Embracing Metaverse towards Sustainable Tourism in Oman

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Abstract

The metaverse, a digital environment linking augmented and virtual reality technologies, is an evolving tool for transformation across industries. This conceptual paper explores the potential of a metaverse in revolutionizing Oman's tourism landscape. Leveraging metaverse in tourism sector can help Oman in achieving its sustainable development goals. This paper discusses the role of a metaverse in designing inclusive and innovative tourism experiences while addressing the challenges of resource management, cultural conservation, and over-tourism. This paper is developed by reviewing a wealth of relevant literature to explore the implications of metaverse on sustainable tourism in Oman. It is an attempt to make Oman's rich heritage, culture and natural beauty accessible to global travellers and strengthen Oman's potential to market its tourism attractions to global tourists. The paper proposes suggestions to policy makers on the strategic initiatives with regard to integrating metaverse-driven solutions in Oman's tourism industry for achieving the goals of social and economic sustainability aligned with its Vision 2040.

Keywords: *Augmented Reality, Metaverse, Sustainable Tourism, Virtual Reality, Vision 2040, Etc.*

Introduction

Tourism sector contributing less than 3% towards Oman's GDP [1]. Through its recent expansion of tourism, the country is aiming to triple tourism contribution to GDP by 2040 i.e. from <3% to 9% [2]. For prudent planning and development of tourism in Oman, the Ministry of Tourism was instituted in 2004 and was retitled as Ministry of Heritage and Tourism (MoHT) in 2020 [7]. The government of Oman eyes tourism as a mechanism for generating new jobs, attracting visitors; and developing other tourism related businesses [3]. Tourism is viewed as the right means of generating revenue and increasing long-term employment so that it can reduce its dependency on oil and gas in the long run [4].

As Oman tourism strategy emphasizes on sustainability and not quantity, the focus is on targeting the luxury market as compared to the masses [2]. The statistics on tourist visits in Oman does not reflect huge numbers. The number of visitors to Oman in 2005 is a meagre count of one million. Oman hosted about three million tourists in 2022 [5] and little more than 3 million visited Oman in 2023. The focus of Oman's tourism projects at present are premium quality resorts aimed at attracting the affluent guests [6] as against the tourism destinations of other Gulf countries. Oman is committed to protect the nation's invaluable traditions, rich culture and heritage from serious dilutions that over tourism might result [7]. Oman is thoughtful about significantly mounting its tourism sector as a part of its economic diversification efforts. In a recent development Oman's MoHT proposes to invest $ 5.9 billion for promoting tourism as per the national tourism strategy 2040. The under-secretary of the MoHT, Mr. Azzan Al Busaidy, disclosed that Oman is formulating plans to promote tourism-friendly legal framework and pumping investments into development of tourism infrastructure, promoting tourism attractions, creating specialised investment zones for fostering tourism growth, etc. [8].

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The stakeholder's of Oman's tourism include distinct array of groups including government entities, private sector investors, and local communities. Stakeholder's participation is key component of Oman's strategic initiative of sustainable tourism development.

Technology plays a dominant role in tourism development. This needs stakeholders to play a key role as their participation is needed for tourism development with regard to application of advanced technologies in fostering tourism [9]. Tourists dependence on the needed information is pivotal in choosing their next tourist destination. Technology can be widely deployed with regard to providing information on popular tourism destinations, exhibiting tourism attractions, and designing tourism activities, etc. Technology can also serve as a source of disseminating information related to tourism attractions, through multiple channels to a wider audience to increase tourist footfalls in Oman.

Conceptual Background

Neal Stphenson, an American writer, first coined the term 'metaverse' in his science fiction novel titled "Snowcrash", in 1992. According to him, the meaning of "meta" and "verse" means beyond and universe respectively. It is a virtual space dissimilar to the real world. Metaverse makes an attempt to create virtual replica of real society using innovative technology. These technological developments push the on-going business rules of human life, customs, and regulations aside and makes a significant difference in economic and social life of people. It is difficult to conclude whether Metaverse is a place or a technology. It is the revolutionary evolution in human/computer interface; it created a parallel reality to real world phenomena which perhaps can be described as seamless, pervasive, immersive, touchable, and simulated [18].

The layers of metaverse includes human-interface, Infrastructure, spatial computing, decentralization, discovery, creative economy, and experiences. Infrastructure guarantees integrity of simulated structure and the human-interface facilitates interactions. Decentralization dispenses authority fairly. Realistic environments are ensured by Spatial computing and the creative economy creates worth. The discovery level advances usage and the experience layer offers better learning. Metaverse's development and operation are driven by these seven layers [11].

The metaverse is a seamless integration of physical and simulated worlds which gives rise to 'phygital' experience. This digital environment combines virtual realities like VR, block chains, and gaming and it allow users to interact virtually across many platforms. It encourages social connections and builds a digital identity in a network of virtual worlds. It is estimated that the metaverse's potential contribution to GCC economies could be around US$ 15 billion by 2030, more growth may be possible throughout the rest of the Middle East. Metaverse elements and applications are developing rapidly. Metaverse is expected to contribute around US $3.2. billion to tourism by 2030 [10].

Marketing, education, tourism, and healthcare are few among the host of industries which are being highly influenced by the evolution of metaverse in near future [11]. In post pandemic era, metaverse gained popularity as it increased convenience for interaction and substantially influenced daily lives of many people across the globe, thereby brought a change in lifestyle of different people.

In the present time, digital transformation is imprinting its influence on all walks of life, of which metaverse tourism is the most happening innovation in tourism and hospitality industries across the globe. Immersive, eco-friendly hotel and tourism experiences is now possible with the help of metaverse, and it has got huge potential in reshaping people's experiences of the world which has no boundaries. UNESCO which seeks to create outstanding value to humanity through identification and preservation of cultural and heritage of the world is partnering with technology companies to develop metaverse podiums to reconstruct and endorse cultural & heritage sites across the globe. This helps UNESCO in achieving its mission [12].

