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Exploring the Potential of the Metaverse for Value Creation: An Analysis of Opportunities, Challenges, and Societal Impact, with a Focus on the Chinese Context

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前言

元宇宙是一个虚拟现实空间，用户可以与计算机生成的环境和其他用户进行互动。然而，“元宇宙”这个术语并没有一个统一的科学定义。对于这个术语的意义存在多种解释，但我们可以说元宇宙是一个共享的虚拟环境，人们可以在其中相互交互并与数字对象互动。

通过增强现实（AR）和虚拟现实（VR）技术，用户访问元宇宙，这两项技术使用户能够完全沉浸在元宇宙中，充分利用其潜力。AR 技术允许用户将数字元素叠加到现实世界中，而 VR 则提供了在完全虚拟的环境中获得沉浸式体验的机会。

区块链和非同质化代币（NFT）是元宇宙中使用的两项重要技术，用于实现虚拟资产的所有权和交易。这两项技术都可以确保虚拟对象的真实性和所有权，通过稀缺性和独特性创造价值，为交易提供可追溯性和透明度，并在元宇宙中实现新型数字经济和新的货币化形式。

特别是，区块链技术确保了交易和数字资产的安全性，以及元宇宙中数字财产的完整可追溯性，从而在元宇宙中实现了整体性、透明性和包容性管理。而 NFT 则促进了数字经济的出现，用户可以使用 NFT 作为独占的财产权来购买、销售或交换虚拟物品。这使得元宇宙内的数字资产直接实现了货币化，用户能够从其虚拟资产中获得经济价值。这种技术为用户和企业在新的数字前沿环境中提供了机会。

本研究的目的是探讨作为新兴技术的元宇宙如何实现创造价值以及它可以产生何种价值。通过对相关文献的深入分析，旨在了解元宇宙是否为经济带来了真正的机遇，或者它只是与技术热潮相关的短暂现象。此外，了解元宇宙中价值创造的局限性和挑战，并理解元宇宙中的商业机会在中国的特定背景下是否具有特殊性，以提供有关元宇宙对经济和商业的潜在影响的完整视角。

元宇宙作为一个有潜力改变我们生活各个方面的，有希望的概念，作为在现实世界之上发展起来的虚拟世界，有能力为企业和整个社会创造新的价值。

尽管元宇宙仍处于初步发展阶段，但它使品牌能够创造超越实体购物的体验。元宇宙提供了一个虚拟环境，在这个环境中可以买卖虚拟产品。这些产品可以包括虚拟服装、配饰、设计物品、虚拟体验等等。像 Prada、Louis Vuitton、Tommy Hilfiger 和 Ralph Lauren 这样的品牌正在大量投资元宇宙。

元宇宙提供了拥有、销售或投资虚拟物品的机会，为营销开辟了新的机遇。Gucci、Adidas 等品牌已经采用了这项技术，与消费者建立更深入的互动。对于消费者来说，购买虚拟产品为他们在元宇宙中表达个性和风格带来了机会。非同质化代币（NFT）赋予他们对这些虚拟财产的独占所有权，带来了归属感和地位。此外，通过在二级市场上转售或交换 NFT，创造了在元宇宙中投资和增值的机会。这种动态促进了元宇宙中的互动和参与，充分发挥了这个新数字领域的潜力。

元宇宙还为企业通过广告和赞助活动创造收入提供了机会，利用平台的沉浸和互动性为消费者创造引人入胜且个性化的体验。元宇宙中的广告是互动和引人入胜的，是创造价值的强大工具，能够通过针对特定受众传递定向信息。广告商可以利用用户数据创建个性化和相关的广告活动，提高参与度和转化率。

元宇宙在个体之间建立有意义的连接，具有创造社会价值的潜力。在元宇宙中，用户可以以现实世界无法实现的方式与他人互动。通过使用虚拟现实、增强现实等工具，用户可以相互交流，建立深厚的联系，并参与促进归属感和社区感的合作活动。

元宇宙背景下的款待概念仍处于发展阶段，因为元宇宙本身是一项新兴技术。然而，在这个虚拟环境中，人们对款待如何应用有不同的看法。企业可以提供引人入胜的虚拟体验，如会议、虚拟酒店和餐厅的音乐会。此外，元宇宙给虚拟旅游领域带来了新机会，人们能够探索逼真的虚拟目的地并使用虚拟人物与之互动。虚拟目的地可以提供独特的体验，如虚拟导览、异国风情之旅或数字化的知名旅游景点参观。

除了无数创造价值的机会之外，元宇宙还面临一些挑战。随着元宇宙中互动的增加，涉及安全和隐私的问题也随之出现。企业必须保护用户的个人数据，并防止诈骗或网络攻击等恶意活动。为了负责地和道德地使用数据，企业必须确保获得用户的知情同意，并保护数据免受未经授权的访问或滥用。

此外，在商业领域中使用社交机器人对弱势群体如儿童和老年人存在一定风险。这些由人工智能驱动的机器人可能会模糊真实人际互动和算法生成内容之间的界限，引发不同的伦理和法律问题。尽管使用社交机器人可以改善与客户的互动和销售，但必须谨慎使用这项工具。

此外，元宇宙还必须面对社会学问题。元宇宙的特点之一是缺乏规章和规范，从而带来了一种无政府状态。允许用户创建自己的虚拟形象的元宇宙会让用户产生多重身份并且带来很多无规范的行为，为政策制定者带来新的挑战。因此，个人的道德价值观和指导原则可能会受到动摇，个体可以自由选择任何面具和行为方式，不受社会约束。

总体来说，元宇宙代表了未来改变各行业的潜力，但目前对元宇宙技术的应用还局限于现有商业模式的渐进式演化，这给创造价值带来了挑战和限制。元宇宙的成功将取决于企业创新和适应不断变化的数字环境的能力。元宇宙提供了巨大的机遇，但也需要对其实施和工具的使用进行批判性和谨慎的思考。在元宇宙中运营的企业的伦理和社会责任将对这个新的数字领域是否能够成功至关重要。

中国现在优先考虑在广泛的行业中应用元宇宙技术以提升国家实力，他们已经认识到了元宇宙教育和文化遗产保护方面尤为突出的潜力。区块链、人工智能和 AR/VR 设备正逐渐成为教育中首选的工具。将区块链与教育相结合可以提升各种活动的透明度和效率，降低教育资源共享的成本和时间。虚拟现实和增强现实在教育中的应用对学习成果有积极影响，它可以为创造身沉浸式体验做出贡献，从而使学生和教师能够在混合和协作的教室中进行互动。

元宇宙技术还被应用于推广和保护中国的传统文化和历史文物，它为国家的经济增长做出了贡献。这项技术消除了时间和空间的限制，使参观者能够获得沉浸式和互动式的体验。

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INTRODUCTION

The Metaverse is a term that has gained increasing attention in recent years. Coined by Neal Stephenson in his 1992 novel Snow Crash, the Metaverse refers to a virtual reality space where users can engage with a computer-generated environment and other users in a seemingly real and interactive way. It is essentially a collective virtual shared space that is continuously evolving and expanding, with users interacting through avatars and digital assets. The Metaverse has come a long way since its inception, and its evolution has been shaped by various technological advancements, including blockchain and NFTs. In this thesis, it is firstly explored the history, origin and evolution of the Metaverse. It is also examined how the Metaverse has evolved from the Web 1.0 era to its current state and the role of blockchain and NFTs in it.

The chapter 2 outlines the methodology used in this thesis and discusses the theoretical lenses used to understand the Metaverse, namely the Service Dominant Logic. This theoretical framework provides a way to understand the value creation process and the potential for value creation in the Metaverse.

Chapter 3 of delves deeper into the potential for value creation in the Metaverse, examining the various business opportunities that exist. The chapter considers the potential for advertising in the Metaverse, exploring how businesses can take advantage of this new medium to reach a wider audience and explores the potential for income generation through NFT and virtual product sales. With the rise of blockchain technology and the increasing popularity of NFTs, the Metaverse provides a unique opportunity for creators and businesses to monetize their digital assets in new and exciting ways. The Metaverse provides a platform for social interaction, this ability to connect with others and engage in shared experiences is a powerful motivator for users, and this on a scale that has never been seen before. By creating social spaces and communities

within the Metaverse, businesses can harness the power of social interaction to create value for their users.

However, there are also challenges that must be addressed if the Metaverse is to reach its full potential as a source of value creation. Ethical considerations, such as privacy and security, must be carefully managed, and there is a need for clear regulations and consumer protections to prevent abuse of the system. The chapter also explores the potential for social bots to undermine the authenticity of social interaction in the Metaverse, and the importance of protecting users from these threats.

Indeed, the Metaverse is a global phenomenon, and its implications extend far beyond the Western world. Thus, it is important to explore the Metaverse's implications for the Chinese economy, examining how blockchain technology and the Metaverse are being integrated into education and the preservation of traditional culture and historical heritage in China.

In conclusion, the Metaverse is an emerging digital space that has the potential to revolutionize the way we live, work, and interact with each other. However, as with any new technology, there are numerous challenges and obstacles that must be overcome. The focus of this thesis is to explore the value creation potential of the Metaverse and to identify the barriers and challenges that may impede its success. By examining the various business opportunities and challenges that exist in the Metaverse, this paper aim to shed light on whether or not it can truly create value for its users and stakeholders.

CHAPTER 1

WHAT IS THE METAVERSE?

In contemporary times, the Metaverse and its manifold implications have emerged as a significant topic of discussion. The COVID-19 pandemic, which has had a profound impact on the lives of millions, forcing people to spend more time indoors, increased their reliance on digital platforms and has spurred increased attention on the Metaverse. Notably, during the October 2021 “Facebook Connect” event, Mark Zuckerberg, CEO of Facebook Inc., announced the rebranding of the company to Meta Platform Inc., signifying the company's shift toward the Metaverse. With this event, the term Metaverse experienced a renewed momentum that went strongly beyond the circles of the scientific community from this moment on, the search queries on Google.com of the term Metaverse skyrocketed and have not dropped to the former level since (Ritterbusch, G.D., Teichmann, M.R., 2023). This event will bring a real evolution of the internet we know: the possibilities for the Metaverse are vast, ranging from virtual events and concerts to online shopping experiences, to remote work and education.

On October 28, 2021, Mark Zuckerberg announced in his "Founder's Letter" that Facebook will be changing its name to Meta. This is a change intended to reflect the company's new vision, which is now aimed at developing an entirely new way of connecting with the Metaverse.

> “We are at the beginning of the next chapter for the internet, and it’s the next chapter for our company too (…) The next platform will be even more immersive — an embodied internet where you’re in the experience, not just looking at it. We call this the metaverse, and it will touch every product we build. The defining quality of the metaverse will be a feeling of presence —

> like you are right there with another person or in another place. Feeling truly present with another person is the ultimate dream of social technology. That is why we are focused on building this. (…) In the metaverse, you'll be able to do almost anything you can imagine — get together with friends and family, work, learn, play, shop, create — as well as completely new experiences that don't really fit how we think about computers or phones today (Zuckerberg M. 2021).

These are the first words that CEO Mark Zuckerberg used to present Meta, which shares a new vision of bringing the Metaverse to life, while always maintaining the same mission, that is, to bring people together and help them connect. The Metaverse aims to change deeply the ways in which we approach our daily life, allowing us to share immersive experiences with friends and family, work by teleporting instantly to the office with our own hologram, play, shop, and do things that we could not do in the physical world, all by using different devices such as augmented reality glasses to add digital elements to the physical world, or virtual reality headsets to be completely immersed in the digital world.

When speaking about Metaverse, if we want to understand deeply what is metaverse we first have to look up for its definition. The Metaverse is a "virtual-reality space in which users can interact with an environment generated by computes and with other users (Hornby, A. S.)" although this simple definition it is important to underline that there is a multitude of different understandings about the meanings of the term Metaverse. Consequently, a uniform scientific definition has not yet been found. Definitions differ to date, have continuously evolved historically, and are perceived differently by different stakeholders (Ritterbusch, G.D., Teichmann, M.R., 2023). For instance, Kumar et al. define that Metaverses (here referred to in plural) are initially fully

immersive persistent virtual spaces where user-generated content can be experienced. This differs from a more recent definition by Duan et al. The Metaverse (here referred to in singular) marks the next generation of the Internet, where users can interact with each other and with software applications in a virtual space using avatars. From this, it can be stated that the notion of the Metaverse has changed over time and that the concrete design is moving towards inclusivity, i.e., the creation of perhaps a single large Metaverse with a powerful interaction dimension (Ritterbusch, G.D., Teichmann, M.R., 2023). For the venture capitalist and game analyst Matthew Ball "we should not expect a single, all-illuminating definition of the 'Metaverse'. Especially not at a time in which the Metaverse has only just begun to emerge. Technologically driven transformation is too organic and unpredictable of a process. Furthermore, it's this very messiness that enables and results in such large-scale disruption" (Ball, 2022). The Metaverse is still considered to be in its infancy. As Matthew Ball, stated: ". . . it is too early to know exactly what a 'day in the life' might look and feel like, when the Metaverse arrives" (Ball, 2022). Along these lines, he emphasized the need to focus on the technologies and features comprising the Metaverse. The Metaverse is often described as the next iteration of the internet after the fixed-line internet of the 1990s, the social net of the 2000s, and the mobile internet. It is not a replacement of it, but the extension of them to a ubiquitous, persistent, and immersive digital layer adding to our physical world (Weinberger, M., 2022). The potential of the Metaverse is not limited to the Western world; indeed, it has gained significant traction in China, where digital technologies and virtual experiences have long been part of the culture. Chinese companies such as Tencent and NetEase have been investing heavily in the development of virtual worlds and have already launched platforms that are attracting millions of users. In this context,

the Metaverse represents a significant opportunity for both Western and Chinese companies to collaborate and create new value propositions that cater to the needs of global audiences.

The Metaverse includes both a virtual world and a real world. The virtual world that simulates almost every element of the real world, including personal identity, enterprise identity, the business world, entertainment, social interaction, and one of the most critical features of our real world—feelings (Deloitte, 2022). This is an important starting point for understanding and envisioning the future direction of the Metaverse. The public's current perception of the Metaverse encompasses games, experiences, technologies, and social applications. These are parts of the Metaverse, but the future of the Metaverse is much more than the sum of those parts (Deloitte, 2022). The virtual world created in the Metaverse is an innovative, native virtual world that has all the elements of the real world, but whose elements have no corresponding elements in the real world. People can use their imaginations and creativity to create completely virtual people, objects, and environments. In this Metaverse, there will be new "people" who are not avatars, but people created and who only exist in the virtual world. The real world is an integral part of Metaverse. All elements in the virtual mirror world are facsimiles of elements in the real world. The value of the virtual world is generated by interactions between it and the real world (Deloitte, 2022). In the end, the virtual world and the real world will form a closely converged and interacting world. "From the virtual to the real, the real to the virtual, the virtual in the real, and the real in the virtual like a live action version of the coexistence of robots in the real and virtual worlds seen in *Terminator"* (Deloitte, 2022). Metaverse will transcend both and each of the real and virtual worlds.

1.1 The origin of the Metaverse

The term Metaverse is a blend of two words, “meta” and “verse”. “Meta” means beyond or surpassing, while “verse” refers to the universe (Kadry, A., 2022), and denotes the totality of existence. The idea of a parallel universe, where the virtual world substitutes the real world is not new, it has a long history in literary and cinematic science fiction. This concept was initially introduced by Philip K. Dick in his works such as *The Game-Players of Titan* (1963), *The Zap Gun* (1963) and the short story *We Can Remember It for You Wholesale* (1966), this story crosses eventually developed into the cyberpunk movement[1].

In the 1990s, it was Neal Stephenson who coined the term Metaverse in his novel *Snow Crash* (1992), describing it as a 3D virtual reality, shared over a worldwide fibre-optic network and accessible from public terminals: users enter this universe through avatars; the two levels of the narrative constantly intertwine and overlap (Caliandro C., 2021). *Snow Crash* narrates the story of Hiro, who lives in an oppressive reality that pushes him to seek an escape route, leading him to create a virtual reality from his computer (the metaverse) which he accesses through glasses and headphones connected to the PC.

Stephenson's creation of the neologism was then driven by the inadequacy of existing words, such as “virtual reality”, in conveying the full scope of his vision. As

[1] is a subgenre of science fiction in a dystopian futuristic setting that tends to focus on a “combination of lowlife and high tech” featuring futuristic technological and scientific achievements, such as artificial intelligence and cybernetics, juxtaposed with societal collapse, dystopia or decay. DOI https://en.wikipedia.org/wiki/Cyberpunk#:~:text=The%20origins%20of%20cyberpunk%20are,styles%2C%20techniques%2C%20and%20archetypes.

he explained in an interview with Wired magazine, "I needed a name for a virtual reality shared by thousands of users, all of whom are represented as avatars, and I had a feeling that existing words such as 'cyberspace' and 'virtual reality' were simply too inconvenient to use. So, I decided to coin a new term: metaverse".

The 1990s saw no major "proto-Metaverse" games, but advances continued. That decade, millions of consumers took part in the first isometric 3D virtual worlds, which gave the illusion of three-dimensional space, but only allowed users to move across two axes. Not long after, full 3D virtual worlds emerged. A few games, such as 1994's *Web World* and 1995's *Activeworlds*, also empowered users to collaboratively build a visible virtual space in real time and introduced a number of symbol-based tools to make world-building easier. Notably, *Activeworlds* also had the express purpose of building Stephenson's Metaverse, asking players to not just enjoy its virtual worlds, but to invest in expanding and populating it (Caliandro C., 2021). As the popularity of **Massively Multiplayer Online Games**[2] (MMOGs) grew, so too did the notion of a single, unified Metaverse, a seamless virtual world that could be accessed by anyone, anywhere, at any time. This idea was championed by several futurists, entrepreneurs, and technologists, who saw the Metaverse as the next logical step in the evolution of the internet. They envisioned a future where people could work, socialize, play, and create within this shared virtual space. To that end, a number of companies and organizations have attempted to create their own Metaverse-like platforms.

[2] A massively multiplayer online game (MMOG or more commonly MMO) is an online video game with a large number of players, often hundreds or thousands, on the same server. MMOs can enable players to cooperate and compete with each other on a large scale, and sometimes to interact meaningfully with people around the world. https://en.wikipedia.org/wiki/Massively_multiplayer_online_game

It was with the launch of ***Second Life*** in 2003 that many people began to contemplate the prospect of a parallel existence that would take place in virtual space. In its first year, Second Life attracted over one million regular users, and shortly thereafter, numerous real-world organizations established their own businesses and presences inside the platform. This included for-profit corporations such as Adidas, BBC, as well as non-profits such as the American Cancer Society and Save the Children and even universities, including Harvard, whose law school offered exclusive courses inside Second Life. In 2007, a stock exchange was launched on the platform with the aim of helping Second Life–based companies raise capital using the platform's Linden Dollars currency (Ball, M., 2022).

1.2 The case of Second Life

The most well-known hyperreality was probably the three-dimensional virtual world Second Life (SL), it is an online virtual world electronic environment developed by US based Linden Lab in 2003 and has generated a substantial amount of press coverage (Kaplan, A.M. and Haenlein, M., 2009). Second Life is a Massively Multiplayer Online Role Playing Game[3] (MMORPG) where people have fun and entertainment and play games, its users called "residents" can enter the virtual environment through a downloadable client program in the form of personalized avatars. Avatar's purpose in Second Life is to provide a form of self-presentation within the virtual environment. Second Life provides users with the possibility of constructing an alternative identity

[3] A massively multiplayer online role-playing game is a video game that combines aspects of a role-playing video game and a massively multiplayer online game. As in role-playing games (RPGs), the player assumes the role of a character and takes control over many of that character's actions. MMORPGs are distinguished from single-player or small multi-player online RPGs by the number of players able to interact together, and by the game's persistent world (usually hosted by the game's publisher), which continues to exist and evolve while the player is offline and away from the game.

that can either be a replication of their real life self, an enhanced version with improvements along certain attributes, or a completely different self. Compared to other virtual worlds, users in Second Life face no restrictions regarding the type of self-presentation that can be created, which leads to the situation where avatars can appear in any possible form and surround themselves by any objects of their liking; the sky is the limit (Kaplan, A.M. and Haenlein, M., 2009).

