



Metaverse: A Platform for Designers

Idea, Concept, and Potential Opportunity in the Digital Realm

Mohd Izani¹, Fauzan Mustaffa^{2(✉)}, Aishah Razak², and Abdulsamad Alkhalidi³

¹ Higher College of Technology, Sharjah, United Arab Emirates

² Multimedia University, Cyberjaya, Malaysia

fauzan.mustaffa@mmu.edu.my

³ University of Sharjah, Sharjah, United Arab Emirates

Abstract. The introduction of games such as Roblox, Minecraft, and others proves that the metaverse concept has been around for a few decades. Mark Zuckerberg’s recent development has broadened the meaning of the term “metaverse” and drawn more attention. To put it simply, the Metaverse is the internet in three dimensions. However, not everyone understands this simple comparison. As in the early days of the internet, not everyone understands the mechanism, the possibilities, the risks, and the limitations. This study aims to identify potential opportunities that can benefit the design field. Our research investigates the idea and concept of the Metaverse and the features and what the design field can offer in this domain. Design fields like fashion, architecture and advertising are among the potential targets. In this paper, we present the potential of the Metaverse for designers, beginning with a study of critical characteristics and features. The possible opportunity and challenges for the design field is then discussed, and finally, we conclude its future direction.

Keywords: Metaverse · advertising · architecture · fashion · digital realm

1 Introduction

For the past decades, the design field has gone through various changing phases based on the development of technology and devices. We relied on printing technology to promote our products and services a long time ago. Then comes the internet, which has changed various design representation aspects. Social media, for instance, has proven to be a powerful tool for marketing and promoting platforms. Additional technology like augmented and virtual reality opens another dimension in supporting the design field. Our research focuses on architecture, fashion design and advertising as a design platform in Metaverse. It is essential to understand the needs in the virtual world of Metaverse since most of the users are the digital natives of Generation Z and younger millennials [1].

The advancement of technology has resulted in the introduction of more new catch-phrases. The new buzzwords are artificial intelligence, blockchain, decentralisation, augmented reality, NFT, and others. The Metaverse is still a new concept that not everyone understands completely because it evolves and improves daily. According to Sonnen

[2], users “live” inside a digital realm in the Metaverse, which combines numerous technology components such as virtual reality, augmented reality, and video. Mystakidis [3] added that the Metaverse is a post-reality universe, a continuous and persistent multiuser environment that combines physical and digital virtual reality. The primary distinction between the Metaverse and the internet as a virtual platform is that the Metaverse employs a 3D environment as its medium for communication and interaction. Motivated by Gonzalez-Franco [4], who states, “For the Metaverse to become a reality, we not only need better adoption of devices and good networking tools. We also must understand how people will be represented and interact with each other and the objects in the Metaverse”. In addition, the introduction of Metahuman by Epic Games on February 11 2021, has given a new dimension to creating a unique photorealistic synthetic person, wholly rigged and complete with hair and clothing, in minutes. This application enables game developers and designers to collaborate on creative projects. From this, we may conclude that the function of design in fields such as fashion, accessories, and grooming are crucial factors in both artificial and real life [5]. Decentraland is an example of where designers are needed to support its activities in other circumstances. Decentraland is a virtual reality metaverse powered by the Ethereum blockchain. It is a place where individuals may develop, interact with, and monetise their content and applications.

It enables users to own digital real estate, and many individuals are beginning to buy and hold this digital commodity. This allows the designers to provide their architectural design expertise [6]. One does not need to be a professional architect to construct and design a digital structure. The same goes for Facebook’s Horizon idea, where it is a platform that offers space and room for meeting places. Owning a property in the digital world also requires the basic needs for aesthetical factors, including attraction and interaction features [7]. We see the potential and role of design are essential to enhance and support the metaverse activity. The need for innovation in metaverse activity is critical and we believe there is a demand for this. Based on Maslow’s hierarchy of needs, he stated that self-actualisation is the ability to become the best version of oneself. Maslow [8, 9] said, “This tendency might be phrased as the desire to become more and more what one is, to become everything that one is capable of becoming.” We believe in the digital realm; the same rules apply where people always want to be outstanding, own property, and be known and respected by others.