China's Zhangjiajie combined the simulated interface with tourism through the "Zhangjiajie Planet". A group of researchers at Japan's Kyoto University created "Terraverse" for simulated tourism experiences, such as visits to temples, and prayer platforms. In South Korea Incheoncraft offers simulated travel experiences using the Incheon Edition of Minecraft. Engaging in different tourism activities requires

interested people to spend huge amounts of time, money and has to face numerous constraints in exploring their favourite destinations, these things may not be accessible in the real world. But, metaverse facilitates users with an array of opportunities, not only in exploring tourist destinations, but also to understand different cultures too [13].

Surprisingly, metaverse encourages hypocritical tourism as it encourages guests to physically visit their favourite tourist destinations as they get inspired by the metaverse tourism activities. Otherwise, for physical visitors, it creates an opportunity to re-experience their joy by engaging in metaverse tourism. The metaverse tourism is gaining widespread attention world over. Jafar et al. [14] studied the impression of simulated tourism involvement on cognitive perceptions of tourists. Zhang et al. [15], studied the factors that affect the participation of Gen Y and Gen Z in metaverse tourism with inclination on theory of self-determination and planned behaviour theory. Mandal et al. [16] employed the Technology Acceptance Model to identify the key factors that influence Gen Z participants' gratification with metaverse tourism as well as its effects on their word of mouth intentions. The results of these studies disclose a significant influence of metaverse tourism on the participants' intentions to visit their favourite tourism destinations.

Metaverse Tourism

The metaverse has touched the business transformation of various industries. It played a crucial role in sectors like tourism and hospitality, where activities like museum visits, participating in concerts and meetings, exploring tourist fascinations, etc. is possible to deliver using metaverse systems. This is dissimilar to the real-world tourism experiences, that needs huge planning alongside travelling, spending time, energy, and money. Tourism blended with virtual reality can to a certain extent replace physical tourism, offering tourists an inclusive tourism experience and educates them about the law of the land that they are planning to visit [17]. Lee et al. [13] opined that simulated tourism would resolve the precincts of space and time, thereby appealing to guests with a unique, appropriate, and extremely interactive virtual travel experience. This can be the ground to inspire guest to visit Oman with complete information regarding the do's and don'ts of the land.

The impact of the Metaverse on tourism can broadly be classified as four broad spectrums such as tourist needs, destination, ecosystem, and escapism [17].

Tourist Needs

Metaverse creates an innovative space for enhancing and diversifying the customer experience. It can revolutionise communication, collaboration, and socialisation, create path for co-creation of value for stakeholders [17]. The Metaverse's is expected to meet varied tourist needs. However, strategic nourishment of tourist needs is to be harnessed by various stake holders.

Destination

The Metaverse includes both reality and virtuality-based simulated worlds, where reality world includes augmenting existing tourist sites with digitally designed objects or people, while the virtuality encompasses a complete virtual reality. The blend of Virtual Reality and Augmented Reality technologies provide a gamut of possibilities for visualising environments. Tourism destinations within the Metaverse can synthesise real and virtual environments, ranging from 3D overlays at real sites [18] to fully immersive, virtual destinations which may be not possible in physical world without presence of Metaverse. Therefore, continues evolution of technical capabilities in the Metaverse offers seamless opportunities in near future.

Ecosystem

The Metaverse is more than a product or service – it is envisioned to reconstruct an ecosystem reflecting real-world relationships, encompassing economic, social, cultural, and political facets [18]. This alignment with the tourism ecosystem opens doors for co-development, where the Metaverse might supplement the

tourist ecosystem or constitute part of a larger virtual or blended ecosystem. To make this happen political and legal structures have to advocate robust metaverse framework.

Escapism

Metaverse represents an escape from reality and the promise of liminal space, free from the constraints of physical space and time [15]. The continuous access to augmented and virtual objects provides an opening for a perpetual tourist experience. This notion creates room for a transition to tourist behaviour within the Metaverse environment, where people can experience destinations without physically being there.

Discussion and Conclusion

Tourism is a commanding tool for attaining sustainable growth of countries across the globe. This can be true with Oman as it is home to rich cultural heritage and diverse landscapes like the courteous coastline, bounteous beaches, magnanimous mountains, delightful desserts, sprawling sand dunes, etc. that can offer the best experiences to the tourists. The metaverse offers a platform for Oman to showcase its rich cultural heritage and natural beauty while promoting sustainability, inclusivity and global outreach.

While metaverse can address the possible challenges of over tourism by offering digital tours of its historical and cultural sites, it can also open up new revenue streams through digital sponsorships and partnerships [10]. Also, the metaverse offers immersive virtual alternatives reducing strain on popular cultural and heritage destinations while educating global audiences to engage with destinations sustainably and responsibly [12] [13] [14] [15].

The convergence of tourism and the Metaverse establishes as an encouraging yet complex relationship. Though virtual worlds cater to diverse tourist needs, it requires a strategic blueprint to transform the identified potentiality into reality. In-spite of having lucrative opportunities which are broad and thrilling in nature, this requires nuanced consideration to balance real-world experiences with virtual attractions [12] [13] [14] [16] [18].

This study underlines the need for developing a national digital tourism policy, investments in technological infrastructure, etc. to stimulate sustainable tourism practices in Oman. The study highlights the importance of a fine blend of governance, ethics, and regulatory framework in managing a complex virtual tourism environment. Lastly, the idea of Metaverse can be a game changer in reshaping Oman's tourism landscape and redefining the potential of Oman's tourism marketing while ensuring cultural and economic benefits.

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