Residents in the form of 3D graphical representation can move from one place to another, communicate with each other, design and create new products and services, sell and buy products and perform a number of social activities. This is a multiuser virtual environment where multiple people could participate in social interaction and business activities (Sharma, G., et al. 2013).

The ability to interact with other users, communicate with them, and engage in shared activities creates a sense of social presence that is critical for establishing and maintaining relationships and building communities in virtual worlds. Social presence is often facilitated through the use of chat rooms, voice and video communication, and avatars. One of the key advantages of virtual social worlds is the ability to conduct business with other users. For example, a company could use Second Life to create a virtual storefront where users can browse and purchase products. The platform could also be used for virtual marketing campaigns, allowing companies to interact with potential customers and gather valuable feedback. Additionally, virtual social worlds offer opportunities for virtual events such as conferences, concerts, and other social gatherings. Everything has a price. The exchange of goods or services takes place via a local currency - the Linden Dollar (L$) - which can be transformed into real dollars ($) based on a quotation subject to fluctuation and also valid in the real world, which is about L$320 per $ (Cremona C., 2007). Second Life has become a tool that cannot be

defined as “game”, there is a lot of non-virtual money in circulation in fact as noted by Carlo Alberto Carnevale Maffè, professor at the Bocconi University: Second Life should not be seen as a replica of the real world but as a wonderful business laboratory, a culture broth for smaller companies. In fact, with relatively few dollars, micro-enterprise prototypes can be set up. It is no coincidence that Second Life is frequented above all by companies and professionals, certainly not by kids (Cremona C., 2007). Second Life has become an interesting and unique business environment for companies of all sizes. Its virtual world offers a wealth of opportunities for businesses to connect with consumers, advertise their products, and even create virtual stores. The flexibility of this platform, coupled with the possibility of conducting business in a virtual environment, has attracted many entrepreneurs and small business owners, as well as major corporations looking for innovative ways to reach consumers. By 2005, some users of Second Life were starting to make enough money to quit their jobs and pursue the game full-time.

Despite its advantages, Second Life has faced challenges in recent years. The platform’s user base has declined, and many major corporations that once had a presence in Second Life have since left. Second Life failed to become a mass-market product because the game has an extremely high learning curve, it suffered from frequent platform meltdowns, due to consistent copyright infringements, and unrealistic expectations. The company's list of registered metaverses includes realities such as Fortnite, Minecraft, and Roblox, mainly aimed at a young audience, and have already proven to be highly sought-after platforms for marketing operations such as the virtual Travis Scott concert on Fortnite, which was attended by 12 million people (Parolisi, E., Mazzone C., 2022). Second Life has certainly not lived up to the expectations that were projected at its launch. From a second life to a niche product, there is a vast gap. But

why has it failed to become what the world thought it could be, when it appears to be the forerunner of the metaverse that Mark Zuckerberg talks about? One of the main reasons for the failure of this platform is that the digital world is constantly evolving, and this fact helps us to emphasize that the environment of fifteen or more years ago, in terms of technology and resources, is not comparable to that of today. At that time, fast web connections were not widespread, and therefore the user experience was not of high quality (Parolisi, E., Mazzone C., 2022).

Thus, Second Life's popularity waned due to technical limitations and competition from other platforms. In recent years, the idea of a metaverse has gained renewed attention as new technologies have made it possible to create more immersive and interconnected virtual worlds. The modern Metaverse is essentially a fully realized virtual world that is interconnected with other virtual worlds and other digital platforms. It's a place where people can live, work, and play in a completely immersive environment. The Metaverse promises to be a much more sophisticated and immersive experience than Second Life ever was. Advancements in virtual reality, augmented reality, and blockchain have made it possible to create more realistic and engaging virtual environments. Companies like Facebook, Microsoft, and Epic Games have all announced plans to build their own versions of the metaverse. It's a new way of experiencing the world that is both more immersive and more connected than anything that has come before it. In fact, while Second Life may not have lived up to its early promise, the concept of the metaverse has continued to evolve and attract new interest and investment. The potential for the metaverse is immense, and it could be a game-changer for the way we interact with digital content and with each other.

1.3 Evolution of virtual world from web 1.0 to Metaverse

The initial metaverse concept has been successfully implemented in the game Second Life, where the players can take on any identity and play any role in the virtual world. Web 3D allows people to take on the role of an avatar in a virtual world and explore, meet other residents, participate in individual and group activities, and so on, just as they would in real life. Often the terms Metaverse and Web 3.0 are mistakenly interchanged and used in the same way. The reason for the confusion may be that they both refer to a future that is not yet reality, or because they both rely on the same technologies. Unfortunately, it is not possible to give a precise definition of what Web 3.0 is since it is constantly evolving, it can be seen as the result of the evolution of the previous Web 1.0 and Web 2.0, aiming at the creation of semantically linked content, seeking to improve the web, making it increasingly connected, engaging and interactive. Web 3.0 is a huge part of the Metaverse, it is the next version of internet.

The first iteration of the web represents the web 1.0, a rudimentary form of the internet devised in 1983, where networks were established for information sharing[4]. Web 1.0, according to Berner-Lee[5], is the "read-only web", it began as an information place for businesses to broadcast their information and only allowed users to search for information and read it through web pages.

Web 2.0 is a *writable phrase* of the world wide web with interactive data. Unlike web 1.0, web 2.0 facilitates interaction between web users and sites- allowing them to interact more freely with each other. It encourages participation, collaboration, and information sharing (Dastikop 2022). Web 3.0 is the next emerging evolution of the internet. Historically, the term Web 3.0 appeared for the first time in 2014, and was

[4] Educational Tech, 2022, Web 3.0 & the Metaverse: The Future of the Internet, https://www.creative-tim.com/blog/educational-tech/web3-metaverse-the-future-of-the-internet/

[5] English computer scientist best known as the inventor of the World Wide Web.

coined by Gavin Wood, who is the co-founder of Ethereum and founder of Polkadot[6]. Wood's definition is built upon a decentralized online ecosystem which utilizes blockchain technology. A crucial point is the fact that there are many virtual worlds developed to enable people towards the deepening and extension of social interactions virtually. This is accomplished by enhancing the web with a three-dimensional, immersive layer to produce more authentic and intuitive experiences (Mourtzis et al., 2022). The aim of Web 3.0 is to distribute ledger technologies such as blockchain, that can be used for securely receiving and storing payments made in crypto-related transactions, so conversations around Web 3.0 are often closely followed by conversations regarding NFTs and cryptocurrency. Thus, the Metaverse integrates the aforementioned technology (e.g., blockchain) to generate augmented reality-based immersive experiences and to establish a connection between real and virtual worlds.

1.4 Blockchain And NFT, basis of the Metaverse

As the metaverse continues to evolve and grow, blockchain technology is becoming an increasingly important part of the landscape. **Blockchain** is a decentralized, distributed ledger technology that allows for secure and transparent record-keeping. Blockchain, literally meaning "a chain of blocks", takes advantage of the characteristics of a computer network composed of nodes and allows you to update and manage a register containing data and information uniquely, safely, and open to all without there being the presence or need for a central control entity (Temera, 2022). Blockchain technology is a decentralized and secure way of recording transactions and tracking the ownership of assets. It is the backbone of cryptocurrencies like Bitcoin and Ethereum

[6] Polkadot and Ethereum 2.0 are both sharded blockchain protocols. As such, they provide scalability by executing transactions in separate shards and provide a protocol to send messages between shards.

(Gadekallu et al., 2022). The blockchain technology in the metaverse provides a high degree of security and transparency. Because blockchain records are distributed across a network of computers, it is extremely difficult for anyone to tamper with or alter the records. This makes blockchain an ideal technology for creating a secure and trustworthy system for managing digital assets and transactions.

Since the blockchain technology can maintain the smooth economic operation of metaverse, blockchain technology is the soul of the metaverse. Blockchain-based metaverses utilise the ecosystems of major public blockchains, which contain all the technologies needed to develop what is in fact a new application of the blockchain itself. This is the reason why Ethereum's blockchain has become the reference basis for dozens of metaverses, as well as being the technological basis for a huge variety of applications, ranging from finance to real estate (La Trofa 2021). In a blockchain, every activity is recorded as a transaction and each block contains a cryptographic hash of the previous block along with a timestamp and the metadata (Gadekallu et al., 2022). Hence, in a block, data cannot be altered without altering the other blocks. The data obtained from any block is resistant to tampering. The chance of creating a duplicate block is almost zero which ensures no duplication in the process of data acquisition. Furthermore, in the metaverse, the blockchain provides data reliability, transparency, and availability.

> "…Il metaverso sfrutta la tecnologia blockchain per creare vari modi con cui monetizzare l'esperienza, seguendo dinamiche simili a quelle del mondo reale, pur in un contesto fantasy distopico (La Trofa 2021)".

In other words, the blockchain first enables the exchange of real currency with cryptocurrency, which can be used within the metaverse without being subject to the

control of central banks. Secondly, having a quantitative limit on “land” and coins allows for triggering the phenomenon of rarity, which over time compensates for inflation and increases the value of resources based on the increase in demand. Thirdly, the decentralization offered by the blockchain allows for secure transactions in a free market context. Finally, transactions are governed by Smart Contracts, which are intelligent contracts encoded in computer language that are not modifiable and automatically execute the agreement signed by the parties. This avoids the risk of non-performance of contractual obligations and clarifies the rules and sanctions of the agreement, applying them automatically through the programming code that establishes how and when the contract should be completed (La Trofa 2021).

Overall, blockchain technology is becoming an increasingly important part of the metaverse ecosystem. As the metaverse continues to grow and evolve, it is likely that we will see more and more use cases for blockchain technology, from creating secure and transparent marketplaces to establishing decentralized identity systems and managing digital property rights. By leveraging the power of blockchain technology, we can create a more secure, transparent, and equitable metaverse for all users.

1.4.1 Non-Fungible Token (NFT)

NFT is the acronym for “Non-Fungible Token”, an innovative technology that allows you to buy “propriety” certificates on digital or real works. NFT technology is one of the great opportunities provided by Blockchain, which in this case plays a fundamental role, since to buy a NFT it is necessary to use a Blockchain. The NFT Tokens act technically in the same way as the virtual coins (such as bitcoins) but are not connected to any specific value (Temera, 2022). NFT differs from classical cryptocurrencies such as Bitcoin in their intrinsic features. Bitcoin is a standard coin in which all

the coins are equivalent and indistinguishable. In contrast, NFT is unique which cannot be exchanged like-for-like (equivalently, non-fungible), making it suitable for identifying something or someone in a unique way (Temera, 2022). Through NFT technology, brands can provide the consumer with a token that attests to the authenticity and propriety of the good, a sort of "digital twin" to then be exchanged in a second-hand marketplace or usable in virtual gaming arenas. The purchase of a work linked to a Non-Fungible Token does not constitute a direct acquisition of the work itself, but rather confers the right to claim ownership of that work through a smart contract. A smart contract is a computer protocol that facilitates and verifies the execution of a contract.

NFT technology is also contributing to evolving the concept of digital propriety, a phenomenon destined to grow and increasingly connected to a conscious consumption (Temera, 2022). Unlike in a video game where you buy an asset and it remains in the game and can't be taken away, with NFT's you own it. You can buy a hat from an in a video game store and then place that hat on your Avatar in your Instagram feed. You might even be able to buy and own your own piece of land in Metaverse as well, kind like how you can buy player homes in video games that belong to your character. Since NFT's look like the backbone of the metaverse, making an investment in the token could be very lucrative down the line.

1.5 Augmented and Virtual reality: History, Difference and Use

Most commonly, the Metaverse is mis-described as virtual reality. In truth, virtual reality is merely a way to experience the Metaverse. To say Virtual Reality is the Metaverse is like saying the mobile internet is an app (Ball 2021). The metaverse achieves the promotion and support of the molecular universe in the long term. Metaverse is expected to bring the innovation of the virtual world, promote the game

content, community, education, commodity trading, artificial intelligence, Virtual and Augmented Reality (Huang et al., 2022).

The metaverse moves from concept to reality, and VR/AR is a necessary intermediate stage. To a certain extent, virtual environments are the technical foundation of the metaverse. The metaverse is a shared virtual space that allows individuals to interact with each other in the digital environment. Users exist in such a space as concrete virtual images, just like living in a world parallel to the real world. Such immersive technologies will shape the new form of immersive internet. With Facebook as the first major company to announce its move into the complete virtual ecosystem, the world is entering a new chapter on VR consumer experiences. From a technological standpoint, these are promising developments and prior studies investigating the consumer experience often reveal that VR experience escapes increase pleasure and behavioural intentions (Han et al., 2022). Virtual Reality is an advanced, human-computer interface that simulates a realistic environment (Han et al., 2022). The participants can move around in the virtual world, they can see it from different angles, reach into it and reshape it. VR posed unique features that enables creating new types of experiences that extends prior media (Han et al., 2022). The purpose of virtual reality is to simulate a real environment by means of electronic technologies, to the point of giving those who experience it the impression of being truly immersed in that environment.

Going beyond the sole virtual environments, **Augmented reality** (**AR**) is an interactive experience that combines the real world and computer-generated content. The content can span multiple sensory modalities, including visual, auditory, haptic, somatosensory, and olfactory (Cipresso et al., 2011). AR delivers alternated experiences to human users in their physical surroundings, which focuses on the enhancement of our physical world. Thus, while in Virtual Reality (VR), the user's perception of reality is

based entirely on virtual information. Augmented Reality (AR) provides users with computer-generated additional information within data collected from real life to improve their perception of reality. One reason virtual reality has gained popularity is that, during lockdowns, many companies began to actively use VR collaboration platforms. Members of a scattered team can put on headsets and join each other in a virtual environment. Depending on the purpose of the meeting, this virtual space could be a room or any environment you want. People can sit at a table and listen to the main speaker, as they would in any meeting. AR and VR technologies have become popular among retail businesses as well. Retailers are seeing the potential of this technology and utilizing it to its full extent. For example, a virtual clothes-fitting app could be a great technological extension for a retail business (Cipresso et al., 2011).

1.6 Famous Platforms

There is no single way to access the metaverse. Unlike the internet, where people have access through some chosen browser, each metaverse must be accessed separately through virtual reality and/or augmented reality enabled devices, also there are many platforms in which people can access:

1.6.1 Decentraland

Created in 2015 Decentraland is one of the most prominent browser-based virtual world platforms. Decentraland is the best structured Metaverse, also from a speculative point of view. In this platform users can buy and sell plots of land on which to build their creations. The currency used for transactions is MANA and in addition to buying or selling land

plots, it is used as currency with which to buy digital content, NFT, advertising services and more.

1.6.2 The Sandbox

The Sandbox Metaverse launched in 2011 allows the players in the game to build, purchase and trade digital assets. Land, embellishments, and other items are all available through the Sandbox marketplaces. Here Celebrities such as Snoop Dogg, Ana Ivanovic, and footballer Marco Verratti have purchased Sandbox Metaverse land (Boreham 2022).

1.6.3 Roblox

Released in 2006, Roblox Metaverse has now evolved into one of the most populated Metaverses in 2023. One of the primary benefits of the Roblox Metaverse platform is that it promotes user-generated content (UGC), allowing players to monetize their creations. In addition, players can jump into different virtual worlds to play games, shop and interact with other avatars. Users can also interact with their favourite brands online; for example, Tommy Hilfiger, Ralph Lauren, Spotify, Gucci, etc., have joined Roblox and collaborated to display and sell virtual accessories and physical products in their immersive virtual locations. Users can also fully customize their avatars and purchase digital accessories from luxury brands such as Gucci.

Thus, the Metaverse can be seen as a junction of Virtual and physical Worlds where embodied users, through their avatars, can communicate and interact with brands,

access digital stores, choose and buy different kinds of goods and services. As the metaverse is increasing its popularity and companies compete to enter the metaverse, how will it influence the real economy? And what are the opportunities for brands and business?

CHAPTER 2

METHODOLOGY

This section outlines the approach taken to select and analyse the information sources for this study. To understand the metaverse's potential for value creation and related barriers as well as its implications for the Chinese economy, I initially searched for scientific papers published between 2019 and 2023 that responded to the keywords "metaverse" and "value creation" through Web of Science. This search led to the identification of 16 papers. The list of such works is included in the following table (Table 2.1).

AUTHORS	TITLE	YEAR	JOURNAL
Anshari et al.	Ethical Responsibility and Sustainability (ERS) Development in a Metaverse Business Model	2022	*Sustainability*
Buhalis et al.	Metaverse as a driver for customer experience and value co-creation: implications for hospitality and tourism management and marketing	2023	*International Journal Of Contemporary Hospitality Management*
Buhalis et al.	Smart hospitality: from smart cities and smart tourism towards agile business ecosystems in networked destinations	2023	*International Journal Of Contemporary Hospitality Management*
Duan et al.	Crypto-Dropout: To Create Unique User-Generated Content Using Crypto Information in Metaverse	2022	*2022 Ieee 24th International Workshop On Multimedia Signal Processing (Mmsp)*
Dwivedi et al.	Metaverse marketing: How the metaverse will shape the future of consumer research and practice	2023	*Psychology & Marketing*
Fernandes & Morais	Do NFTs Sound Good? An Exploratory Study on Audio NFTs and Possible Avenues	2022	*Informatics-Basel*
Gesmann-Nuissl & Meyer.	Siri 2.0-Conversational Commerce of Social Bots and the New Law of Obligations of Data: Explorations for the Benefit of Consumer Protection	2022	*Robotics*
Hennig-Thurau et al.	Social interactions in the metaverse: Framework, initial evidence, and research roadmap	2022	*Journal Of The Academy Of Marketing Science*
Kozinets	Immersive netnography: a novel method for service experience research in virtual reality, augmented reality and metaverse contexts	2023	*Journal Of Service Management*
Kraus et al.	Facebook and the creation of the metaverse: radical business model innovation or incremental transformation?	2022	*International Journal Of Entrepreneurial Behavior & Research*
Liu et al.	A Conceptual Framework for Blockchain Enhanced Information Modeling for Healing and Therapeutic Design	2022	*International Journal Of Environmental Research And Public Health*

Tan et al.	How do ethical consumers utilize sharing economy platforms as part of their sustainable resale behavior? The role of consumers' green consumption values	2022	*Technological Forecasting And Social Change*
Tan & Salo.	Ethical Marketing in the Blockchain-Based Sharing Economy: Theoretical Integration and Guiding Insights	2022	*Journal Of Business Ethics*
Wang et al.	Toward Understanding Attention Economy in Metaverse: A Case Study of NFT Value	2022	*Ieee Transactions On Computational Social Systems*
Wang et al.	Attention Economy in Metaverse: An NFT Value Perspective	2022	*2022 Ieee 24th International Workshop On Multimedia Signal Processing*
Wortley.	GIS, COVID-19 AND THE METAVERSE	2022	*8th International Conference On Cartography And Gis, Vol. 2*

TABLE 2.1

Additionally, to explore the potential impact of the metaverse on the Chinese economy, I conducted a literature search using Web of Science to identify scientific articles published between 2019 and 2023. The keywords used again were "metaverse", "value co-creation" "value creation" "Chinese economy" "China". This search led to the identification of 10 articles exploring the application of the metaverse in two specific areas, namely school education and cultural heritage preservation, included in the Table 2.2.