To be in the Metaverse, one needs to have an avatar to represent him/herself in the virtual world. Avatar has been used to represent digital humans in digital space for decades. According to Klevjer [11] “An avatar is a personalised graphical illustration that represents a computer user, or a character or alters ego that represents that user.” In the Metaverse, an avatar imitates a person’s personality in both the physical and virtual worlds. Users can present their avatars with various options such as accessories, colours, dressing and hairstyles, etc. The distinction is that in the Metaverse, developers can create more appealing appearances that are enhanced with visual effects such as particles and dynamism that come with their dress appearance. This study aims to identify potential opportunities that can benefit the design field. Our research investigates the idea and concept of the Metaverse. What are the features, and how the design field can play a role in this domain?

2 Literature Study

2.1 Key Characteristics of the Metaverse

Referring to the article by Matthew [10], who outlined the key characteristics of the Metaverse below.

Always active. Metaverses do not pause when you leave them, nor do they end. They continue indefinitely.

Exists in real-time. The Metaverse has a timeline that synchronises with real-world timing.

Players have individual agency. Players can be doing different activities at the same time. One could just be standing still in the corner while others are interacting.

Self-contained and fully functioning universe. The Metaverse is a fully functioning universe that allows users to create, own, sell, and invest. Users can also be recognised and rewarded for their labour in the Metaverse.

A mix of different platforms. Different platforms can work together in the Metaverse. For example, in the case of video games, you should be able to bring items from one game to another.

User-generated content. Metaverses are more than just virtual spaces for users to hang out. Users can create content that other users can also enjoy.

2.2 The Elements

According to Gartner, technology research and consulting company, Metaverse has several elements, as illustrated in Fig. 1.

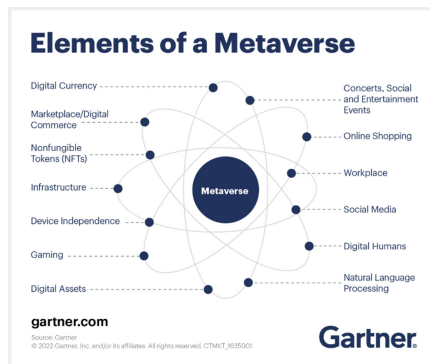


Fig. 1. Elements of a metaverse (Source: Gartner)

2.3 Equipment and Requirements

To utilise the application in the Metaverse, we have few options for the equipment. Standard navigation may be accessible by tablet, phone, and computer. Still, for more immersive experiences such as virtual reality, we require head-mounted displays such as Oculus, HCT Vive, Hololens, and others. According to Cai, Llorca [11], there are three basic requirements for the Metaverse as listed below:

Computation requirements: The integration of real and digital worlds into rich multimedia immersive experiences - a process with significant computing demand is essential to Metaverse applications.

Storage requirements. The growth of digital assets (spaces, qualities, value, and so on) is overwhelming the Metaverse. Digital assets, such as VR streaming, 3D rendering, 3D models, and high-quality video with 8K resolution, are essential building blocks for creating immersive experiences based on real-time interactions. These need a lot of computational power and a lot of storage.

Communication requirements: Interaction and communication among users in the virtual world are one of the most critical aspects of the Metaverse. This requires the real-time collection of many live streams and digital assets. With the introduction of wearable devices, sensors will continuously collect from the physical world to the Metaverse.

2.4 Applications

Like the internet applications, Metaverse has similar applications; the only difference is how we utilise it via virtual reality/augmented reality means. The core backbone of the Metaverse is to understand this technology: virtual, augmented, mixed, and extended reality. All of this technology can be used interchangeably in the Metaverse.

Virtual reality: Augmented Reality (AR) is a technology that bridges the gap between the digital and physical worlds. It recognises real-world surfaces and objects using computer vision technologies such as object recognition, plane detection, facial recognition, and movement tracking [12].

Augmented reality: AR is defined by three major characteristics [12, 13]: 1. Simultaneous representation of real and virtual objects in a real-world environment. 2. Interactions take place in real-time. 3. Alignment of physical and virtual objects (also known as geometrical registration).

Mixed reality: Costanza, Kunz [14] defines Mixed Reality (MR) as a hybrid of augmented reality and virtual reality, also known as Hybrid Reality, combining real-world and digital elements. Virtual reality served as a conceptual and historical foundation for MR (VR). VR systems are computer systems that immerse users in a virtual computer-generated environment.

