize their presence. This paper highlights a variety of methods to monetize, including selling virtual goods and services, offering premium memberships, and hosting events or sponsorships. However, it is important to balance monetization and providing value as well as maintaining

customer satisfaction. Another consideration for business management is the need for effective virtual management and communication. As employees and customers may be located anywhere in the world, it is important to have clear guidelines and protocols for communication and collaboration. This may involve implementing virtual project management tools and establishing virtual office hours. Finally, businesses must consider the cultural differences and diversity of their virtual workforce and customer base. It is important to create an inclusive and welcoming environment for all stakeholders. This may involve providing language translation services, offering cultural sensitivity training, and actively promoting diversity and inclusion. Overall, the metaverse presents a unique and exciting opportunity for businesses to engage with customers and employees in a virtual setting, but it is important to carefully consider the managerial implications and take steps to effectively navigate the challenges and opportunities presented by this rapidly growing industry.

LIMITATIONS AND FUTURE RESEARCH

This study provides recommendations for future research. It is suggested to look at the potential of metaverse applications and investigate how practitioners from many industries adopt this technology into their activities. Although there has not been any comprehensive research framework that creates an empirical research model yet, further research can start with qualitative methods to look for meaning and findings regarding consumers' and practitioners' motivation to adopt and use metaverse, AR, and VR technologies. There are areas for improvement in this literature review study, namely the scope of selecting specific literature review articles and the only two research questions. Therefore, further literature review research can also broaden the scope of selecting articles in other reputable journal databases, such as Wiley and Springer, to complement the previous literature review research on the metaverse implication and application.

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