AUTHORS	TITLE	YEAR	JOURNAL
Afaisal et al.	Metaverse system adoption in education: a systematic literature review	2022	Journal of Computers in Education.
Fan et al.	Immersive cultural heritage digital documentation and information service for historical figure metaverse: a case of Zhu Xi, Song Dynasty, China.	2022	Heritage Science.
Wu et al.	Design and implementation of a metaverse platform for traditional culture: the chime bells of Marquis Yi of Zeng	2022	Heritage Science.
Tas & Bolat	Bibliometric mapping of metaverse in education. International	2022	Journal of Technology in Education.
Teng et al.	Factors Affecting Learners' adoption of an Educational Metaverse platform: An Empirical Study Based on an Extended UTAUT Model	2022	Mobile Information Systems
Hsiao, & Shen.	A study of digital architectural heritage preservation based on blockchain technology	2023	The Journal of Engineering
Liu et al.	Blockchain Technology, Cryptocurrency: Entropy-Based	2022	Entropy

	Perspective		
Liu et al.	Building Information Modelling (BIM) Driven Carbon Emission Reduction Research: A 14-Year Bibliometric Analysis	2022	Journal of Environmental Research and PublicHealth
Zhou et al.	Self-powered sensing technologies for human Metaverse interfacing	2022	Joule
Xia & Liu.	User Experience Research in China: A 15-Year Bibliometric Analysis	2022	Lecture Notes in Computer Science

TABLE 2.2

Through the analysis of these works, I addressed the questions of how the metaverse creates value, what kind of value it creates, what barriers may prevent from realizing such values and what are the potential implications of the metaverse for the Chinese economy. Such analysis is presented in Chapters 3, 4 and 5.

2.1 Theoretical lenses: the Service-Dominant logic.

To understand the metaverse's potential for value creation and answer this study's research questions, I apply the Service-Dominant Logic (Vargo and Lusch, 2014) as theoretical lens to analyse the above-mentioned scientific papers. The Service-dominant (S-D) logic was coined by the theoretical and conceptional work of Vargo and Lusch (2008a) and it is a theoretical framework that aims at explaining value creation, which is understood to derive from exchanges among configurations of economic actors. According to Vargo (2008), the creation of value is the fundamental purpose of business organizations. Value creation is the process of generating benefits for consumers that are greater than the costs incurred by them. The underlying idea of S-D logic is that humans apply their competences to benefit others and reciprocally benefit from others' applied competences through service-for-service exchange. Service-Dominant logic is tied to the value-in-use meaning of value (Vargo and Lusch, 2008a). In S-D logic, the roles of producers and consumers are not distinct, meaning that value is always co-created, jointly and reciprocally, in interactions among providers and beneficiaries through the integration of resources and application of competences. In the

context of the Service-Dominant Logic (SDL) theory, value is not a property or characteristic of a product or service, but rather is co-created through interactions between consumers and firms. In other words, value is not created solely by the firm and delivered to the customer but is the result of a collaborative process between the two parties. SDL places great emphasis on the role of the customer in value creation, considering them as active participants rather than passive recipients of value. Customers are seen as having unique knowledge, skills, and resources that can contribute to the co-creation of value with firms. The co-creation of value is a key concept in SDL, as it recognizes that value is not created in isolation by the firm but is the result of collaborative efforts between the firm and the customer. This co-creation process can lead to greater customer satisfaction and loyalty, as well as increased innovation and differentiation for the firm. In the context of the metaverse, the co-creation of value takes on a new dimension, as consumers are able to interact and collaborate with firms in virtual environments. The immersive nature of the metaverse allows for greater personalization and customization, further enhancing the co-creation of value between consumers and firms.

After having explained the SD logic, that as we saw relates to the concept of value creation, I want to understand if the metaverse does create value or not. For this reason, I started from a literature review to understand the metaverse potential to create value for its users through co-creation.

Chapter 3

VALUE CREATION IN THE METAVERSE

After establishing the theoretical framework of the Service-Dominant Logic the next step is to analyse how the metaverse is creating value for its users through co-creation. Thus, in the following chapter, I will present the findings of this review and analyse the different perspectives and approaches taken by researchers to evaluate the value created in the metaverse. The metaverse offers new opportunities for value co-creation, with potential benefits ranging from improved user experiences and increased creativity to cost savings and new business opportunities. The potential for value creation in the metaverse is significant, and has already attracted the attention of businesses, investors, and policymakers. After having analysed the various perspective, it can be discussed that the value created in the Metaverse can take many forms, including **economic value** as the Metaverse provides new opportunities for businesses to generate revenue through, e-commerce, advertising, and other forms of commerce**, social value** because the Metaverse enables people to interact and engage with each other in new and innovative ways and can help to foster a sense of belonging and connection in an increasingly digital world. And finally, **cultural value**, in fact the Metaverse provides a new showcase for creativity and cultural expression.

Before gaining an understanding of the value of the metaverse, it is important to examine the history of the metaverse economy and its development across three industries. The first industry is the **crypto industry**, which was the first to propose the concept of the metaverse with public blockchain as its key component. **The Web3 community**, which is focused on decentralized internet based on blockchain technology, developed the metaverse with a focus on virtual property rights, cryptocurrencies,

smart contracts, and NFTs. The third industry mainly concentrates on **VR/AR, human-machine interaction, and digital virtual humans**, with the goal of achieving a seamless connection between the real world and the virtual world (Wang et al., 2022). These three industries have distinct approaches to the early development of the metaverse, but their interests are becoming more and more interconnected. Together, they will serve as the building blocks for the development of the metaverse, establishing a solid foundation for the growth of the metaverse economy (Wang et al., 2022).

3.2 Business opportunities in Metaverse

Over the past few years, there has been an increasing interest in the metaverse, which adds an extra 3D dimension to the traditional 2D internet environment (Dwivedi et al., 2022). This new environment provides brands with a unique opportunity to thrive and endure over time. Brands are collaborative entities that are important to various stakeholders, including organizations that create them, customers who purchase and form emotional connections with them, distributors who facilitate their movement, and other entities. The metaverse can serve as the sole or one of several environments for brand development, depending on the brand's nature. The transition of environments from traditional to electronic to metaverse has been observed for certain brands, particularly in the retail sector. However, the metaverse is not universally or commonly utilized as the only context for brand development, delivery, and interaction. Instead, it is mostly encountered in virtual commerce, online virtual reality games, or other offers that are exclusive to the metaverse. Typically, brands coexist in multiple environments, and the metaverse is just one of them. The 3D metaverse environments enable companies to create brand content and offer consumers the opportunity to interact with each other as personalized avatars, as noted by Dwivedi et al. (2022). Brands utilize the unique features of the metaverse to create brand awareness and provide audience-

specific information, without necessarily focusing on direct sales outcomes. Meanwhile, consumers seek to fulfil their own needs, and the addition of 3D software components enhances the quality of the message and overall interaction between the parties involved. It is important to recognize that the metaverse is just one of the many environments in which brands exist, and brands should take this into account when deciding on their marketing strategies. For brands that want to maintain a strong presence, it is necessary to keep up with the rapid development of immersive technologies in the metaverse, which often requires frequent equipment upgrades and changes to 3D content and messaging. This can be a significant investment of time and money, particularly for brands that aim to deliver high-quality content that appeals to all five senses. However, as marketing in the Metaverse is still in its experimental stages, it poses a set of unique challenges for marketers to overcome, the Metaverse is a unique platform that presents marketers with new opportunities to reach both their current and prospective consumers and offer them an immersive experience. These include technical and infrastructural considerations, socio-cultural issues, and strategic challenges that need to be addressed (Dwedi et al., 2022). Additionally, the Covid pandemic has accelerated the shift from traditional retail to online shopping, and research in metaverse retailing has focused on improving virtual retail service quality and identifying atmospheric elements that can provide better service to consumers. It is crucial for brands to understand the changes in consumer behaviour that come with this new medium, and how brand value, awareness, engagement, and strategy will evolve in the metaverse. The brand value in the metaverse will depend on the value the medium provides and the different offerings that can be presented, as well as the effect on brand communication and personality. Brands must engage with consumers through their avatars and enhance brand evaluation leading to positive customer actions. From this point of view,

Kozinets (2022) introduces the concept of "immersive netnography" as a novel method for conducting service experience research in virtual reality (VR), augmented reality (AR), and metaverse contexts.

Kozinets argues that immersive netnography is a powerful tool for studying service experiences because it allows researchers to immerse themselves in the virtual world and experience the service first hand. This provides a more holistic understanding of the service experience, as well as insights into the social and cultural context of the service, he outlines a three-step process for conducting immersive netnography. The first step is to choose an appropriate immersive platform, such as VR, AR, or the Metaverse. The second step is to create an avatar and immerse oneself in the virtual world. The third step is to engage in participant observation, interacting with other avatars and experiencing the service (Kozinets 2022). By using immersive netnography, researchers can capture the nuances of the user experience in the metaverse and understand the ways in which consumers interact with brands, products, and services in this novel environment. This understanding is crucial for brands and marketers who are looking to enter the metaverse and create value for their customers.

The immersive and interactive nature of the metaverse will generate valuable data that can be used to deliver highly personalized marketing opportunities. Firms that approach these challenges from a strategic and design thinking-based perspective are more likely to benefit from the Metaverse's potential. However, this also poses ethical concerns related to data use and customer targeting. Thus, responsible platform governance and hybrid stakeholder governance are essential in assuring value creation without compromising customer well-being (Dwivedi et al., 2022).

The Metaverse provides an opportunity for brands to interact with a wider audience in a more immersive way than before. The advertisements within the metaverse can be highly interactive, which is not possible in traditional media. Brands can create ads that offer an ethereal experience to users and surpass reality. The high level of immersion and interactivity within the Metaverse enables consumers to virtually experience the product, leading to more robust purchase patterns (Dwivedi et al., 2022). The Metaverse is a rapidly evolving virtual environment that offers a plethora of opportunities for brands to deliver unique offerings that are impossible in the real world. One of the significant advantages of the metaverse is the ability of marketers to be highly imaginative and creative due to the absence of the laws of nature in the virtual world. As a result, they can provide unique products beyond the real world and interact with a wide range of consumers with a higher level of immersion. In the metaverse, ads can be highly interactive, providing a level of engagement that is not possible in other media. The content and features of ads can be designed to surpass reality, providing an ethereal experience to the user. The high level of immersion and interactivity will enable consumers to use the product virtually and help brands build more robust purchase patterns.

Brands have also launched NFT collections to monetize themselves in the metaverse, such as Adidas virtual wearables and Lamborghini artworks, to provide another revenue stream (Dwivedi et al., 2022).

The Metaverse also offers unique opportunities and experiences for consumers. The highly interactive and immersive capabilities of the metaverse will allow consumers to experience shopping as a grand adventure through a hyper-personalized experience in the comfort of their personal space. Consumers can interact and build a conversation with brands and other consumers in the Metaverse, and they should be able to

buy a new range of virtual products. They can even buy outfits for their avatars and get matching outfits for themselves. Its strategic tools can also help effectively measure and evaluate the performance of brand campaigns and provide insights for further improvement. The Metaverse will be very effective for brands targeting this user base, and it offers an excellent opportunity to connect with a young, tech-savvy audience. The emergence of the Metaverse is set to revolutionize various aspects of human life, including marketing. Furthermore, the metaverse offers new avenues for advertising, branding, and product development. As such, new business models are likely to emerge in the Metaverse, particularly in the fields of consulting, counselling, and other personal services. Selling products in the metaverse, such as NFTs, will offer income opportunities for companies. It is also conceivable that firms may create parallel economies where Metaverse branding, and sales complement physical product sales. Therefore, the Metaverse is poised to significantly alter the traditional marketing landscape, and businesses that embrace this technology early on are likely to reap the benefits of this emerging frontier.

Although the Metaverse is still in its early stages of development, it can provide physical stores with several benefits. By creating a limitless digital space for engaging and inclusive interaction, the virtual world allows brands to curate experiences that go beyond physical shopping. For instance, small retailers can overcome the limitations of their physical stores by creating a virtual marketplace in the metaverse where they can display all their product lines and depths. Through virtual customer service representatives, customers can enjoy a personalized experience, including trying out products from the comfort of their homes, making the virtual store a middle ground between physical and online shopping. Moreover, the Metaverse offers a platform for selling

digital twins, digital replicas of real-world objects that customers can purchase in physical form. Luxury fashion brands are also exploring the metaverse, as many customers are willing to pay a premium to outfit their avatars with high-end digital goods. Luxury brands are thus taking advantage of the opportunity to sell limited quantities of digital assets such as clothing and accessories, with customers receiving an NFT as a form of authentication. Brands like Prada, Louis Vuitton, Tommy Hilfiger, and Ralph Lauren are investing heavily in the metaverse, and even Urban Outfitters and Abercrombie and Fitch have expressed their intentions to open virtual stores (Dwivedi et al., 2022).

3.3 Opportunities for Digital Marketing in the Metaverse

Digital marketing is the practice of promoting products or services using various digital mediums such as search engines, social media channels, email, and mobile applications. In addition to marketing and promoting goods and services, digital marketing can also be used to advertise businesses or individuals. Effective digital marketing involves engaging with consumers in an attractive and meaningful manner. As the world becomes more virtual due to the COVID-19 pandemic, the Metaverse is emerging as a new immersive platform for digital marketing. Although digital strategies and digitization have offered significant benefits for marketers in promoting and advertising products and services, the emergence of the metaverse has created new opportunities for marketing and in particular for digital marketing (Dwivedi et al., 2022). Companies can use holograms and avatars to simulate the feeling of being together at an event, making the metaverse a potential game-changer for immersive digital marketing. Although digital marketing in the metaverse is still relatively new, several brands are already using it to reach customers and showcase their products. For example, Nike and Louis Vuitton have both released virtual products and games within the metaverse, which have proven to be successful marketing strategies (Dwivedi et al., 2022).

Companies such as RPG Enterprises, Epic Games, Nike, and Tinder are currently exploring the potential of the Metaverse as a tool to attract new customers, engage existing ones, and build customer-centric brands. The availability of granular data across various behavioural dimensions from the metaverse holds promise for better customer engagement and the implementation of successful digital marketing strategies. From a branding perspective, the Metaverse offers new opportunities for displaying brand logos and gaining insights into customer preferences. Metaverse participant data and their responses in specific situations can be used to generate customized digital advertisements, such as banner advertisements, non-fungible tokens (NFTs), and 3D avatar-based marketing. This segmentation of customers based on their behaviour on the Metaverse could have enormous implications for a firm's investment in the digital space (Dwivedi et al., 2022). However, to fully utilize the potential of the metaverse, digital marketing professionals need to have expertise in hardware such as AR, VR, and 5G networks. This integration of software and hardware skillsets can sometimes pose a challenge. The metaverse presents new opportunities for promoting brand awareness and engaging with consumers, but it also requires marketers to evolve their strategies to be successful (Dwivedi et al., 2022). This initiative showcases the potential of the metaverse to promote both economic and social value for brands. However, to ensure a comprehensive and effective marketing communication strategy, it is important to carefully plan and assess before collaborating with virtual brand ambassadors or creating in-house virtual influencers. Therefore, jumping on the Metaverse bandwagon without proper planning and assessment may not amplify the customer experience as intended. The metaverse, thus, presents new opportunities and challenges for digital marketing professionals. While the full integration of the Metaverse and digital marketing is a work in progress, managerial practices show encouraging results in

terms of customer experience, engagement, and repeat usage for platforms such as Second Life, Roblox, and Fortnite.

The Metaverse presents numerous opportunities for individuals, businesses, and governments, as evident from the investments made by major companies such as Alphabet, Meta, Microsoft, and Nvidia. These companies have either launched metaverse versions of their existing products or created new services around the immersive experience. According to Dwivedi et al., (2022), the metaverse offers significant opportunities for digital marketing, including better measurability of performance metrics and consumer engagement due to its highly immersive nature. In contrast to traditional digital channels, the metaverse provides rich data points on various temporal and spatial dimensions, which can be analysed using advanced analytical tools for real-time targeting and re-targeting of potential customers. Additionally, the Metaverse's immersive experience can potentially reduce consumer aversion to digital marketing advertisements, as users can interact with the metaverse via advanced AR-VR tools and engage in exciting content, making product placements and NFTs potential sources of monetization for organizations. (Dwivedi et al., 2022). The Metaverse offers opportunities for virtual product sales, enabling users to set up virtual malls and sell physical and digital products, with payment made through digital wallets, including cryptocurrency. Additionally, it provides a platform for gaming, such as Roblox, and selling virtual goods. Advertisers on the metaverse incentivize users to play games to earn virtual products and collect data to understand their preferences. In terms of content creation, the Metaverse offers opportunities for monetizing digital goods and services, similar to user-generated content on the internet. Content creators can monetize their creations in gaming, NFTs, entertainment, and more by selling to target customers on Web 3.0 metaverse platforms. Freelance content creators with familiarity with XR technology

will have revenue-based incentives to attract them to the metaverse platform. The greater the number of content creators associated with the platform, the more offerings across domains (Dwivedi et al., 2022).

3.4 Monetizing the Metaverse: The Potential for Income Generation through NFT and virtual product Sales.

Blockchain-related technologies have enabled the transformation of digital assets into non-fungible tokens (NFTs) based on the ERC-721 Standard on Ethereum (Duan et al., 2022). This provides digital assets with a unique proof of ownership that is publicly accessible and cannot be exchanged with other assets. This technology enables digital files such as images, videos, and 3D models to be stored as NFTs, confirming their ownership. In the Metaverse driven by blockchain technology, user-generated content (UGC) that showcases innovation, creativity, and imagination can truly belong to users, which motivates more users to engage in metaverse development (Duan et al., 2022). By transforming UGC into NFTs, creators can sell their digital assets and earn income in the form of cryptocurrencies. This provides a new avenue for content creators to monetize their work and incentivizes them to continue producing innovative and creative content for the metaverse.

Non-fungible tokens have been used to represent luxury fashion, art, collectibles, and even virtual real estate in the Metaverse. The year 2021 witnessed a growth in the global non-fungible token market, attributed to the demand for digital artwork and creators seeking alternate revenue streams due to the pandemic's impact on traditional sources of income. The public's interest in cryptocurrencies has also surged during the pandemic, which contradicts global market interest rates. Moreover, the shift to digital

lifestyles and imposed lockdowns have not only encouraged public interest but also attracted academic researchers (Fernandes, Morais 2022). Previously, creators had difficulty in owning rights to their work, but with the use of NFTs, content distribution can be tracked, and ownership recorded with unique metadata. This allows for more direct and fair compensation through NFT transaction platforms. However, there is still debate among artists and creators on the ownership and openness to give up their revenue stream after selling an NFT. Non-fungible tokens are unique digital assets that can be secured by a blockchain, which provides individuals with sole ownership and control over their possessions. With NFTs, people can buy, sell, and even trade their assets between different virtual worlds. This new paradigm of digital ownership is revolutionizing the way creative works are owned, enabling direct transactions between artists and their audience. The NFT are so unique because they can enable brands to achieve new business models and incremental revenue streams.

McKinsey&Company research estimates that the fashion industry will play a leading role in the shift to the Metaverse due to its ability to operate in both virtual and physical realms. Many fashion brands are already seizing the opportunity to offer virtual clothing, tapping into consumers' growing desire to create digital identities. Fashion holds a unique value in the digital world, where creativity, status, exclusivity, and self-expression are critical for all users. In fact, nearly 70% of US consumers believe their digital identity is as significant as their real-life identity, demonstrating fashion's exceptional ability to influence the Metaverse's development. From a business perspective, the gaming skins market[7] was valued at around $40 billion in 2020, indicating that

[7] Buying and selling of virtual items, typically in the context of video games. These items can include things like character outfits, weapon skins, and other visual modifications. The skins market has become increasingly popular in recent years, with some rare skins selling for significant amounts of

the metaverse could be the most significant growth opportunity for the fashion industry since e-commerce (McKinsey & Company 2022). Fashion brands can use NFTs for practical reasons, like loyalty tokens or digital twins, to create long-term engagement with consumers. Brands like Gucci, Adidas, and The Hundreds are already using NFTs to offer loyalty benefits, such as early access to new drops and physical products, essentially creating a membership program. NFT digital twins can also provide information about a product's history, authenticity, and ownership, which is especially useful for luxury retailers that want to combat counterfeiting.