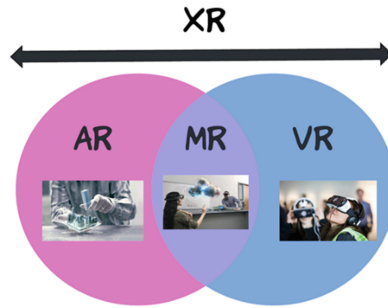


Fig. 2. Extended reality and others

Extended reality: Display and computing advancements have resulted in new devices capable of superimposing digital information on the physical world or incorporating aspects of the physical world into virtual scenes. These digital and physical environments hybrids are known as extended realities [12, 15]. Extended reality (XR) is a new collective term for all immersive technology (Fig. 2).

3 Methodology

The methodology entails a study of critical characteristics and features of the Metaverse. Followed by an investigation of the opportunities and problems encountered in this area. We chose three potential development applications: architecture, advertising, and fashion, to illustrate how the Metaverse might revolutionise and offer up previously imagined opportunities. The data and information gathered were gathered from various sources, including research papers, web articles, and books. As our results, we finally combined all of the acquired data.

4 Potential Developments

4.1 Architecture

Metaverse, like real life, is a real estate marketplace where people may buy their property and own it as a permanent property or resell it. So far, acquiring property in the Metaverse is quite technical due to the use of NFT and cryptocurrencies as payment mechanisms. Treeverse, The Sandbox, and Decentraland are major proprietors in this domain. They created their metaverse real estate ventures, including a university, a retail centre, and islands. From this, we can see the necessity for architectural designers to be involved in designing all of these properties. In truth, constructing an architectural building in the Metaverse is not the same as building one, requiring construction laws, safety protocols, contracts, and permits. One of the interior design groups, Metaverse Interior Design, has begun to recruit designers for the Metaverse, and the concept demonstrates a clear sense of how it works (Fig. 3).



Fig. 3. The idea behind Metaverse Interior Design

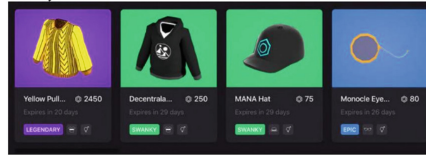


Fig. 4. Wearables for sales as NFT [19]

Our case study shows CitizenM, one of the hotel developers, has revealed intentions to establish a hotel in the Metaverse that will be situated in the game environment The Sandbox and might someday become a real-world site. These are digital parcels of real estate backed by non-fungible tokens (NFTs), on which players may construct self-contained worlds that other users can visit. The fundamental aim is to build a virtual hotel where avatars can “work, sleep, and play.” Another case study is the British design firm Zaha Hadid Architects, which has constructed a “cyber-urban” city in the Metaverse. Individuals may buy plots of land with bitcoin and inhabit digital structures as an avatar. The demand and necessity for this technology will redefine the work of the traditional architect since the architect will be required to develop a physical structure and construct virtual world buildings.

4.2 Fashion

According to fashion psychology, our appearance indicates our attractiveness, status, personality and confidence. The phrase “you are what you wear” compares the real and virtual worlds, where people still need to have their style and appearance [16]. In the case of Metaverse, we see a huge potential in exploring fashion styles, clothing, branding and collections. The Metaverse is gaining popularity among major worldwide businesses. The real breakthrough for Metaverse is projected to occur when the next layer of companies, regional and local brands, begin to penetrate the Metaverse [17]. Fashion company like Nike has started a collaboration with Roblox, which is, according to the Nike–Roblox case study, the most essential and visible “building blocks” to Nike-land visitors (customers) in the Nike–Roblox partnership are virtual platforms, content services, consumer and business behaviour. In addition, Lee and Kwon [18] discuss how the metaverse world identifies the needs of consumers in the cosmetic industry. Cosmetics can relate their application on avatars and skins, and there is no limit to mixing between natural cosmetics and virtual cosmetic promotion. Figure 4 shows some of the wearables for sales in Decentraland.

Fashion and apparel in the Metaverse include numerous components similar to those seen in real life, such as jewellery, shoes, haircuts, and so on. In the game world, this is known as skin. The need to change styles in the Metaverse is comparable to the need to change styles in the actual world. For example, in the Second Life game, players may modify their look by utilising appearance tools. There will be a competition in the design of skins. Good-looking and designer brands are expensive, often costing more than \$1000. And the demands for different skins and the varied collections of skins result in a thriving and very profitable market [20].