Thus, leveraging NFTs creates value in the Metaverse. It can provide consumers with exclusive ownership of virtual goods, offer new ways to engage with brands, and provide more transparency and authenticity in the purchase of virtual and physical products. By offering these benefits, brands can enhance customer loyalty, increase engagement, and differentiate themselves from competitors, ultimately creating more value in the Metaverse. Virtual goods sales in the metaverse offer significant opportunities for value creation from the perspective of the Service Dominant Logic. The sale of virtual goods, such as virtual clothing, accessories, and home decor, creates economic value for both businesses and consumers. Businesses can generate revenue through the sale of virtual goods, while consumers can acquire new and unique items to enhance their virtual experiences. Virtual goods sales also support the co-creation of value between businesses and consumers. Businesses must design and create virtual goods that meet consumer needs and preferences, while consumers must choose to purchase and use those goods in the Metaverse. This process of co-creation of value can

money. Some games even have dedicated marketplaces where players can trade skins with each other, and there are third-party websites and apps that facilitate skin trading and sales.

lead to more satisfying and personalized experiences for consumers, as well as increased loyalty and engagement with businesses.

3.5 Advertising Opportunities

The metaverse also presents a promising avenue for companies to generate income through advertising and sponsorships. With the growing popularity of this virtual worlds and the increasing amount of time people spend within them, companies have the opportunity to reach a vast and engaged audience. By strategically placing advertisements or sponsoring events and experiences within the Metaverse, companies can effectively promote their brand and products to a highly targeted demographic. This presents a unique opportunity for advertisers to leverage the immersive and interactive nature of the Metaverse to create memorable and impactful experiences for consumers.

The Metaverse is transforming how consumers interact with digital content, transitioning society from flat media viewed in the third person to immersive experiences engaged in the first person. This also impact the marketing industry, transforming the basic tools, techniques, and tactics from flat artifacts such as images and videos, to immersive and interactive promotional experiences. Thanks to the new Metaverse technology like AR and VR there was great advancement over the last thirty years, resulting in consumer-level products that deliver quality immersive experiences at affordable prices (Dwivedi et al., 2022). For this reason another way in which the Metaverse can create value is through targeted advertising that leverages user data and preferences to create a more personalized and relevant experience.

What intrinsic characteristics of the Metaverse can benefit advertising? The Metaverse's immersiveness and interactivity are the two most significant advantages as a media platform. With its vast potential to create interactive objects, the Metaverse's

interactivity can offer advertisers a wide range of communication options (Dwivedi et al., 2022). Advertising revenue is undeniably critical for the platform's growth. Digital media platforms provide their online real estate to advertisers and offer them opportunities to interact with users through ads. A healthy ecosystem where there is a balance between the supply of and demand for user attention is critical for a media platform's success. For advertisers, it serves as a point of selling their message, while for media users, it can be a source of information, entertainment, or annoyance. If attention doesn't occur, the ad is considered blinded and didn't serve its purpose as a contact point. Since the Metaverse will be the internet of virtual spaces, those spaces can be considered media where content can exist and immersive experiences can be offered, attracting users (Dwivedi et al., 2022). Therefore, brands need to find a space in the Metaverse to place their ads and appeal to user attention. To be successful, advertisers must consider the characteristics of the Metaverse as a medium. Immersiveness and interactivity should be incorporated into the message's ideation process and ad placement. That is, advertising in the Metaverse must be created and planned to be interactive and immersive to maximize its potential. Although some users may skip interaction or prefer less interaction, others may want to interact with messages and products. Metaverse advertising must be prepared for that moment because many users expect it to be interactive due to the space's nature.

This idea of a healthy ecosystem with a balance between the supply and demand for user attention is consistent with the SDL's focus on co-creation of value between producers and consumers. By incorporating immersiveness and interactivity into advertising, advertisers can create value for users and increase the chances of successful interactions. Segmented advertising in the Metaverse can be a powerful tool for value creation, as it allows advertisers to reach specific audiences with targeted messages and

promotions. This approach is particularly effective in the metaverse, where users are already engaged in immersive experiences and are more likely to be receptive to advertising that is relevant to their interests and needs. By leveraging user data and preferences, advertisers can create more personalized and relevant advertising campaigns that resonate with users and drive engagement and conversions. This approach aligns with the SDL's emphasis on co-creating value through customer engagement and dialogue and can lead to stronger relationships between brands and their customers.

Consumer information can be utilized to make projections about future sales of specific items and offer marketing insights. By arranging data in a manner that allows for the visualization of consumer conduct, businesses can study customer perceptions. Advanced sentiment analysis algorithms can also process spoken and written language utilized within the Metaverse, leading to a greater comprehension of consumer attitudes and emotions (Dwivedi et al., 2022). The authors discuss about the significant application of Metaverse for marketing purposes, identifying firstly, the immersive nature of the metaverse through AR and VR applications that will amplify tracking and monitoring opportunities, allowing firms to collect increasingly dense streams of customer data and new metrics regarding interaction with both objects and other users. The Metaverse will allow for a more specific, detailed, and accurate understanding of potential consumer demand, facilitating a quantum leap in both concept development and product evolution. Finally, opportunities for market research in the Metaverse will arise for both qualitative and quantitative approaches, including focus groups, online ethnography, and quantitative market research such as running experiments and A/B testing. The metaverse will enhance traditional market research techniques by emulating and enhancing them, allowing users to experience 3D, manipulable product representations in a comfortable context (Dwivedi et al., 2022).

The Metaverse represents a complex and multifaceted concept that goes beyond mere economic value creation. While it is true that the metaverse has the potential to transform business models and generate new revenue streams, its impact goes well beyond the realm of commerce. The metaverse has the potential to revolutionize entertainment, social interaction, and even the way we think about reality itself. As such, it is important to take a multidimensional and nuanced approach to the study of the metaverse, one that acknowledges its potential for economic value creation while also recognizing its broader cultural, social, and philosophical implications. By adopting a holistic perspective that accounts for the diverse dimensions of the metaverse, we can gain a deeper and more comprehensive understanding of this emerging phenomenon and its potential impact on society.

3.6 Social Interaction in the Metaverse: A Catalyst for Value Creation

The metaverse is here, and it's not only transforming
how we see the world but how we participate in it.

– Satya Nadella, Microsoft CEO and chairman

According to Dwivedi et al. (2022), The rise of new virtual environments and immersive games has opened up opportunities for the metaverse to revolutionize the way individuals and organizations interact in the online world. This new environment offers opportunities for social interaction, experimentation, entertainment, e-marketing, virtual trading, and finance. The Metaverse overcomes the limitations of web-based e-commerce transactions by providing users with a more operational and interactive experience, including the ability to engage in face-to-face interactions and direct product interaction. Although the Metaverse is not a complete substitute for physical contact, it can seamlessly merge our digital and physical lives into one immersive experience,

enabling users to experience the state of flow. The concept of flow pertains to the optimal state of mind people experience when they are fully engaged in a task they control (Dwivedi et al., 2022). It is a pleasant feeling of complete immersion and concentration that leads to enjoyment. This flow experience influences the user experience, which encompasses various cognitive, emotional, behavioural, sensory, and social aspects. The internet's evolution made it an ideal context for applying flow theory, generating intense and durable flow experiences (Dwivedi et al., 2022). The increasing online interactions have altered how companies and consumers interact, emphasizing the importance of touchpoints and flow in these relationships. These changes are gaining significance with the development of immersive online environments. Thus, in the Metaverse environment, where users are fully immersed and engaged, the potential for creating flow experiences is high. As discussed before, advertising that is seamlessly integrated into the Metaverse can provide users with enjoyable and meaningful experiences, leading to a state of flow. Additionally, the value creation in the metaverse can be enhanced by offering users the opportunity to participate in activities that facilitate a flow state, such as challenging games or immersive virtual experiences. By designing experiences that promote flow, advertisers and creators can enhance the overall value of the metaverse for its users.

As the Metaverse becomes more widely adopted and integrated into our daily lives, the importance of community and social interaction within it cannot be overstated. The Metaverse is more than just a platform for entertainment and gaming; it has the potential to create meaningful connections between individuals and to foster collaboration, innovation, and positive social change (Dwivedi et al., 2022). In the Metaverse, users can connect with others in ways that are not possible in the physical world. Through the use of advanced technologies such as virtual reality, augmented reality,

and haptic feedback, users can interact with each other and with digital content in a way that feels real and meaningful. This level of immersion and interactivity enables users to form deep connections with one another and to engage in collaborative activities that foster a sense of belonging and community. User-generated content plays also a critical role in fostering community and social interaction. Users can create and share their content, such as virtual spaces, games, and experiences, which other users can then access and engage with. This creates a collaborative and dynamic environment where users can contribute to the overall community and engage with one another in new and exciting ways. According to Dwivedi et al. (2022), collaboration and communication hold significant importance in the metaverse. User avatars have the ability to collaborate and share experiences, resulting in the creation of new value. Such collaboration is distinct from the physical world as it enables users to transcend time and space, providing them with a common purpose and enabling the metaverse to function as a society.

Global executives are drawn to the Metaverse due to its social nature and the potential for **real-time multisensory social interactions** (RMSIs). These interactions occur synchronously and involve multiple senses, such as sight, hearing, and touch. The interest in RMSIs is exemplified by the statement made by Meta CEO, Mark Zuckerberg, who has referred to the metaverse as the "holy grail of social interactions" (Henning-Thurau et al., 2022). The potential of the metaverse to provide users with superior value is an unanswered question, as well as the mechanisms that would drive such additional value. The value of the metaverse is closely linked to people's responses to the use of specialized and complicated hardware that is required to access the metaverse, such as virtual-reality headsets. RMSIs in the Metaverse, which involve synchronous interactions between two or more individuals that engage multiple senses (e.g., sight,

hearing, touch), accessed through virtual-reality headsets, require significant investments in hardware, and it is crucial for those who consider the metaverse as an alternative environment for such interactions to find answers to these questions, regardless of whether they involve meetings between employees or customers. Henning-Thurau et al., (2022) suggest that there are significant differences between RMSIs in the metaverse accessed via virtual-reality headsets and those on the 2D internet, which can impact the outcomes of the social interactions. The authors argue that social presence, or the feeling of being present with others in a virtual environment, is a significant advantage of RMSIs, in fact interactants in RMSIs accessed through the metaverse are expected to experience greater levels of social presence compared to those in RMSIs on the 2D internet, due to the immersive and realistic nature of virtual-reality headsets. These headsets provide high-fidelity illusions of environments and people, allowing for a more vivid and realistic experience. Additionally, the 360-degree environment of the metaverse enables more social cues to be exchanged between interactants, potentially increasing the intensity and number of social cues. Interactants' feeling of "being together" promotes the exchange of thoughts, arguments, and emotions in a candid manner, ultimately leading to various interaction outcomes. Social presence bears similarity to essential social relationship concepts such as relational closeness, which is a subjective state linked to sharing deep-seated feelings and thoughts (Hennig-Thurau et al., 2022). Just like relational closeness, social presence has been associated with more intimate exchanges since it enables participants to express their sense of "closeness" or intimacy.

The level of social presence during RMSIs is expected to impact how participants evaluate their interactions. This is because high levels of social presence foster an intimate and open exchange of thoughts and feelings, which can uncover hidden aspects

of the interaction and positively influence evaluations. This positive impact can extend to both external elements, such as services provided by frontline employees, and the group of interactants themselves. Hennig-Thurau et al., (2022) study have shown that high levels of social presence in educational settings correlate with positive attitudes towards the class and satisfaction with learning. In addition, social presence can lead to more positive emotions during RMSIs due to the participants' focused attention on the shared experience, such as a movie.

However, the authors also note that this advantage may be mitigated by exhaustion associated with the use of virtual-reality headsets, which are echoed by reports of uncomfortable feelings and disorientation, headaches, eye strain, and nausea by users (Henning-Thurau eh t al., 2022). Regarding the relationship between exhaustion and interaction outcomes, it is widely accepted that individuals require cognitive, emotional, and physical resources to carry out tasks effectively. Exhaustion during RMSIs may occur when individuals lack these resources, causing them to shift their focus from external challenges to internal self-regulation, leading to a decrease in interaction outcomes. For instance, exhausted social welfare workers received less positive job performance ratings, and exhausted bank employees were less effective in serving customers.

The Metaverse offers individuals the opportunity to engage in interactions through avatars they embody, which creates a new world of opportunities that allows them to overcome the limitations of offline social activity and interactions, according to scholars from a sociological perspective. In this virtual space, individuals can wear a virtual mask and play different roles through avatars, allowing them to behave differently from what is expected of them in society. These new realities and social norms call for a scholarly approach to researching consumer behaviour in the metaverse that

recognizes and considers these differences, incorporating both constructivism and positivism perspectives (Dwivedi et al., 2022).

One of the primary opportunities for community and social interaction in the Metaverse is through social hubs and public spaces. They provide a central location for users to congregate and interact with each other, often around shared interests, or activities. Social hubs and public spaces in the Metaverse can foster a sense of community and belonging, as users can connect with others who share their passions and interests. These spaces also provide opportunities for spontaneous interactions and conversations, as users can engage with one another in real time and explore the environment together. The Metaverse's influence on businesses and the economy surpasses social change by encompassing community and social interaction. As the Metaverse expands and transforms, it offers considerable possibilities for enterprises to establish fresh sources of revenue and access a broad and enthusiastic user community.

Thus, the Metaverse offers new opportunities for individuals and organizations to interact in an online world, providing users with a more operational and interactive experience, including the ability to engage in face-to-face interactions and direct product interaction. The concept of flow is essential in the Metaverse environment, as it offers users an immersive and engaging experience. By designing experiences that promote flow, advertisers and creators can enhance the overall value of the Metaverse for its users. Moreover, the Metaverse has the potential to create meaningful connections between individuals and to foster collaboration, innovation, and positive social change.

3.7 Exploring the Intersection of Metaverse and Hospitality.

The Metaverse represents a significant opportunity for marketers and consumers to create exciting experiences and new practices. Virtually anything that can be done

in real life can be recreated in one form or another in the metaverse (Dwivedi et al., 2022). Studies drawing on experimental methods and phenomenological interviews can offer psychological and socio-cultural insights into value creation and consumer well-being in the Metaverse. To make the metaverse matter, there is the need to direct technology to serve humans better and possibly help resolve major societal and marketing challenges we currently face, such as healthcare, education, pollution, sustainability, tourism, and mitigating the impact of our hedonic consumption. (Dwivedi et al., 2022). Moreover, the Metaverse, as an intersection of AR and VR technologies, can offer increased value beyond connectivity and exchange, to spaces and resources not only for utilitarian consumption but also for hedonic experiences (e.g., concerts or sports events). As humans, we are known to travel a lot, creating not only pollution and congestion but also irreparable damage to some of our unique tourist areas around the globe. The Metaverse may be used to digitally reduce congestion and overconsumption while providing an even more immersive and exciting experience. The exuberance associated with Metaverse in business exemplifies its prospects for marketing. The metaverse has the potential to deliver a more immersive experience compared to traditional and digital platforms. Marketers can leverage metaverse in multiple ways, such as retailing, branding, advertising, and more in digital value creation. Altogether, Metaverse can be a value-added medium in the customer purchase journey from a holistic perspective.

Despite the expected growth of the Metaverse, many areas remain unexplored, leaving a vacuum in understanding consumer actions in the metaverse. Driven by demand and pushed by industry investments, metaverse hospitality is not science fiction but the new industry reality. Virtual immersive hospitality experiences (e.g., **events, meetings, conferences**) are the second most sought-after experiences in the Metaverse, and various industry players, including hospitality and real estate organizations and

start-ups, are continually increasing their investments in metaverse applications, including marketing and guests' experiences, gaining tangible real-life benefits.

There have been various instances of hospitality experiences in the Metaverse. These include events like virtual conferences, social gatherings, and celebrations that have taken place in games like Fortnite. The use of hologram technology has enabled concertgoers to experience performances by deceased artists. Microsoft for example, offers virtual meeting rooms to facilitate collaborative work and remote meetings, whereas Facebook created virtual houses where users can invite friends for social drinks. Meta has demonstrated the ability to create avatars that can interact with each other in virtual spaces, allowing people to attend events together and share experiences. For instance, according to Dwivedi er al., (2022) Metaverse can:

1. Create a virtualized version of the hotel's offerings and experiences, including the restaurant, bar, hotel rooms, meeting spaces, events, and guest socialization.
2. Allow for hybrid events, where guests can celebrate occasions like birthdays with friends and family present in the metaverse.
3. Enable guests to move seamlessly between real and virtual hotels and spaces, blurring the lines between the physical and virtual worlds.
4. Empower hotel guests to co-create and live their own "phygical" hospitality experiences.

Hospitality is about immersive, meaningful, and sensory-filled experiences, all characteristics that lend themselves well to the metaverse's affordances. However, hospitality is not solely an economic exchange of food, drink, and accommodation for a reward. Hospitality is also a socio-cultural practice centred around people's encounters, reflecting the exchange of social values related to kinship, friendship, hospitableness,

and other human merits. As Metaverse users are empowered with full immersion, real-time interactivity, and user agency, the metaverse has transformative implications for hospitality (as an economic and socio-cultural practice) and the industry (Dwivedi, et al., 2022). The potential of the Metaverse to revolutionize the hospitality industry is already being demonstrated through various applications such as metaverse conferences, concerts, virtual hotels, and restaurants. One unique aspect of the Metaverse is its ability to facilitate social immersion in addition to sensory immersion, which presents a new frontier for designing hospitality experiences that foster human connections and interactions. As the Metaverse continues to gain popularity and traction, it is crucial to explore how to design meaningful and engaging metaverse hospitality experiences that leverage its unique affordances to enhance consumer wellbeing and create value for all stakeholders involved.

Walt Disney recently announcing their plans to build a metaverse theme park in the coming years. This follows the trend of amusement park rides already utilizing AR and VR technology to enhance the user's experience. With this technology, Disney can project Disney characters based on individual preferences, rides, and experiences at the park, providing an immersive and personalized experience for guests without requiring them to wear headsets. In other words, Disney's approach to the metaverse is to integrate a virtual world with AR capabilities into a real-world context. This innovation could also enable Disney to offer more personalized experiences while reducing human resource costs as it would not rely heavily on hiring, training, and motivating actors.

AR and VR technologies are also being utilized by forward-thinking directors and producers to create a more immersive movie-watching experience. With the ability to film 360-degree footage, viewers can now feel like they are an active part of the story and can be transported to virtual locations across the world. Moreover, many

video game technologies are now being adopted in moviemaking, allowing for the generation of content using Artificial Intelligence, enabling personalized interactions with characters and settings. This means that each viewer can have a unique experience, tailor-made for them. In addition, behind-the-scenes footage shot during movie production is also being made available in VR, providing the opportunity for audiences to explore the sets and witness how the movie was made (Dwivedi et al., 2022). Immersive experiences can enhance the value of movies, games, and theme parks by providing consumers with more engaging and memorable experiences. This can lead to increased consumer satisfaction, loyalty, and ultimately, revenue. Additionally, the use of AI in movie-making and other creative industries can help streamline production processes and reduce costs while still delivering high-quality content.

3.7.1 Tourism in Metaverse

Tourism marketing is a multifaceted process that involves collaboration between various stakeholders to create value. The tourism industry relies on a variety of resources, products, and services to provide a range of experiences for tourists. Tourism is a unique ecosystem that relies on a variety of environmental, social, and cultural resources (Buhalis et al., 2022).

With the advent of technology and the internet, the tourism value chain has been transformed, leading to the development of eTourism and smart tourism, which have empowered tourism organizations and destinations. (Buhalis et al., 2022). “Smart ecosystems integrate the entire range of value chains, optimizing the benefits for the entire system to ensure the long-term well-being of both travellers and host populations” (Buhalis, 2022). Smart tourism focuses on optimizing the ecosystem to ensure that all stakeholders co-create value. The goal of smart tourism is to create sustainable societies

and competitive offerings by empowering all stakeholders to contribute to the value creation process.

According to Buhalis et al. (2022), Tourism Marketing undergoes a transformation through immersion and engagement. This transformation is made possible by a combination of virtual, augmented, and mixed reality technologies that revolutionize tourism experiences, not just during but also before and after the visit. Dwivedi et al., (2022) note that the use of these technologies in tourism marketing enables users to have immersive experiences by simulating artificially constructed environments using VR. AR, on the other hand, enhances physical spaces by providing users with layered information on portable devices such as smartphones, glasses, and wearables. Augmented Reality, thus, enhances visitors' physical experiences by presenting them with layered information on their portable devices, such as smartphones, glasses, and wearables, according to Buhalis et al., (2014). This graphical and informational content is displayed in the user's field of vision, overlaying digital content onto their sensory experience. The content can be presented through stationary devices like AR mirrors, mobile devices like smartphones, or wearable devices like AR glasses, (Dwivedi et al., 2022). AR's information is contextual, focusing on the user's geolocation and current situation, blending the real and digital worlds. This technology provides brands and destinations with an opportunity to interact with visitors in real-time, revolutionizing their on-location experience. AR is especially useful for cultural heritage attractions, museums, and archaeological sites, as it can augment displays and overlay plans, performances, or daily life scenes. For instance, this technology could provide new interpretation opportunities in iconic places like the Acropolis in Athens, Greece, or the Pyramids in Cairo, Egypt (Dwivedi, et al., 2022).

Also, gamification and the integration of virtual and augmented reality technologies create unique opportunities for creative marketing and help tourism organizations to guide visitors to new territories and experiences, and with the metaverse, there are even greater prospects for tourism and hospitality marketing that have never been seen before (Buhalis et al., 2022). It offers a "parallel, virtual universe that uses ambient intelligence to enhance physical spaces, products and services, emerges as a collective, virtual shared space of value co-creation" (Buhalis et al., 2022). In this way, gamification can effectively facilitate and guide visitors in co-creating on-site experiences and building rewarding interactions with locals and other travellers. Visitors can choose from a variety of themes, levels of complexity, and time allocated to the activity, and use games to navigate their experiences at the destination. The popular mobile game, Pokémon GO[8], is a prime example of how gamification has influenced travel behaviour and patterns, generating significant travel globally. The metaverse in tourism effectively integrates virtual and physical reality, enabling active participation in immersive experiences. Various digital tools allow users to switch seamlessly between virtual and real worlds. This has always been the case in tourism, as travellers have used their imagination to envision the offerings and value of tourism and hospitality experiences (Dwivedi, et al., 2022). The application of the Metaverse in tourism will mainly rely on Mixed Reality, which merges Virtual Reality and Augmented Reality with various advanced technologies to seamlessly blend the virtual and physical realms. It "uses physical reality combined with MR (AR and VR) to converge all needs and stakehold-

[8] is a 2016 augmented reality (AR) mobile game, part of the Pokémon franchise, developed and published by Niantic in collaboration with Nintendo and The Pokémon Company for iOS and Android devices.

ers in a shared, 3D virtual space and enhances physical spaces to MR spaces, transforming the internet to a parallel virtual universe" (Buhalis et al., 2022). Visitors will be able to seamlessly move from the physical to virtual world and back again.

The Metaverse offers a plethora of opportunities for the tourism industry as it allows for seamless transition between the virtual and physical worlds. This will enable travellers to combine work and leisure time, creating new patterns of digital nomadism. By working remotely, travellers can choose to work from remote areas or different environments based on their preferences. Consequently, the need for physical presence at the workplace will decrease, allowing for telepresence to be established. Business travellers who are required to visit various locations or sales teams promoting products in diverse markets will find this particularly beneficial. Additionally, the metaverse will transform meetings, conferences, and incentives by facilitating hybrid developments for these functions (Dwivedi et al., 2022). The tourism and hospitality industries have always adopted emerging technologies early on due to the highly experiential and information-rich nature of the industry. Thus, immersive technologies are commonly used by operators to promote and interpret their intangible offerings, reduce purchase risks, and facilitate the decision-making process of customers. For example, a virtual reality tour can help guests experience a destination, hotel, or cruise ship before booking, and augmented reality can overlay multimedia information on hospitality offerings to make the experience more educational and entertaining. In addition, virtual hospitality experiences can be created and monetized to reach new markets, enhance brand awareness, and test new offerings. Second Life was already utilized by various tourism and hospitality operators to design and monetize virtual hotels, study user behaviour, and test real-world offerings. The emergence of the metaverse is expected to offer even more opportunities for the tourism and hospitality industry to innovate and enhance the

customer experience (Dwivedi, Hughes, Baabdullah et al., 2022). The metaverse offers rich collaboration, interactions, communication, and immersion, fundamentally changing the way people learn, shop, work, and entertain. It also presents new monetization business models and provides a platform for people to come together to plan and go on virtual trips, co-design personalized hospitality experiences, and work and educate themselves in virtual hospitality spaces. Essentially, the Metaverse goes beyond simply overlaying a virtual world on the physical world (AR) or creating a separate virtual world (VR). Instead, it creates an extended reality (XR) that blurs the lines between the physical and digital worlds, catering to the current needs of post-COVID-19 tourists who seek physical or hybrid experiences.

As regards the tourism in the Metaverse, the hotel industry has already incorporated blockchain technology in various ways such as secure payment methods, authentication of identity, baggage tracking, crowdfunding, and customer loyalty programs. Now, hotels are further exploring the potential of NFTs by offering valuable digital items such as cosmetic items for avatars, digital images, music and video content, and even virtual properties or lands that have real value in both virtual and real worlds. This because according to Dwivedi et al., (2022) the use of blockchain technology to record NFTs ensures their uniqueness and authenticity, unlike other cryptocurrencies which can be traded at equivalent values. The pandemic has fuelled an increased interest in collectibles and NFTs as people spend more time at home and less money (Dwivedi et al., 2022). An example of this is a private NFT restaurant that is set to open in 2023, where only NFT holders can make reservations for business meetings or special celebrations, allowing hospitality operators to crowdfund and raise money for their ventures. These types of NFTs also provide payers with the opportunity to become co-designers of their metaverse experience and potentially earn a greater ROI on their

investment. In the hospitality industry, McDonald's has already issued unique digital collectibles that can be traded on the blockchain, such as a 'friendship box' featuring reimagined brand iconography and other brand intellectual property, like hotel room designs and decorations. Hospitality brands can also use NFTs to support brand-related causes, like recycling and responsible purchasing of organic coffee, and enhance their corporate social responsibility image. In the case of NFTs, the use of blockchain technology ensures the uniqueness and authenticity of digital assets, allowing for more reliable ownership and trading. This has significant implications for the hospitality industry, where NFTs can be used for crowdfunding, co-designing experiences, and supporting brand-related causes. Similarly, in the healthcare industry, traditional information modelling techniques often lack the necessary security and transparency, which can be addressed through the use of blockchain technology. Blockchain can provide a secure and efficient way to manage healthcare data and enable accurate data sharing between stakeholders, leading to improved patient outcomes. Overall, the importance of NFTs and blockchain technology lies in their ability to provide secure, transparent, and efficient solutions in various industries, leading to better outcomes for stakeholders (Liu et al., 2022). The authors proposed framework involves using blockchain technology to secure and manage healthcare data, while also allowing for efficient and accurate data sharing between different stakeholders. Liu et al., (2022) highlighted the potential benefits of using blockchain technology in healthcare, including improved data security, increased transparency and accountability, and enhanced interoperability between different healthcare systems. The authors also discuss potential use cases for blockchain technology in healthcare, such as electronic health records, medical supply chain management, and clinical trials. By using blockchain technology, healthcare providers can

ensure the security and accuracy of patient data, while also improving the efficiency and effectiveness of healthcare services (Liu et al., 2022).

Thus, the Metaverse represents a new frontier of opportunities and challenges for multiple industries, including hospitality. The ability to create immersive and captivating experiences for consumers in a virtual space creating endless possibilities for value creation and societal impact. By leveraging the unique affordances of the Metaverse, such as social immersion and sensory immersion, the hospitality industry can revolutionize the way it creates and delivers value to consumers.

Chapter 4

BARRIERS AND CHALLENGES TO VALUE CREATION IN THE METAVERSE

As it is shown in the previous chapter, the Metaverse presents numerous new marketing opportunities, but there are also several new market-related obstacles to overcome. Brands and platform companies must address various infrastructural and technical issues as the metaverse develops. The interface needs to be user-friendly, while also considering users' social and cultural backgrounds in order to create a multicultural Metaverse. Improved hardware and software are critical facilitators of the Metaverse, however, the high cost and limited accessibility of VR or AR headsets and other accessories may impact user engagement and experience, hindering brands' aspirations in the Metaverse. Furthermore, the technology is still far from perfect in terms of the quality of experience and necessitates significant technological advancements (Dwivedi et al., 2022).

There are various socio-cultural issues that arise due to the uncertainty surrounding consumer interactions and behaviour in the metaverse. Brands may also struggle with strategic challenges, such as deciding which Metaverse to join. With various Metaverse platforms available, each with its unique features and offerings, and varying levels of immersion and interface quality, decision-making is further complicated. However, before deciding which Metaverse platform to join, brands should consider the customer perspective and understand whether customers have the necessary personal resources, such as skills, capabilities, technology, and wealth of interests. This poses a challenge for brands as the customer's personal skills vary across socio-cultural contexts. As brands enter a new platform, with likely changes in user preferences and

behaviours, their media dependency, uses, and gratifications will differ. Content, services, and brand assets are among the most significant enablers of the Metaverse. Marketers must understand the Metaverse content consumption patterns and consumers' preferences. They will have to engage users with various brand activities, such as virtual events and competitions (Dwivedi et al., 2022). In the Metaverse, marketers face specific challenges related to branding and communication. While brands may have a well-established reputation and image in the real world, their branding in the Metaverse must align with the platform and the brand's philosophy. One of the major challenges for marketers is creating brand awareness in the Metaverse. It will be difficult for brands to coexist in both the real and virtual 3D worlds. Traditional media strategies may not work similarly in the metaverse, and marketers must plan, design, and modify marketing strategies to suit both worlds better. Developing an overarching and comprehensive approach and execution will be a challenge for marketers. Another challenge for brands in the Metaverse is to ensure ethical conduct and follow regulatory policies regarding conduct as the area develops. Marketers and businesses must remain vigilant of these developments in the Metaverse and to minimize the challenges, brands and consumers can take advantage of the gaming context of reality in various Metaverse platforms, such as Fortnite, Roblox, and Minecraft. Thus, it is essential for brands to understand the Metaverse content consumption patterns and consumers' preferences to engage users with various brand activities, such as virtual events and competitions (Dwivedi et al., 2022).

4.1 Ethical Consideration in The Metaverse

The development of the Metaverse has created new opportunities for gaining customer insights. One of the most significant advantages is the potential reduction in overhead costs by eliminating the need for physical furniture and other maintenance.

Moreover, the Metaverse is a powerful platform that generates massive amounts of data. The platform's presence and utilization will allow businesses to collect data from a variety of sources, including text, audio, video, object movement, 3D social media, and more (Anshari er al., 2022). However, the potential for unethical and unwanted use of Metaverse data is a growing concern, and privacy issues have become a ubiquitous topic in technology research (Dwivedi, et al., 2022). It is expected that the Metaverse environment will increase the amount of time consumers spend and the level of detail that can be extracted from generated data by third parties. There are various ways in which consumer privacy could be threatened, including governments using metaverse information to manipulate citizens, corporations sharing or selling consumer information to third-party suppliers, and hackers exploiting metaverse data for illicit purposes (Dwivedi, et al., 2022).

Traditionally, businesses have relied on data accuracy to ensure their survival, but the Metaverse offers a new way to obtain data from a wide range of sources. As a digital platform, the Metaverse is capable of producing both structured and unstructured big data. This enables businesses to acquire, capture, and process both types of data into their databases for effective and efficient data analyses. The Metaverse has become a new source of value extraction from vast amounts of data creation. It generates "big data," which is typically defined as enormous datasets with high volume, velocity, variety, variability, and value extracted for analytical purposes. By deploying big data analytics from the Metaverse's platform, an organization can acquire intelligence, produce new prediction models, and most importantly, remain competitive in the market and surpass its competitors. However, the potential for the Metaverse to generate vast amounts of data also raises concerns about data ethics and privacy. With

such a vast array of data being collected, it becomes crucial for businesses and organizations to use the data in a responsible and ethical manner. This includes ensuring that data is collected and processed with informed consent, and that it is protected against unauthorized access or misuse. Additionally, businesses must be transparent about how they use the data they collect and ensure that they comply with data protection regulations. Thus, as with any technological advancement, there are potential ethical concerns that must be addressed to ensure that data is collected and used responsibly and ethically (Anshari er al., 2022). The Metaverse has the potential to generate vast amounts of data quickly, which can be leveraged by businesses to enhance competition, innovation, creativity, and productivity. However, ethical considerations regarding data ownership are paramount in any digital platform. The availability of data, particularly in the Metaverse, does not automatically give businesses the right to use it for profit without adhering to ethical standards. Proper compliance with ethical principles is essential for maintaining trust and legitimacy with consumers and stakeholders alike. Thus, the increased potential exposure in the Metaverse can have both positive and negative consequences for both consumers and marketers. On the one hand, marketers can improve consumer experiences by using enhanced narrative transportation and AR-based consumer journey designs (Dwivedi et al., 2022). On the other hand, marketers need to address potential negative aspects of the metaverse such as information overload, fear of missing out (FOMO), data safety and privacy, and trust issues in technology-based transactions. Therefore, marketers must employ value co-creation processes and a design thinking mentality to manage and encourage innovation while considering multidimensional consumer vulnerabilities.

According to Anshari er al., (2022) the business ethics implications of the Metaverse remain largely unexplored in the research domain, despite its growing popularity as a new area of study. Business ethics involves examining the social context, activities, and decisions of organizations and addressing concerns of what is morally right and wrong, rather than what is socially acceptable. As such, it is crucial for organizations to understand and adhere to ethical standards in pursuing their societal goals. In recent years, this topic has gained traction among various stakeholders, including public officials, legislators, corporate executives, shareholders, employees, customers, and researchers. By studying business ethics, especially in customer service industries, organizations can learn how to operate ethically and effectively. For the authors **Ethical Responsibility** and **Sustainability** (ERS) involves recognizing, comprehending, and responding to various principles and values in line with the standards of a particular field or context. It is vital for businesses to understand and act in response to the needs and interests of all stakeholders in society, including society itself, business, education, and the environment. Ethical behaviour within an organization is crucial because it reflects the organization's performance, enhances its values, and reinforces its brand capital and reputation. Companies that have a high reputation are more likely to benefit financially in the long term, while unethical behaviour can result in missed opportunities for the organization (Anshari er al., 2022). The Metaverse is in contrast to current social media platforms, as all interactions are not limited to a two-dimensional format. Instead, the creation of this platform offers a more engaging and immersive Internet experience, where each user is represented by a three-dimensional avatar. Nevertheless, the adoption of the Metaverse carries a risk of user profiling due to the vast amounts of data collected when using this platform. Organisations commonly use big data analytics to understand the behaviour of internet users and are likely to increase

mining and behavioural profiling in the future. Prior to the emergence of the Metaverse, several companies have used data profiling to manipulate consumers into buying or consuming their products, using the user's digital footprint to generate profiling data. In contrast, the use of the Metaverse platform will result in more digital footprints, making it easier and more accurate to create user profiles. Thus, ethical concerns related to user profiling must be addressed to ensure ethical compliance (Anshari et al., 2022). The data provided by the Metaverse are more valuable compared to the current 2D social media data collection. However, the ethical concern regarding privacy violation is a primary issue that needs to be addressed. Protecting the privacy of users' data is crucial, and even though the platform provider may attempt to ensure it, concerns may arise about whether it uses artificial intelligence to monitor users' personalities or mine their behaviour without their knowledge. Additionally, there is the possibility of third parties collecting user data without their consent. It is unethical to mine user data without their knowledge or consent for the purpose of maximizing profits. This violates their privacy and other human rights, and it should not be permitted. As we have previously seen the metaverse presents a unique opportunity for firms to collect data through its tool-driven architecture. By analysing information such as clickstream, which is derived from the virtual environment's actors and agents, companies can gain valuable insights that enable co-creation and enhance innovation. With multiple tools available to consumers, which can be co-created using real-time data, firms can increase immersion and time spent on the platform. This immersive environment also allows marketers to enhance consumer retention through profiling, as it empowers big data collection, aggregation, processing, and storage. Furthermore, once real-time data becomes available, AI-enabled technologies can learn, adapt, and predict consumer be-

havioural patterns to provide adaptive, personalized recommendations based on consumer profiles. The advanced technology of the metaverse can also be utilized by practitioners for promoting their products and services and to organize virtual events that can enhance the consumers' social and emotional well-being. By leveraging the 3D virtual environments of the metaverse, marketers can create diverse and engaging campaigns such as scavenger hunts and team-based games that can increase brand awareness. While these campaigns can complement their social media, physical, and online sales channels, marketers must prioritize cybersecurity, quality control, and research and development to ensure that their AI and AR designs do not jeopardize the safety and security of the consumers (Dwivedi et al., 2022).

Anshari er al., (2022) highlight a business scenario that involves ethical concerns related to the Metaverse platform. The authors explain at a first step that the platform generates big data every time a user interacts with it, which raises the concern of who will use or benefit from this massive volume of data. The ethical dilemma arises in the potential **violation of privacy**, as questions may arise about whether artificial intelligence is being used to monitor users' personalities or behaviours without their knowledge, or whether third parties may collect user data without their permission. In the second step, the authors highlight the need to protect the privacy of customers and users' data. The platform provider's efforts to ensure privacy and security may not be sufficient, and unethical data mining for the purpose of maximizing profits should not be permitted, even with users' permission, because they may be unaware of the procedure and the reasons for it. Without a person's consent, violating their privacy or interfering with their other human rights is unethical. Then they propose possible recommendations and ethical theories that can be applied to address the challenges on behalf

of Metaverse service providers. Two theories of business ethics are provided: **Consequentialism** and **Deontology**.

The theory of consequentialism can be used to understand why service providers choose the Metaverse as an effective alternative for their business activities, despite the possibility of unethical risk.

Deontology is founded on moral principles that emphasize the importance of doing what is right regardless of the implications this theory of a business's use of the Metaverse posits varied duty ethics. Using this ethical framework to analyse data privacy, there must be corresponding obligations for asserting a right to data privacy. Consequently, to guarantee data privacy, obligations must be determined and applied based on the sources of this right. The fourth step involves choosing the "correct" ethical decision-making process that will yield the best potential outcome for all stakeholders, particularly users. After evaluating various ethical theories, businesses must develop a plan of action to address these ethical challenges. To effectively leverage the potential of the Metaverse, the aforementioned ethical concerns must be addressed. Adopting the Metaverse should incorporate a utilitarian perspective into its decision-making process in order to maintain user confidence and prevent data privacy breaches. Transparency plays a crucial role in alleviating worries about data privacy. Users are expected to trust the business with their data in order to receive benefits or services. In terms of consent, users should also be provided with adequate and transparent guarantees that their data will not be sold to third parties (Anshari er al., 2022).

Thus, there is the urgent need to govern information privacy regulations and ethical data usage in the Metaverse to meet the demands of the new era. Anshari et al., (2022) also highlights that responsible and ethical data usage is crucial for using data

successfully and efficiently and must be used in the best interests of the customers. Additionally, stakeholders in an organization must work together to create a culture of transparency and trust among its employees as well as a commitment to social responsibility. These challenges to value creation in the Metaverse arise due to the complex and dynamic nature of this new platform. The Metaverse is a virtual world that is continuously evolving, and as more businesses move into this space, they need to be aware of the ethical and legal implications of using consumer data. One of the key challenges is the need to balance the value creation for businesses with the protection of consumer privacy and data rights. Effective data management will benefit everyone involved in the Metaverse platform, from businesses to consumers. Therefore, companies expanding their offerings on the Metaverse platform must follow moral guidelines and effectively manage consumer data to maintain trust and transparency.