4.3 Advertising

The rapid changes in technology have revealed some previously unimaginable innovations. The Metaverse is one example of a platform with multiple spaces shared via the internet and VR/AR devices. We can communicate with each other for various purposes, such as purchasing goods or assets. The growth of AR/VR users in this area is very promising, as predicted by E-marketer in Fig. 5.

Looking at this trend, we can see the enormous potential of advertising. Various events have happened in the past years, including virtual concerts [21], which are attended by thousands of audiences. The opportunity to place advertisement is very promising. Glaveski [22] states that there are few ways we can advertise in the Metaverse as below:

Advertisement placement

VR billboards are the most often utilised advertisement placement since they can be easily integrated into virtual reality. Commercial placements have been employed in games and virtual settings like parks, malls, and cafes for many years, with promising results. In virtual environments such as Decentraland, we may observe virtual advertisements while wandering around the park or going to the mall, as seen in Fig. 6.

Product placement

Product or object placement is a concept that mimics real-world product placement by allowing businesses to integrate their products in the Metaverse. The Nike–Roblox case

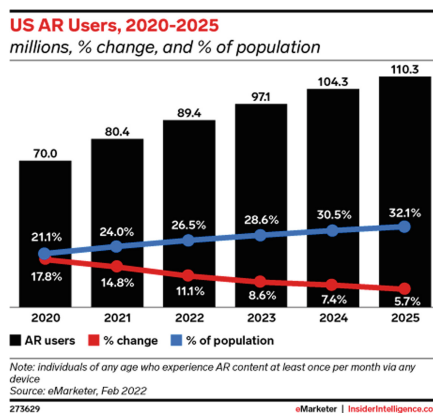


Fig. 5. US AR users, 2020–2025 (Source: eMarketer)

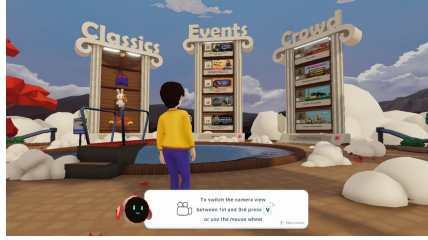


Fig. 6. A screenshot from Decentraland



Fig. 7. A screenshot from the Roblox game shows Nerf Gun promotion

study demonstrates that the most essential and visible “building blocks” to Nikeland visitors (customers) in the Nike–Roblox partnership are virtual platforms, content offerings, and consumer and business behaviour [23]. In addition, Hasbro has collaborated with Roblox to bring Nerf guns to life in the virtual world [24]. With further development, we can add additional features that will allow you to purchase this item online. Figure 7 shows Nerf gun in the Roblox game. This shows that the Metaverse is getting popular among major worldwide businesses. This opportunity opens a new collaboration between major companies like Netflix, Marvel Studios and others to advertise on this platform.

Experience placement

Big key players in designers’ brands have a good opportunity to promote their products like what Gucci did in the Metaverse with the integration of using real money to purchase.

Sponsored content in social spaces

Sponsored material will be the next to go. Our social media feed is a mix of organic and paid material, which may be duplicated in VR environments designed for multi-party interactions. Rather than watching material on your alone, you may share ad experiences with your peer network.

Digital human influencer

The Metaverse may include an intriguing new technology known as digital humans, AI-powered humanoid bots in 3D. In the future, businesses may be able to create their influencers from scratch, transforming how advertisements are distributed through influencer marketing.

5 Conclusion

The Metaverse is increasingly attracting the attention of developers, users, and industry practitioners. And the number of consumers populating the Metaverse is growing exponentially. This paper examines the Metaverse's potential for designers, beginning with evaluating key characteristics and features. For analysis, we focus on the three potential fields: fashion, architecture, and advertising. To understand the Metaverse, we investigate the key characteristics and features and the metaverse applications. Through NFT and cryptocurrency, the potential for owning digital property in architecture is very high. This opens up a new opportunity for designing digital buildings and interior architecture. Fashion design in the Metaverse has many features that reflect the owner's status and personality. Owning exclusive skins is a goal for some gamers in the gaming industry. Some world-class brands have begun to use this opportunity to promote their products.

Finally, advertising is the foundation of social media and digital life, with numerous advertisement placement options. The pattern demonstrates that the Metaverse has a significant potential to shape the future, particularly in virtual activities such as advertising, fashion, and architecture. The advancement and demand in this domain are comparable to replicating a new world with a unique opportunity.

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