For this reason, the Metaverse presents significant opportunities for businesses to extend the reach of their services in the next generation of the internet. However, businesses must navigate the complex and dynamic nature of this new platform, considering the ethical and legal implications of using consumer data while ensuring that the value creation for businesses is balanced with the protection of consumer privacy and data rights.

4.2 Social bots in the Metaverse: the need for Consumer Protection

Due to the challenges posed by the Metaverse as a business platform, it is imperative to establish governance on information privacy regulations and their underlying principles to adapt to the demands of this new era. Ethical and responsible data usage is essential for successful and efficient data usage, and gathered data should be used in the best interests of customers. Awareness and control over data gathering and intended

usage can also help reduce ethical issues and public concerns. Moreover, every stakeholder in an organization is vital to its success, as they hold the key to creating a culture of transparency and trust among employees, as well as a commitment to social responsibility. If ethical and accountable issues surrounding the Metaverse are effectively resolved, the benefits of using it could be significant, opening up more potential for businesses to extend their services on the next generation of the Internet. However, data are crucial for all stakeholders in the Metaverse ecosystem and should be effectively managed to benefit everyone involved.

The Metaverse as it has been seen, promises to offer a fully immersive virtual experience, allowing users to interact with each other and digital entities in unprecedented ways. However, as exciting as this new world may be, it also raises concerns about consumer protection in another context. In particular, the use of **social bots,** used to facilitate business transactions through conversational commerce has become increasingly common, with vulnerable groups such as minors and the elderly at particular risk. The legal landscape governing such transactions is complex and evolving, with regulations around data protection and the law of obligations struggling to keep pace with technological advancements. In this context, it is crucial to examine how transparency around the value of objective data can help protect consumers in the metaverse and ensure that legal protections remain effective in this rapidly changing landscape (Gesmann-Nuissl, Meyer, 2022). Social bots are computer programs designed to mimic human behaviour and interact with users on social media platforms. They are powered by AI algorithms that allow them to engage in conversations and influence user behaviour. According to Gesmann-Nuissl, and Meyer, (2022) there is a growing concern that the use of AI-powered social bots in conversational commerce may further complicate the issue of value creation in the metaverse, as it blurs the line between authentic human

interactions and algorithmically generated content. As the Metaverse continues to evolve, it is crucial to address these challenges and explore ways to create real economic value within this digital space. The utilization of such software agents is not only criticized on ethical grounds but also gives rise to several legal concerns, particularly regarding the manner of communication. Modern social bots can engage in unpredictable conversations through their sophisticated algorithms and programs, which can potentially manipulate their human counterparts. This manipulation is especially harmful to minors and vulnerable groups, such as the elderly or addicts, who may lack the necessary critical thinking skills (Gesmann-Nuissl, Meyer, 2022).

As explained, social bots employed in conversational commerce on social media utilize the platform's features to engage users. They interact with users through integrated messengers such as Facebook Messenger and WhatsApp, utilizing a human-like presence to manipulate users, especially minors and vulnerable individuals who lack the ability to make rational decisions. Furthermore, conversations are now increasingly taking place entirely in digital worlds using technical tools and applications. The use of social bots in a virtual world can be particularly manipulative, as the bots can interact with users through not only language but also virtual gestures and appearance, which reinforces the illusion of a real-world experience. In this way, social bots can even conclude sales contracts for virtual or real objects with users. As a result, communication on virtual platforms becomes detached from a purely technical level, leading users into a fictitious real world where avatars interact as buyers and sellers. This type of communication can be even more authentic and manipulative than communication via messenger services. The use of social bots in such an environment can be morally problematic, and raises legal concerns, particularly with respect to vulnerable groups such as minors or the elderly, who may be more easily induced to close contracts or promise

consideration that they would not have otherwise. Therefore, the use of social bots in conversational commerce in a virtual world can be particularly dangerous (Gesmann-Nuissl, Meyer, 2022). The use of social (chat) bots in conversational commerce raises a multitude of legal issues that cover all areas of law. In particular, the use of social bots in concluding a purchase through a conversation with the bot also raises questions on purchase and data protection laws. The morally questionable and manipulative nature of social bots in conversational commerce can also lead to issues of unfair competition. As the laws on unfair competition do not primarily focus on consumer protection, further sources need to be referred to for guidance. As selling and advertising digital products is a crucial part of conversational commerce, the focus is mainly on the purchase law regulations, which also have implications for data protection law in light of recent changes in the legal framework. For this reason, one reason why value creation might be challenging in this context is that the use of social bots can lead to a morally questionable and manipulative user experience, which could undermine user trust and loyalty in the long run. Moreover, the legal issues and risks associated with the use of social bots can also create uncertainty and complexity, making it harder for businesses to innovate and create value for their customers. Therefore, while conversational commerce using social bots has significant potential to enhance customer engagement and sales, it also presents significant challenges and risks that need to be carefully managed to create sustainable value for all stakeholders involved. With the implementation of the General Data Protection Regulation (GDPR) and similar laws in various countries, organizations are now required to prioritize privacy compliance. In the Metaverse, platforms have access to attendees' biometric data, such as their email, phone number, location, gender, facial expressions, eye movements, hand gestures, and other personal information. However, the main concern is who owns this data and where it is stored,

in addition to security and manipulation concerns. It is crucial to strike a balance between data tracking for a better customer experience and privacy concerns in the metaverse. To prevent privacy breaches, future research should focus on developing markers that can flag privacy concerns based on specific parameters, which can alert company executives early on and prevent potential issues (Dwivedi et al., 2022).

In fact, Gesmann-Nuissl and Meyer, (2022) noted that personal information such as email addresses, location data, and health data are frequently shared without adequate consideration of the consequences. In some cases, user interfaces are designed to deliberately obscure information and consent mechanisms to increase the likelihood of users agreeing to data collection and processing. While there has been an increase in privacy awareness among digital content users, they are still willing to provide personal data and consent to its processing, particularly if they perceive it as a free option or if previous conversations have conveyed that it is the right decision. This is known as the "privacy paradox," where individuals prioritize convenience over data privacy. This effect is further exacerbated in virtual worlds, where users may struggle to distinguish between the real and fictional worlds and are more susceptible to providing personal data based on avatar appearance and gestures or group dynamics. As a result, it becomes increasingly difficult for individual users to resist such requests, and the privacy paradox is exacerbated even further. Consumers may not be able to accurately weigh the value of their data and the right to disclose it, and there is currently no mechanism for them to negotiate the value of their data. This pressure on consumer freedom of choice can have pathological and financial consequences. As virtual worlds and human-like social bots become more prevalent, new scenarios and business models will emerge where the provision of data is equated with monetary payment, potentially lead-

ing vulnerable individuals to recklessly disclose their personal data. They may not realize the true value of their data and its significance to their personality, perceiving the service as free instead of using it as consideration. In the context of payment transactions personal data provided by a user must comply with data protection laws, especially the GDPR, and is protected under it. The operator or user of a social bot must process the data legally and must collect it in a manner that allows for legal processing. Processing of data is prohibited under GDPR except in justifying circumstances. Consent to data processing must be valid, which requires transparency, informedness, and voluntariness. Strict requirements are placed on effectiveness and consideration under Article 7 (4) GDPR, including a prohibition of coupling. This means that the conclusion of a contract or provision of a service must not depend on a data subject's consent to further collection or processing of personal data that is not necessary for the transaction. The prohibition of coupling is intended to prevent the emergence of a factual compulsion to consent to data use (Gesmann-Nuissl, Meyer, 2022). The use of social bots in business has the potential to manipulate human interlocutors into disclosing personal information. Unfortunately, users are often unaware of the consequences and may feel pressured to provide their consent for data processing. This can be problematic, as consent is only considered valid if it is given voluntarily. Despite this, social bots can influence consumer behaviour to the point where users may feel compelled to disclose information and give consent without fully considering their options. This raises doubts about whether the consent given is truly voluntary, as required by GDPR regulations. Additionally, the prohibition of coupling in Article 7(4) of the GDPR requires strict attention to be paid to the voluntariness of consent. However, doubts about the voluntary nature of consent are further reinforced by the circumstances surrounding its occurrence (Gesmann-Nuissl, Meyer, 2022).

Consumers should become aware of the value of their personal data and their right to control it. However, it's important to note that the value of personal data can vary from person to person, and context plays a significant role. The data market needs to be regulated to ensure fairness, and consumers should be able to determine the value of their data in the context of its use. A potential solution could be the establishment of a "data stock exchange" that uses a large-scale survey of users to establish transparency about the value of personal data in conversational commerce. It's also important to acknowledge personal data as a commodity and to provide it with appropriate protection. The GDPR is a start, but more legal and technical instruments are needed. The challenge lies in finding innovative alternatives that are appropriate for consumers and incentivize them to participate.

Thus, according to Gesmann-Nuissl and Meyer, (2022) the increased use of social bots in social media created significant challenges for value creation, particularly in the Metaverse. While social bots offer many possibilities for engaging with customers and creating value, their manipulative influence on users' behaviour raises significant legal problems. In fact, many vulnerable user groups can no longer keep track of the communicative influence that social bots exert on them in supposedly safe virtual environments. Adding to this challenge, the implementation of the Digital Services Directive and the Sales of Goods Directive has made it legally permissible to require the provision of personal data for the purchase of digital products or services. This creates a problem of valid consent in terms of data protection law on the one hand, and the nature and value of the consideration in terms of contract law on the other. Moreover, the value of personal data as an equivalent of a purchase consideration is unclear and varies depending on whether one takes the perspective of the consumer or the platform operator. To address this lack of transparency, it is crucial to inform users about the

value of their personal data objectively. However, this requires examining a large number of subjectively shaped circumstances and placing them in a broader context. Until this transparency can be established, the legal implementation of data obligation regulations will only be to the detriment of consumers who are worthy of protection. Unfortunately, the lack of clarity around the value of personal data makes conversational commerce business models increasingly successful, even as they manipulate consumers. As a result, virtual communication with bots can lead to serious financial and personal disadvantages, particularly in supposedly safe environments. This underscores the need for circumspection and caution in approaching developments in the Metaverse. While there are significant opportunities for value creation in virtual environments, it is important to balance these opportunities with appropriate safeguards to protect consumers from manipulative business practices.

4.3 Does the Metaverse create a real value, or it is only an incremental transformation of an existing Business Model?

Business Model Innovation (BMI) is defined as a firm's attempt to change the architecture or configuration of the set of activities and relationships of components in a BM to create, deliver, and capture value, the success of BMI activities may also depend on when change happens. Various perspectives on change in BMs can be distinguished, and a firm is required to engage in simultaneous BMI activities to explore and exploit new opportunities (Kraus et al., 2022). When it comes to examining the development of a business, this approach involves tracking its growth from creation (phase 1) to expansion and increased revenue (phase 2), to maturity and efficiency (phase 3), and eventually decline (phase 4). On the other hand, the business is often examined in relation to the industry it operates in.

The life cycle of a product can be applied to various components of a business model, including the offerings, markets, customer channels, customer relationships, and revenue models. Additionally, the context of the industry, such as partnerships, technologies, and cost structures, can also impact the business model. Despite the different parts of a business model that may change over time, we believe that there are strong similarities between the life cycle concepts and the evolution of a business model and its profitability.

Thus, BMs provide a simplified and abstract framework for understanding how a company operates and generates revenue. According to Kraus et al., (2022), each company has a "theory of the business" that explains why it earns money. BMs have become a distinct research field in the past two decades, and various definitions have been proposed. The authors define a BM as a conceptual tool that describes a firm's business logic by identifying the concepts, relationships, and objects involved in generating value for customers and profits for the firm. While there is no consensus on the mandatory components of a BM, researchers agree that a BM must answer the question of how a business creates value for customers and profits for itself. One widely accepted concept of BMs involves three dimensions: value creation, delivery, and capture, which govern how value is created, delivered, and captured. To secure the profitability also in the Metaverse, entrepreneurs need to innovate in these three dimensions, which can be further disassembled into components such as new capabilities, technologies, partnerships, processes, offerings, customers, markets, channels, customer relationships, revenue models, and cost structures (Kraus et al., 2022). When considering the metaverse, it is important to understand how business models can be applied to this new and emerging concept. Just like any other industry, the Metaverse will require businesses to explore and exploit new opportunities through BMI activities. This may

involve changing the architecture or configuration of their set of activities and relationships of components in a business model to create, deliver, and capture value in the metaverse. However, Metaverse is a new and rapidly developing industry that presents unique challenges for firms operating within it. As with any industry, firms in the metaverse must develop effective business models to create, deliver, and capture value. According to Kraus et al., (2022) as the Metaverse industry continues to evolve, firms will need to engage in simultaneous BMI activities to explore and exploit new opportunities, just as they would in any other industry. The life cycle of a product can be applied to various components of a business model in Metaverse, including the offerings, markets, customer channels, customer relationships, and revenue models. The context of the industry, such as partnerships, technologies, and cost structures, can also impact the business model in Metaverse. Therefore, firms must continually innovate in the dimensions of value creation, delivery, and capture to secure the profitability of their business in Metaverse.

Innovation in value creation, proposition, and capture is essential for reconfiguring business models, and new technology plays a vital role in this process. Meta's decision to focus on the metaverse positions the company as a leader in technology with significant future potential. Although similar concepts such as. While a clear definition of the metaverse is yet to be established, experts assume it will be a blend of currently known virtual, augmented, and mixed realities. Non-fungible tokens (NFTs) represent another critical technology in the metaverse as they mimic real-world economic behaviour and are highly secure against counterfeiting (Kraus et al., 2022). However, despite the maturity level some of these technologies have achieved, the path to achieving a Metaverse that "feels like a hybrid of today's online social experiences, sometimes expanded into three dimensions or projected into the physical world" (Kraus et al., 2022)

is not an easy one. Moreover, Meta's ambitious technological vision will require continuous utilization and expansion of its current technological base.

Overall, despite Meta’s approach to build new technology, the company’s announcement represents an evolutionary development in its value creation mechanism rather than a revolutionary change. The company already has most of the relevant capabilities it requires, including internal processes and partnerships, to build on to develop the technology.

If Meta successfully delivers the promised user experience and value proposition of the Metaverse, the company stands to benefit from increased virtual connections and interactions across various aspects of life. This could lead to the establishment of a platform business model, allowing Meta to capture value from three platform-based revenue streams from both individual and corporate customers. Firstly, Meta could generate additional revenue streams through various payment models that offer a range of features and options, similar to those offered by other digital platforms. Secondly, Meta could participate in transactions made within or across the platform, such as virtual experiences (e.g. gaming, exhibitions, and sight-seeing), communication, or the exchange of virtual artifacts, which can be provided by Meta "creators" or businesses offering their products and services in the metaverse. Finally, Meta could generate a third revenue stream through the sale of Oculus accessories, as these devices represent the gateway to the Metaverse and are crucial for accessing it.

Kraus et al., (2022) highlights that Meta faces various barriers and challenges in creating value in the metaverse. While the company has shifted towards a transaction-based revenue model, it still heavily relies on its core offerings for social interaction. Moreover, unlike other companies, Meta is investing in both hardware and software to

increase user loyalty and accessibility. However, this strategy requires significant investment, and the company's existing capabilities, processes, and partnerships do not support a radical shift in its business model. Thus, while the rebranding has had a signalling effect, it represents an incremental rather than a radical change in Meta's BM. These challenges highlight the need for Meta to navigate complex trade-offs between innovation and investment in hardware, software, and partnerships to create value in the metaverse.

But in the end, does the Metaverse represent a radical change or is only an incremental transformation of the current business model? According to Kraus et al., (2022) the Metaverse has the potential to transform various industries, including entertainment, education, healthcare, and real estate, among others. Facebook's rebranding to Meta and its focus on the metaverse technology does not represent a radical business model (BM) innovation. Instead, it is an incremental transformation of its existing BM, and so, the change is not as radical as communicated. Moreover, the challenges and limitations of the Metaverse platform pose obstacles to value creation, such as the need for constant innovation, strategic partnerships, and ecosystem development. The emergence of new digital technologies and changing customer demands also require corporations to constantly reimagine their BM and offerings to remain competitive in a rapidly changing environment. While the Metaverse promises to provide new experiences for users and customers in terms of communication, work, and entertainment, further research is needed to understand the potential uses and capabilities of this new virtual platform world, particularly as the technology matures in a later phase. In summary, the Metaverse represents an incremental transformation of the current BM rather than a radical change, and its success will depend on the ability of businesses to innovate and adapt to the evolving digital landscape.

The challenges that face the Metaverse for the creation of value are not only related to its technology, and to the privacy of the consumer and data protection, it is also important to highlight the sociological aspect. Indeed, the sociological aspect is another challenge that the Metaverse must address to create value successfully. The Metaverse's potential impact on society and the way people interact with each other, work, and consume products and services is immense. As the Metaverse becomes more prevalent and mainstream, it will have to address issues related to social inequality, accessibility, and inclusivity. For example, if the Metaverse is primarily accessible to those who can afford expensive virtual reality equipment or have access to high-speed internet, it could exacerbate existing inequalities. Similarly, if the Metaverse fails to create an inclusive and safe environment, it could become a breeding ground for harassment and discrimination. Therefore, it is crucial for companies developing Metaverse technologies to prioritize social responsibility and consider the sociological impact of their products on users and society as a whole. From this point of view, according to Dwivedi et al (2022) the Metaverse, offers a space where individuals can adopt virtual personas, or avatars, and assume various roles, our personalities, in other words, are shaped by the social masks we wear. With this in mind, we can anticipate that the Metaverse will not only transcend physical limitations such as time and space (Dwivedi, et al., 2022), but also challenge the social norms that govern our society. The Metaverse offers individuals the opportunity to don a virtual mask and exhibit behaviours that may not align with societal norms. It will enable the creation of new identities and allow individuals to behave in ways that deviate from their expected societal roles. As a result, the Metaverse will generate a multitude of identities and unregulated actions, presenting novel challenges for policymakers. The Metaverse operates without a hierarchy or institutional systems to enforce social norms and laws. It is characterized by an absence

of regulations and norms, leading to a state of anarchy or anomie. Consequently, moral values and guidance for individuals to follow may break down, and individuals are free to wear any mask and behave in any manner they desire without the constraints of society. This freedom may trigger the manifestation of an individual's dark side, and immoral or perverted behaviour may prevail. In the Metaverse, people can create an idealized version of themselves or assume an identity that they cannot be in the real world, enabling them to express their desires and frustrations without fear of judgment or consequences. Unfortunately, this freedom may also lead to the dominance of immoral behaviour: this is observed in the frequency of reported sexual assaults by female avatars within minutes of joining the metaverse (Dwivedi, et al., 2022). Thus, it is important to note that while the metaverse presents exciting possibilities for human interaction and self-expression, it also carries potential risks and challenges. The anonymity and lack of regulation within the metaverse may give rise to immoral and dangerous behaviour, which could ultimately spill over into the real world. As a result, it is crucial for academics and policymakers to carefully examine the metaverse and consider how to best regulate it to ensure the safety and well-being of its users. While the potential benefits of the metaverse are significant, we must not overlook the potential risks that it poses to society. Therefore, a critical and cautious approach is necessary to ensure that the metaverse is developed and regulated in a responsible manner. to address these challenges, marketers must prioritize the reduction of ethical and moral violations in the metaverse by establishing responsible Metaverse governance. This governance must encompass guidelines for data privacy, cybersecurity, platform regulation to prevent griefing, marketing compliance standards to prevent wash trading, as well as equity, diversity, and inclusion across the value chain of consumers. Only by implementing such measures can we ensure that the metaverse is a safe and ethical space for all

(Dwivedi, et al., 2022). Effective governance is essential in the realm of NFTs, enabling their purchase and trade across various virtual spaces. The governance mechanism should provide guidance for users as they move from one virtual space to another. However, certain behaviour rules cannot be explicitly programmed, and individuals may break the law, just as in the physical world. To address this issue, a governance-of-the-Metaverse approach must be implemented, which includes guiding its development and dealing with undesired behaviours. Valid and enforceable terms of service are also necessary for the Metaverse and virtual spaces. Platform rules, community guidelines, and other parameters that dictate what is permissible within each virtual space may differ. As the metaverse evolves over time, new groups enter, expectations shift, and new ideas and experiences emerge. Governance must adapt to this changing landscape. Effective governance should ensure the correct functioning of the Metaverse, and the safety of community members against undesirable elements.

Chapter 5

THE METAVERSE IMPLICATION IN THE CHINESE ECONOMY

5.1 Introduction

The Chinese government, along with prominent technology companies, have actively engaged in the development of a domestic Metaverse. The government's focus on digitalizing the country's economy has driven the need for a domestically created Metaverse, as it would be instrumental in advancing key strategic initiatives such as promoting self-sufficient cloud computing and blockchain technologies. In 2021, blockchain technology was specifically named in China's 14th Five-Year Plan, marking its inclusion in this significant guiding development document for the first time. The plan aims to facilitate technological advancements in blockchain algorithms and their application in finance, public services, and the supply chain. Notably, the 14th Five-Year Plan also acknowledges the importance of virtual and augmented reality, artificial intelligence, and cloud computing, which are all fundamental technologies in building China's digital economy. Local governments, led by Shanghai, have incorporated the term "Metaverse" into their development plans. In January 2022, Shanghai included the metaverse in its five-year technology development plan, emphasizing its potential applications in public services, entertainment, and manufacturing (Jing Daily, 2022).

China's metropolis is showing increasing interest in the Metaverse. Chinese government departments and local authorities have released five-year development plans this year, indicating their efforts to implement the central government's five-year plan from March (Cheng 2021). Recently, the Shanghai Municipal Commission of Economy and Information Technology released its five-year plan for developing the electronic information industry, in which the Metaverse was listed as one of four frontiers

for exploration. The document advocates the use of the Metaverse in public services, business offices, social entertainment, industrial manufacturing, production safety, and electronic games. Furthermore, the Commission aims to increase research and development of underlying technologies, such as sensors, real-time interaction, and blockchain, without specifying any timeline or goals for Metaverse research and development.

For implementing the Metaverse technology the Metaverse Industry Committee (工业元宇宙协同发展组织) was officially established in Beijing in 2021. Its aim is to promote the development of China's industrial Metaverse industry, coordinate and integrate industry resources, conduct strategic research, build communication platforms, promote the prosperous and orderly development of the industry, and help to build a group of competitive, influential, and well-known industrial Metaverse mainstream brands to assist in building a manufacturing powerhouse and a digital China. The meeting passed the charter and organizational structure of the organization and released a "Three-Year Action Plan for Innovative Development of Industrial Metaverse 工业元宇宙创新发展三年行动计划" outlines China's strategy for the development of the Industrial Metaverse. The Industrial Metaverse involves the integration of various new technologies in the industrial sector, under the guidance of new development concepts and next-generation information technology. The goal is to achieve a complex digital industrial economic system that maps, interacts, and integrates the virtual and real elements of the industrial sector to promote value creation and support the development of a new digital industry ecosystem. The plan includes the development of five major systems: technology, standards, products, services, and support. The technology system includes real-time rendering, large-scale modelling, natural interaction, blockchain,

networking, artificial intelligence, the Internet of Things, and digital twinning. The plan also highlights several key technologies for the Industrial Metaverse, including 5G, virtual, augmented reality, and advanced computing. The aim of the plan is to strengthen China's technology foundation and promote the deep integration of digital and real economies.

The overall goal is to promote high-quality development of China's digital economy through the implementation of Xi Jinping's socialist ideology. The Metaverse development will be the main focus, with the aim of constructing a new development pattern, promoting industrial integration, and building a strong and innovative industrial ecosystem.

According to Deloitte report: by 2035, the metaverse could contribute between $800 billion to $1.4 trillion to Asia's GDP annually: China is leveraging its strong technological and manufacturing capabilities to shape a Metaverse with Chinese characteristics. Asia's advantages in the Metaverse include its large population of young people, the world's largest community of gamers, and significant strengths in electronic products and semiconductor manufacturing (Kulasooriya et al., 2022). China's strong inclination towards Metaverse innovation, middle-to-high-income status, large population, and strategic policies supporting the Metaverse are identified as advantageous for developing the industry.

China prioritizes the application of Metaverse technologies in a broad range of industries to enhance its national power and has also recognized the potential of the Metaverse in the **education** and **museum** sectors. The Chinese government has encouraged the integration of Metaverse technologies in schools to improve the quality of education and facilitate distance learning. The use of immersive technologies could

enhance education delivery and quality by producing more engaging curriculum content and delivering this at scale including to the differently abled.

The following section provides a review of relevant literature in the field of Metaverse implication in China. This review aims to analyse and synthesize key findings from a selection of scholarly articles, which have been chosen in the chapter of methodology.

5.2 Blockchain Technology in China

According to Liu er al., (2022) China's research on blockchain technology is more inclined towards the preference and application of landing and industry, particularly in smart cities, with blockchain as the underlying technology. In 2019, the Chinese government recognized the importance of blockchain technology as a key component of independent innovation in core technologies. Consequently, it has sought to accelerate the development of this technology in smart cities to foster industrial innovation. The government has identified various areas, including but not limited to people's livelihood services, urban governance, industrial economy, and ecological liveability, as potential application scenarios for blockchain technology. Chinese development of this technology concentrates on the application of blockchain technology in social industries such as ecommerce, education, taxation, medical care, intellectual property, and social governance. They emphasize tying up the industrial chain through the contract state machine to implement smart contracts (Liu et al., 2022).

The COVID-19 pandemic in 2020 had a major impact on individuals, small businesses, and governments in a short period of time. While it presented opportunities for innovation, it also caused economic hardship and social unrest. The Federal Reserve's

balance sheet expanded rapidly with a fiscal deficit of $3.1 trillion in 2020 and an expected deficit of $3 trillion in 2021, leading to insecure expectations among the population. In response to the rapid changes, investors had to adapt, resulting in new investment trends. Thus, there was the significant increase in interest in cryptocurrencies and above all Bitcoin. Cryptocurrencies served as a hedge against risk during the COVID-19 pandemic, with Bitcoin being a popular choice for risk-averse individuals in the face of downward pressure in financial markets. Studies found that Bitcoin provided diversification benefits and risk mitigation, acting as a "safe haven". The COVID-19 pandemic influenced 63% of Bitcoin investors, boosting its price and indicating that the pandemic promoted Bitcoin investments. Additionally, the cryptocurrency market showed higher levels of cross-correlations during the COVID-19 period (Liu et al., 2022).

The use of blockchain technology in China is applied in particular in the field of livelihood services and is mainly focused on smart healthcare and smart education. The medical field has been facing various challenges in recent years, and the use of blockchain technology can improve the current system and enhance its efficiency, thus promoting the application of internet-based medicine. With an increasing number of major enterprises, government departments, and investment institutions both within and outside of China strategically investing in its development, the medical industry has become a significant application scene for blockchain technology. Smart healthcare encompasses electronic health records, information sharing, anti-counterfeiting of drugs, and digital currency payments, which aim to promote the development of medical informatization and ensure the secure storage and sharing of medical data, including hospital and patient information. Examples of such applications include policy data storage and sharing, as well as medical and health records stored on the blockchain.

Although education has made significant progress in the past two decades, there is still a long way to go for it to be fully modernized. Emerging technologies such as blockchain, artificial intelligence, and electronic devices are gradually becoming the preferred direction for educational tools. When blockchain is integrated into education, it can enhance transparency in tasks such as submitting assignments, checking grades, and tracking learning progress. Additionally, it can motivate students to learn, and cryptocurrency can be used to award scholarships. Smart education focuses on preserving data of teachers, students, and educational institutions, sharing resources, and building efficient online learning communities through smart contracts. By automating tasks such as uploading, authenticating, flowing, and sharing educational resources, the cost and time of resource sharing can be reduced while improving the efficiency and monitoring of the community ecosystem in real-time. Based on the characteristics of blockchain technology such as efficiency and transparency, the new ecosystem of "blockchain + education" can help to innovate the education industry (Liu et al., 2022). Blockchain technology has several potential applications in the field of education. It can serve as a secure record for storing and distributing learning materials, provide a trusted system for issuing certificates in online education, facilitate the completion of educational contracts and act as a repository for them through the use of smart contracts, and serve as a copyright tool for verifying academic achievements. Moreover, blockchain technology has the potential to function as a decentralized global knowledge base and even a knowledge currency.

5.3 Metaverse in Education

In China, there has been growing interest in exploring the potential of the Metaverse in education. The government has recently released guidelines to promote the development of the metaverse industry, including in education.

As underlined by Afaisal et al., (2022) and Teng er al., (2022) one application of the Metaverse in education is the creation of virtual classrooms and campuses, where students can attend classes and interact with teachers and classmates in a realistic and immersive environment. This could potentially enhance the quality of education by providing a more engaging and interactive learning experience. Another application is the use of the metaverse in cultural education and it will be seen with Fan et al., (2022) Wu et al., (2022), Hsiao and Shen (2022), where students can explore and experience historical sites and cultural landmarks in a virtual environment. This could provide a more accessible and cost-effective way for students to learn about their cultural heritage.

The Metaverse, initially used for gaming purposes, is now being implemented for professional development in various fields, including education, health, and psychiatry. The COVID-19 pandemic has further highlighted the potential of the Metaverse as an e-learning framework. Due to the COVID-19 pandemic, educational institutions were compelled to quickly transition from traditional attendance-based education to online distance education in order to minimize face-to-face interactions. Online distance education can take the form of either asynchronous or synchronous learning, both of which are typically conducted in two-dimensional (2D) web-based virtual environments. However, the use of 2D e-learning platforms in educational settings has been found to have several limitations, including inattention, inactivity, emotional isolation, and poor self-perception. Learners taking online courses are often exposed to more distractions than they would be in teacher-supervised classes, largely due to their tendency to multitask (Teng et al., 2022). The drawbacks of online learning in a 2D environment can be mitigated by using three-dimensional (3D) immersive spatial environments enabled by the Metaverse.

Virtual reality experiences have been shown to positively impact students' attitudes and academic achievements. The Metaverse environment also provides a platform for businesses to explore new management and leadership models. In the field of education, higher education institutions can take advantage of the flexible and interactive nature of the metaverse to create a virtual learning environment that eliminates the constraints of traditional classrooms. This enables students, faculty, and staff to interact and collaborate in new ways. With the Metaverse, educational institutions can transform themselves into virtual worlds, where students, teachers, and learning models can interact in hybrid and collaborative classrooms (Afaisal et al., 2022).

The development of the Metaverse heavily relies on advancements in underlying technologies such as Virtual reality, Augmented reality, and Mixed reality. To create a fully immersive experience in virtual environments, the Metaverse requires technology capable of delivering a sense of reality, which can be achieved by VR, AR, and MR technologies. While VR and AR differ in the level of immersion they offer, they share three key features: immersion, presence, and engagement. **Immersion** measures a system's technical capabilities and determines the degree to which VR/AR/MR technology can deliver an environment that creates a sense of reality. **Presence** refers to the user's perception of being in the simulated reality. **Engagement** is further divided into behavioural, emotional, and cognitive engagement, and it describes the combination of increased interest, concentration, and enjoyment that learners experience. The application of VR/AR/MR in education has been found to have positive effects on learning outcomes due to the above characteristics. First, the immersion feature can improve learning efficiency by allowing learners to mentally and emotionally engage in simulated real-life situations, thus enhancing understanding of knowledge. Second, the presence feature can enhance experiential learning by involving a broad spectrum of sensory-

motor interactions that are otherwise inaccessible in real life due to high costs or risks. Finally, the engagement feature has been found to increase happiness, motivation, and long-term dedication, as learners apply their attention and curiosity to achieve desirable results. All these features of VR/AR/MR contribute to creating a fully immersive and engaging learning experience that can positively impact student learning outcomes (Teng et al., 2022).

The Metaverse offers a “cyber-physical” learning experience that combines the virtual and physical worlds, which can benefit students greatly. By using a single avatar, students can easily switch between online stores and lecture rooms. The development of the Metaverse may also contribute to the evolution of traditional university teaching methods. Many people prefer cyber-physical institutions to traditional brick-and-mortar ones, and they can gain knowledge from virtual experiences provided by numerous international universities in the Metaverse. The rapid growth of the Metaverse has led researchers to investigate its significance in the education sector. Researchers and programmers may collaborate to create instructors who can assist educators in their Metaverse reality. The research's main objective was to determine instructors' attitudes toward adopting the Metaverse system in higher education. They concluded that the Metaverse can be used in addition to conventional communication techniques, emphasizing its pedagogical significance (Afaisal et al., 2022).

5.4 Exploring the Use of Metaverse in Preserving Traditional Culture and Historical Heritage in China

As China continues to lead the world in the development and adoption of Metaverse technology, researchers are exploring how it can be used to promote traditional culture and preserve historical artifacts. Several recent studies have focused on

using blockchain and other advanced technologies to create immersive, interactive experiences that allow users to explore cultural heritage in new ways.

Virtual reality as is has been seen is a key component of the Metaverse, offering a high-quality, low-latency, and diverse digital experience that engages all human senses for input and output. This technology plays a crucial role in enriching the cognitive experience of the target culture. When it comes to cultural heritage and historical sites, their value lies in their representation of a place's culture and a particular period's history. However, these expressions and spaces are complex and difficult to fully capture through traditional media like text, images, video, or animation. Therefore, a single digital storage system is inadequate for effectively conveying the cultural experience, necessitating the creation of more immersive and interactive platforms (Hsiao, Shen 2022). With virtually roam through reconstructed 3D scenes, users can gain a deeper understanding and situational awareness of the cultural information surrounding the historical site from different perspectives. This integration of local history into the existing historical site scenes through virtual scene roaming helps to enhance the cultural value of the site. The advancement of digital technology has facilitated the preservation and transmission of intangible cultural heritage. The digital rebirth of historical and cultural heritage involves using digital tools, such as acquisition, storage, processing, display, and dissemination technologies, to reproduce and preserve cultural heritage in a shareable and renewable digital format. The emergence of modern network computing and digital media technologies has created new opportunities for the creative realization of the collection, preservation, display, and dissemination of these digitally recreated works. Rather than relying solely on traditional information collection methods, such as photography and documentation, we now explore the use of digital collection and recording methods to retain historical and cultural heritage, reconstruct damaged

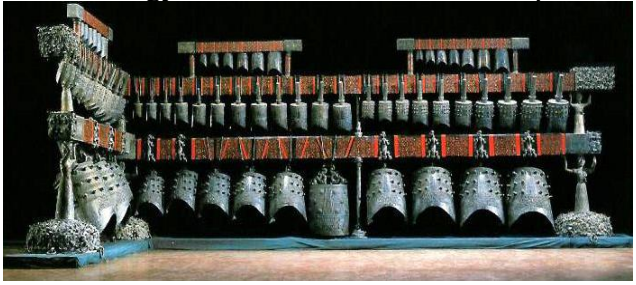
cultural relics, employ blockchain to safeguard digital heritage works, such as three-dimensional scans and holograms, and utilize DAO for collection and protection, forming a complete safeguarding system that enhances the level of protection for historical cultural heritage and its derived content (Hsiao, Shen 2022).

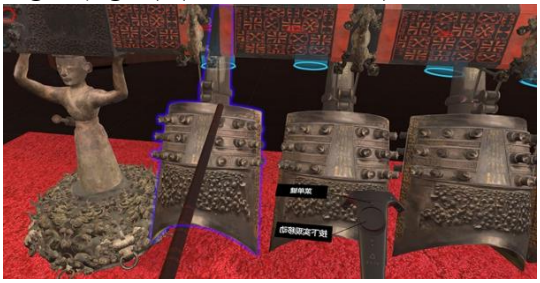
As tourism continues to grow, the tension between preserving cultural heritage and promoting tourism development has intensified. To address this challenge, various innovative technologies such as 3D laser scanning, unmanned aerial vehicle (UAV) photography, panoramic picture and video, extended reality (XR), and other digital museum technologies have emerged and are now widely adopted for the digitization of cultural heritage (Fan et al., 2022). The advancement of these technologies has had a significant impact on the preservation and transmission of intangible cultural heritage, and one of the core applications of blockchain in the art sector is its ability to facilitate provenance verification, authenticity recording, digital scarcity for new media and generative art, fragmented ownership and shared ownership, and new forms of copyright recording. By leveraging the unique on-chain ID feature of blockchain-based digital artworks, the issue of work traceability and validation becomes more secure, the transparency and immutability of the digital art blockchain can be utilized to “chain” the existing culture and history, thus preventing further irreversible damage caused by the incomplete transmission of offline information. By doing so, we can enhance the level of protection for historical cultural heritage and its derived content, while also avoiding further damage to the culture and architecture. The three-dimensional scenes created offer a more realistic and immersive experience compared to the flat display effect of two-dimensional images. This allows online visitors to gain a better understanding of the historical site appearance and increases the geographic reach of its history. A digital museum can also be established, providing a more dynamic and engaging narrative of

the historical culture. Unlike traditional offline museums, digital museums enable the integration and dissemination of cultural information in multiple digital formats, breaking the constraints of specific visiting times and locations, thus maximizing the sharing effect. This ensures content is transplanted and preserved over time, built on a unified set of digital media technologies (Hsiao, Shen 2022).

By combining oblique photography and 3D reconstruction models, the cultural heritage experience can be presented at a global and local level. The use of VR technology creates an immersive experience that allows people to understand the classic stories. For example, the Zhu Xi Digital Museum was a virtual exhibition hall that integrates his life footprint, historical stories, and cultural heritage, which has the advantage of being always accessible with a fast update speed and low cost. With VR support, the digital museum provides an immersive experience and intelligent voice tour function. The production process involved virtual venue design, 3D models building, and virtual roaming production with 10 main content sections. The Zhu Xi Metaverse system explores the co-existence of physical-virtual reality stages, with five key VR components: digital museum, cultural heritage, anecdotes, four rites, and cultural tourism (Fan et al., 2022).

One of the cultural heritage sites that has been implemented with the Metaverse technology is the "Chime bells of Marquis Yi of Zeng[9]" (fig. 2) (Wu et al., 2022).





[9] Chime bell music was an integral aspect of the ancient ritual and music culture of the early Western Zhou Dynasty, and this culture had a deep influence on succeeding generations. The chime bells of

Figure 2 https://bibliolore.org/2013/04/05/marquis-yis-instrumentarium/

When visiting this site, tourists are only able to view the chime bells of Marquis Yi of Zeng from a distance due to their unique and non-renewable nature, preventing visitors from touching or interacting with the exhibits, limiting the learning opportunities and exchange of traditional culture. For this reason, modern technology offers new possibilities for promoting traditional culture. The combination of different modern technologies is necessary to improve the preservation and dissemination of traditional culture. The concept of virtual museums was introduced to overcome the limitations of physical exhibitions, providing a vivid experience for remote visitors with the help of web technologies, 3D technology, and other modern technologies.

Figure 1 Chime bells of Marquis Yi of Zeng VR implementation

Wu et al., (2022) research aimed to enhance the recognition of the chime bells of Marquis Yi of Zeng and promote cultural heritage by presenting solutions for similar sites around the world, given their high value and prohibition on traveling abroad. Despite the lack of virtual environments for cultural heritage sites, the authors want to show the engagement of visitors in immersive experiences, provide multimedia guidance, encourage interaction with the chime bells, and facilitate communication among geographically separated visitors. By using the metaverse technique, it is possible to fill this gap and establish a comprehensive and efficient workflow for creating realistic virtual heritage sites.

Marquis Yi of Zeng have the most complete known series of musical sounds of the Zhou Dynasty, and as a ritual instrument, they also contain a wealth of ideas on ritual and music culture.

The exhibit in the virtual museum was accompanied by text information, 3D models, and audio explanations to enhance users' understanding of the history. By interacting with the menu, users could access the 3D model and audio explanation. Additionally, users could attempt to manipulate the 3D models of exhibits by “grabbing” and “handling” them. If an exhibit was designated as “can-be-grabbed”, the user could use the controller to grab it and examine it in detail. Visitors were encouraged to play the chime bells by grabbing a mallet and knocking them. To assist those who were unfamiliar with rhythm, the chime bell to be struck next was highlighted as a cue, as shown in Figure 1. This feature enabled users to play a song with the chime bells without confusion. The audio explanation conveyed the exhibit's origin, history, and distinctive characteristics (Wu et al., 2022). In order to emphasizes immersion and interaction as essential features the metaverse requires the VR, AR, and MR technologies. While VR is primarily focused on immersion, AR emphasizes interaction between users and virtual objects. Thus, this Metaverse system was designed to provide users with an immersive and interactive experience, as well as entertainment, given that it was developed for cultural heritage.

Thus, the Metaverse platform has a high potential to enhance visitors’ experience in the museum and can be considered a positive addition to the cultural heritage sector. Visitors can interact with exhibits in a way that is not possible in real museums, such as touching or manipulating chime bells. The multimedia tour guidance also gives users the freedom to explore unknown exhibits without the need for a human guide. This popularity of our platform could potentially replace human tour guides in real museums. Additionally, this system allows visitors to experience cultural heritage without the constraints of time and space, eliminating the need to rush to traditional museums at a specific time. Instead, from the museum's perspective, the Metaverse platform attracts

more visitors while reducing the number of visitors to traditional museums. This relieves the pressure on traditional museums, especially during peak periods when the number of visitors exceeds the maximum capacity. Furthermore, since all the exhibits are displayed and stored digitally, there is no need to manage physical exhibits, store them in a physical location, or employ special guards. This saves significant space and resources (Wu et al., 2022).

The ultimate goal of the Metaverse system is to integrate the virtual and real environments, considering both real content and reconstructed content. Unlike traditional simulation games that focus on entertainment, the metaverse system emphasizes education and real-world experiences, with a boundary between the virtual economy and the real economy (Fan et al., 2022).

Thus, we can understand that people are more likely to support the digital dissemination of cultural heritage if they see it as a means to promote interest in historical and cultural preservation and believe that digital art and interactive products can offer a better experience than visiting the site in person. To achieve this, digital models of the building can be reconstructed by capturing views of the building in its original location and incorporating the memories of local residents. It is important to preserve the scars of history, rather than erase them, and the purpose of reconstruction is to better understand the past and reflect on the present. Given the changes in modern production and living conditions, replicating the original historical conditions may not be feasible. Unlike in the past, when people had to rely on imagination to understand the historical site, digital reconstruction offers a more accurate and vivid representation of the building's historical phases, making it easier to interpret the cultural heritage's historical significance.

The Metaverse technology can be utilized to promote and preserve traditional culture and historical artifacts in China. Virtual reality is considered a crucial component of the Metaverse, providing an immersive and interactive experience that enhances the cognitive experience of the target culture. The advancement of digital technology has facilitated the preservation and transmission of intangible cultural heritage, and blockchain technology has been identified as a tool to enhance the level of protection for historical cultural heritage and its derived content. Additionally, three-dimensional scenes created offer a more realistic and immersive experience compared to the flat display effect of two-dimensional images, allowing for a deeper understanding of the historical site appearance, and increasing the geographic reach of its history. The establishment of digital museums enables the integration and dissemination of cultural information in multiple digital formats, breaking the constraints of specific visiting times and locations, and maximizing the sharing effect. Overall, the Metaverse plays an important role in the preservation of historical heritage by providing a way to digitize and recreate historical sites and artifacts in a virtual environment. This allows for wider accessibility to cultural heritage that may be difficult to access or visit in person due to distance, cost, or physical limitations. The Metaverse also provide an immersive and interactive experience that can enhance visitors' understanding and appreciation of historical heritage. Additionally, digitizing historical heritage through the Metaverse can provide a valuable record in case of destruction or damage to the original site or artifact. Overall, the Metaverse offers new opportunities for the preservation, interpretation, and dissemination of historical heritage.

In conclusion, the Metaverse has significant implications for the Chinese economy particularly in terms of education and preservation of heritage sites. The development of the Metaverse has the potential to revolutionize the way cultural heritage is

preserved and presented to the public. Through the use of advanced digital technologies and interactive experiences, the Metaverse can provide a more engaging and immersive way for people to experience historical and cultural sites. This has the potential to increase interest in cultural heritage and boost tourism, which could have a positive impact on the economy. Additionally, the Metaverse can be used as a tool for education, allowing people to learn about history and culture in a more interactive and engaging way. Overall, the Metaverse has the potential to play an important role in the preservation and promotion of Chinese cultural heritage, while also contributing to the country's economic growth.

Chapter 6

DISCUSSION

The metaverse emerged as a promising concept that has the potential to revolutionize various aspects of our lives. As a virtual world that is built on top of the physical world, the metaverse has the ability to create new value not only for businesses but also for society as a whole. This study has explored the importance of the metaverse as a tool for value creation and has highlighted some critical aspects related to its implementation. The Metaverse has been identified as a potential source of economic and social value, offering a range of business opportunities, as seen in section 3.

Thus, the metaverse, presents a compelling context for examining the application of Service-Dominant Logic in understanding value creation dynamics. SDL, as seen in section 2 that offers a paradigm shift from the traditional goods-dominant logic to a perspective that emphasizes the central role of service and value co-creation in economic exchange. By applying SDL principles, we can gain insights into how value is cocreated and exchanged within the metaverse, where users actively engage with computer-generated environments and interact with each other. SDL posits that value is not solely embedded in products or services but emerges through the interactions between actors. In the Metaverse, users engage in service experiences that involve the creation and exchange of value. Lusch and Vargo (2014) argue that the metaverse can be seen as a shared virtual environment where users actively participate in service interactions, shaping value through their engagements. This perspective highlights the dynamic nature of the metaverse, where users contribute their inputs, preferences, and expertise, leading to the co-creation of personalized and context-specific value offerings.

One key aspect to consider is service innovation in the Metaverse. Lusch and Nambisan (2015) suggest that the metaverse presents opportunities for service innovation driven by SDL principles. The immersive and interactive nature of the metaverse, coupled with technological advancements such as augmented reality, virtual reality, and blockchain integration, facilitates the creation of novel service offerings. In the Metaverse, users can engage in personalized and immersive service experiences, which shape the trajectory of innovation. This dynamic and user-centric approach to service innovation aligns with the core principles of SDL.

From a customer perspective, Heinonen, Strandvik, and Voima (2013) propose a customer-dominant value formation approach in the metaverse. They argue that in the metaverse, customers are active participants in value creation processes, playing a pivotal role in shaping their own service experiences. Customers bring their unique knowledge, preferences, and creative inputs, contributing to the co-creation of value. This customer-centric perspective emphasizes the importance of understanding the metaverse as a platform for empowering customers as co-creators, where their contributions are instrumental in shaping the value proposition.

By applying SDL principles, stakeholders in the metaverse can unlock the full potential of this virtual realm. Embracing SDL's customer-centric, value co-creation perspective can foster innovative service offerings, personalized experiences, and collaborative value creation. The metaverse provides a unique context for understanding and advancing SDL principles, given its dynamic and interactive nature.

The concept of the Metaverse, as described by Friedman (2022), presents an exciting opportunity for immersive virtual experiences that transcend the limitations of the physical world. Users are empowered to engage in a myriad of activities, limited

only by their imaginations. This concept has captured the attention of brands, as they recognize the immense possibilities it offers. As noted by Podmurnyi (2022), collaborations between brands and existing Metaverse platforms like Roblox have already begun to emerge. These brands are capitalizing on the Metaverse hype to explore new possibilities and push the boundaries of what is possible in the physical world. Brands like Nike, Gucci, and Ralph Lauren have already partnered with Roblox to create virtual showrooms that blend physical and digital elements, offering customers a unique and engaging shopping experience (Adair, 2022). These collaborations demonstrate the application of Service-Dominant Logic (SDL) in the Metaverse, where value is co-created through interactive and immersive service experiences. By leveraging the Metaverse, brands have the opportunity to transcend traditional marketing approaches and create innovative and personalized interactions with their customers.

The rising popularity of hybrid events, which combine physical and digital elements, further enhances the potential of the Metaverse as a valuable marketing tool. Virtual showrooms, equipped with 360-degree views of products, present brands with a novel opportunity to showcase their offerings and engage customers in a unique way (Kelly, 2022). This integration of physical and digital realms aligns with the principles of SDL, emphasizing the importance of co-creation and interactive experiences in value formation.

Brands leveraging existing Metaverse platforms exemplify the SDL perspective by recognizing the role of customers as active participants in value creation. By providing virtual showrooms and immersive experiences, brands enable customers to shape their own service encounters, resulting in the co-creation of personalized value offerings. The Metaverse offers a dynamic environment where brands and customers collaborate to design engaging marketing experiences, ultimately fostering stronger brand-

customer relationships. As the popularity of hybrid events continues to grow, the Metaverse is poised to become an influential player in the marketing landscape. By adopting an SDL lens, brands can capitalize on the Metaverse's potential as a platform for interactive and immersive marketing experiences. This shift towards customer-centric value co-creation aligns with the core principles of SDL, highlighting the importance of engaging customers as active co-creators of value.

The Metaverse, in addition to its immersive and interactive nature, presents a promising opportunity for companies to generate revenue through advertising and sponsorships, leveraging the platform's capabilities to create engaging and personalized experiences for consumers. Within the Metaverse, users can connect with others in ways that are not possible in the physical world. This creates new avenues for people and organizations to interact, fostering a more operational and interactive online experience. Users can engage in face-to-face interactions and collaborate on projects in real-time, transcending geographical limitations. By embracing an SDL perspective, companies can tap into this potential and create value by facilitating meaningful interactions and enabling collaborative experiences within the Metaverse.

The immersive and interactive nature of the Metaverse provides a fertile ground for companies to develop innovative advertising and sponsorship strategies. By leveraging the platform's capabilities, companies can create personalized and engaging experiences that resonate with consumers, enhancing their brand affinity and driving revenue. The Metaverse offers a unique environment where consumers actively participate in value co-creation, making advertising and sponsorships more interactive, relevant, and impactful. Moreover, the Metaverse's operational and interactive features enable users to engage with organizations and contribute to social change. The platform can facilitate collaborative initiatives, enabling users to join forces in addressing societal

challenges and driving positive impact. Thus, the Metaverse, viewed through the lens of Service-Dominant Logic, represents an opportunity for companies to generate revenue, create engaging experiences, and foster collaboration and positive social change. By embracing the capabilities of the Metaverse, companies can leverage its immersive and interactive nature to deliver personalized advertising and sponsorship experiences, as well as facilitate meaningful connections and collaborative initiatives among users. This synergy between SDL and the Metaverse creates new horizons for value co-creation and innovation in the digital realm.

Despite much excitement about the possibilities of the metaverse, to enable its full potential for engagement, community building, self-expression and commerce, key areas need to be further developed and matured. To achieve growth in the metaverse, certain technological requirements need to be met, such as improving avatar movement and rendering environments, reducing local hardware requirements, and expanding accessibility across devices. As Gilbert (2022) pointed out, “the Metaverse essentially felt like was a game without anything to do”, specifically that the experience in the virtual world equates to one that was not very participatory. Moreover, there is a concern about the hype for the Metaverse as it raised red flags in terms of privacy and safety because of the potential scenario where users will have one or multiple virtual identities. This can be dangerous also because collecting so much personal data allows the system to know the users' buttons and exactly how to push and trigger them (Lee & Murphy, 2022). As a result, if a user's identity is created or shaped by a single company and they navigate in a dystopian scenario, the new Web 3.0 landscape means that the company holds all the cards (Murphy & Murgia, 2022). In order to work better, the Metaverse must establish trust which is critical before the onset of mainstream value creation. According to Matthew Ball (2022) trust is crucial in the metaverse because it

will determine whether people feel comfortable engaging in commerce, building relationships, and expressing themselves in the virtual world. As the metaverse blurs the line between physical and digital reality, it will become increasingly important to establish trust in the technology and the people who own and operate the metaverse. This trust will need to extend beyond individual platforms and companies to the broader regulatory and governance frameworks that will shape the development of the metaverse. Ultimately, without trust, the metaverse may struggle to gain mainstream adoption and unlock its full potential as a transformative force in society.

Thus, the metaverse can create value by enabling new forms of social interaction, commerce, and entertainment. It could also facilitate the creation and exchange of digital goods and services, as well as provide new opportunities for creators, artists, and entrepreneurs to monetize their work. Additionally, the metaverse could generate value through increased efficiency and productivity in areas such as remote work and collaboration. It can give people the power to do whatever they want, it will change the way people think, as it gives them new opportunities for creativity "You can create anything from your imagination—a castle with dragons flying around, a world filled with dinosaurs, or even an entire universe where you can travel through space and time" (Rodriguez, 2022). But "The Metaverse exploded out of nowhere and quickly died off," says Rob Mills, head of digital at independent digital agency Affinity in Sydney this phenomenon can be attributed to the tendency of brands in recent years to eagerly embrace emerging technologies and trends, often leading to hasty pivots without fully understanding the long-term implications. Mills highlights how NFTs, for example, experienced a peak and subsequent decline, and the Metaverse appears to be following a similar trajectory, although it has not yet completely lost its appeal (Keegan, 2023). One of the key factors contributing to the fluctuating interest in the Metaverse is the lack of

clarity and widespread confusion surrounding its actual definition and scope. As Keegan (2023) points out, the concept of the Metaverse is still shrouded in ambiguity, leaving many individuals and organizations uncertain about its true nature and potential. This confusion further compounds the challenges faced by brands and users alike when navigating the Metaverse landscape. However, it is important to note that while the initial hype surrounding the Metaverse may have waned, the underlying concept and the possibilities it presents remain relevant and worthy of exploration. Rather than dismissing it as a passing fad, it is crucial to delve deeper into understanding the fundamental principles of the Metaverse and its potential applications. “Brands in the past half-decade have been very quick—perhaps too quick—to pivot to emerging technologies and fads. NFTs was one that peaked and fizzled and the metaverse is the other (although it hasn't fizzled quite yet)” (Keegan, 2023).

The metaverse concept has faced challenges and scepticism, leading to a decline in interest among some individuals. The absence of a fully realized metaverse and its association with Meta, have contributed to this waning enthusiasm. The term "metaverse" is often met with scepticism and dismissed as unachievable and unappealing. It is important to recognize that the development of a true metaverse is a complex and time-consuming endeavour. The technology required for a fully immersive and interconnected virtual world is still in its early stages and far from being ready for widespread adoption. Additionally, the concept of the metaverse represents a significant shift from the familiar digital platforms we currently use, making it challenging for people to grasp and accept its potential (Verdict.com, 2021 https://www.verdict.co.uk/metaverse-hype-zuckerberg-meta/). Similar to the evolution of smartphones, the integration of the metaverse into our everyday lives will likely occur gradually. Just as individuals from 20 years ago would have difficulty envisioning the extent to which

smartphones dominate our lives today, we may struggle to comprehend the future of digital media consumption without experiencing the gradual evolution of the metaverse. The metaverse's acceptance and adoption will depend on its ability to become a necessity, an indispensable tool that seamlessly integrates into our daily routines, similar to how smartphones have become an integral part of modern life.

The limited adoption and usage of Metaverse can be attributed to several factors, including a lack of consumer demand and interest. Despite the efforts of dedicated developers, the metaverse has not yet gained widespread traction among the general public. This can be seen as an indication that people may not be fully prepared for the immersive virtual experiences offered by the metaverse, in fact, the understanding and familiarity with the metaverse vary among different age groups, according to a survey by Protocol and The Harris Poll in 2022. The survey revealed that understanding and familiarity with the metaverse vary across age groups. The majority of U.S. adults (62%) do not understand the purpose of the metaverse. Younger generations, such as Gen Z and Millennials, are more familiar with the concept, with 55% and 60% respectively. A notable portion of Gen X (35%) is also familiar with the metaverse, while only a small percentage of Boomers (17%) have awareness of it. Additionally, even after receiving an explanation, over half of U.S. adults (52%) feel overwhelmed by the concept of the metaverse (Laningham, A., 2022).

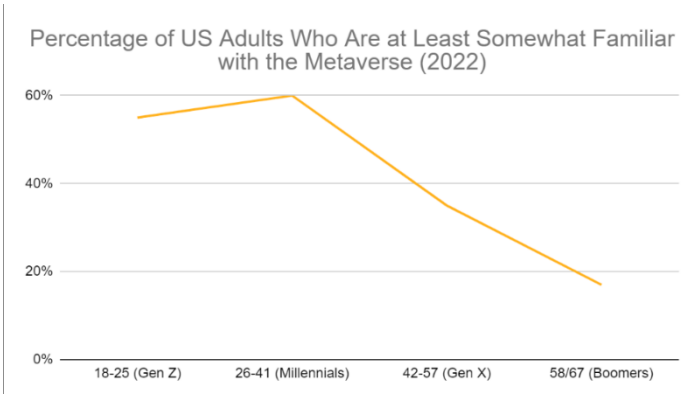


Figure 1 Americans Are Interested in AR, VR, and the Metaverse, From: https://theharrispoll.com/briefs/future-of-ar-vr-metaverse/.

Meta's vision of the metaverse, although ambitious, has faced criticism and scepticism from many individuals. Some perceive the concept as unrealistic, envisioning a future that may seem distant or unattainable. Others view aspects of the metaverse as dystopian or creepy, raising concerns about privacy, data security, and the potential for negative social implications (Hamilton M., 2023).

However, it is important to note that despite the current scepticism and challenges, the metaverse still holds significant potential. As technology advances, user preferences evolve, and societal needs change, the metaverse may find its place in the digital landscape. It will require careful development, addressing privacy and safety concerns, and providing meaningful and valuable experiences to users. The metaverse's success will ultimately depend on its ability to overcome these challenges and become a compelling and indispensable part of our future digital ecosystem.

The metaverse has the potential to create value by enabling new forms of social interaction, commerce, and entertainment. It can also facilitate the creation and exchange of digital goods and services, as well as provide new opportunities for creators, artists, and entrepreneurs to monetize their work. However, to achieve its full potential,

key areas need to be further developed and matured, and trust must be established among users, platforms, and regulatory frameworks. While some critics argue that the hype around the metaverse has created confusion and that it may have peaked, the metaverse represents a promising opportunity for businesses and society. Therefore, the answer to whether the metaverse is just hype or a valuable tool for value creation depends on how effectively it is developed, implemented, and governed. Although existing solely in digital form, the metaverse can feel just as real as any physical place you have visited. It's like taking a break from reality where you can create an avatar and adopt a different identity or unleash your imagination and explore new, imaginary worlds that seem just as authentic.

CONCLUSION

The metaverse presents a range of opportunities for businesses and society, from new forms of social interaction, commerce, and entertainment to increased efficiency and productivity in areas such as remote work and collaboration. It also has the potential to create new value through the creation and exchange of digital goods and services, as well as providing new opportunities for creators, artists, and entrepreneurs to monetize their work. However, to achieve its full potential, certain technological requirements need to be met, such as improving avatar movement and rendering environments, reducing local hardware requirements, and expanding accessibility across devices.

Moreover, the metaverse must establish trust as a critical factor before the onset of mainstream value creation and will need to extend beyond individual platforms and companies to the broader regulatory and governance frameworks that will shape the development of the metaverse. Without trust, the metaverse may struggle to gain mainstream adoption and unlock its full potential as a transformative force in society.

In the end, the metaverse has the potential to transform the way we interact with each other and with technology, unlocking new forms of value creation and enabling new opportunities for businesses and society as a whole. However, to realize this potential, we need to address the key challenges, including technological requirements, regulatory frameworks, and trust issues. As the metaverse continues to develop and mature, it will be interesting to see how it evolves and what new opportunities it presents for businesses and society.

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