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# Metaverse Shaping Cyberspace: An Analysis

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## ABSTRACT

*The world is developing rapidly and moving towards digitalisation. With the help of new technologies, you can access anything with just one click. With this said, many new inventions are happening in the cyber world, and one of the most talked about things is Metaverse. Meta-verse is considered to be the future. The purpose of this study is to investigate the relationship between cyber development and the meta-verse. People can exhibit themselves as digital avatars in the meta-verse, a 3D recreation of the actual world, and engage in various activities there, including trade, playing, socialising, learning, and shopping. Using the causal research analysis, the study analysed the changes brought about by the metaverse, especially after the introduction of the metaverse given by the founders of Facebook. Metaverse is changing how we use social media, marketing places, businesses, games, virtual office development, and many more. This study answers the question regarding the correlation between cyber development and the meta-verse. Further studies are required to have a better understanding of how metaverse brought changes.*

**Keywords:** *Cyber Development, Meta-Verse, Technology, Virtual Reality, Digitalisation.*

## I. INTRODUCTION

In the 1950s, people used to live a very simple life without the internet. There was no tension in social media, digital marketing, the gaming realm, virtual reality, and many more facilities we live with today. With the invention of the internet, our lifestyle has changed so much that we cannot imagine our life without our smartphones, PCs, and other digital gadgets. January 1st, 1983, is deemed the official birthday of the Internet. Prior to this, many computer networks needed a standard technique to connect with each other. A recent communication protocol called Transfer Control Protocol/Internet Protocol (TCP/IP) came into the image. As a result, different computer types linked to different networks may "talk" and "interact" with one another. On January 1st, 1983, TCP/IP became the official protocol for ARPANET and the Defense Data Network, leading to the foundation of the Internet. A single language could now connect all networks. We all know of the development brought by the internet in the world. In the same way, we will understand the development brought by the metaverse in cyberspace. The name 'cyberspace' was William Gibson Initially coined in his 1982 short narrative

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"Burning Chrome"<sup>2</sup> to allude to a computer-generated virtual reality. According to Gibson, cyberspace is the name of a real non-space world, which is characterised by people being able to engage and be present virtually via means of "icons, waypoint, and virtual worlds."<sup>3</sup>

The metaverse is a fresh start to develop something new, much to the early days of the Internet. The term "metaverse" was coined in 1992 by science fiction author Neal Stephenson. The most basic definition for the same was "the concept of a fully immersive virtual environment where people assemble to socialise, play, and work." It is a digital simulation that integrates elements of Augmented Reality (AR), Virtual Reality (VR), blockchain, and social media to produce spaces for engaging user interaction that closely resembles the real world. Facebook's CEO, Mark Zuckerberg, declared that "the next generation of the internet is metaverse" and that existing social media will come under the umbrella of this new wave. Metaverse is what he characterises as "a digital space where you can engage with folks by introducing yourself. Consider this to be more like being inside of an embodied Internet as opposed to merely looking at it."<sup>4</sup> In this research paper, we will see how the metaverse is bringing change in cyberspace.

## **II. HOW METAVERSE HELP IN CYBER DEVELOPMENT**

Metaverse creates a three-dimensional world that sometimes can be very similar to the real world. There are many gadgets available through which we can connect ourselves to the world of the metaverse, like a browser, a mobile app, or a headset. Metaverse allows netizens to engage in real-time interactions and conversations over great distances. Metaverse is booming in the field of the digital world because of its limitless potential and objectives. A lot of inventors are taking an interest in the metaverse. Metaverse is changing the way people interact. Now, companies are preferring to take the help of the metaverse through AR/VR showrooms. It is changing the way people use digital marketing. Virtual interaction is taking a new turn with this. Now we can get a better experience of online meetings as we can use a fully-fledged VR experience. Several companies are using AR setups to make their customers try their clothes or glasses. Metaverse can Help to build a better working environment as we can create virtual offices for those who wish to work from home. Even while working from home, such people can be connected to their peers. A recent survey conducted by Company Ciena found that 78% of business persons will be interacting with Metaverse.

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<sup>2</sup> Vassily Fourkas, *What is cyberspace*, Media Development (2004)

<sup>3</sup> Mike Crang et al., *Virtual Geographies, Space and Relations 205-221* (1st ed. 1999)

<sup>4</sup> Kashif Laeeq, *Metaverse: why, how and What*, How and What (2022)

### III. INTERNET OF THINGS X METAVERSE

Internet of Things means when we connect our day-to-day devices to the Internet and let us control those devices with the help of the Internet. The Internet of Things itself is going to bring a great revolution in the future. To make things work smoothly in the IOT with better connected immersive digital experiences, we can merge IOT with metaverse. This will allow us to connect data collected from real life to digital reality in the virtual world.<sup>5</sup> Customers' physical interactions with the virtual worlds created by AR and VR can be improved by the IOT.<sup>6</sup> As an example, consider the health awareness app. The medical IOT devices can be attached to the user's body or a body suit packed with sensors in order to instrument the user's state. Such is the potential health concern in the virtual world that could have an impact.<sup>7</sup> Metaverse, with the help of IOT, tries to create a practical digital twin. IOT helps a lot in creating an exact reflection of the real world.<sup>8</sup> The advantage of creating a twin world is that the economic players of the society can carry out the maintenance remotely. The digital twin creates a virtual environment connected with the real world.<sup>9</sup> To provide a completely immersive shopping experience, digital twins are widely used in the Metaverse.

### IV. META-HEALTH

Health care is under a basic necessity for any human. During the time of covid, the world faced a massive problem in the healthcare sector. At that time, experts realized the value of remote/digital health care. The era of the metaverse is coming, and the World Economic Forum has claimed in its survey that significant developments in the health sector are going to come from digital services.<sup>10</sup> There are many ways in which metaverse can help in the development of health care, like education, and clinical care, etc.<sup>11</sup> One can see a significant alteration in the field of medical education because of AR and VR, and one can also see the change in the training process.<sup>12</sup> The experience given by VR in terms of practical knowledge is beneficial.

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<sup>5</sup> Kanter T O, *The Metaverse and Extended Reality With Disturbed IOT*, IEEE Internet of Things Magazine (IOT) (2021)

<sup>6</sup> Pereira et al., *Arena: The Augmented Reality Edge Networking Architecture*, IEEE International Symposium on Mixed and Augmented Reality 479-488 (2021)

<sup>7</sup> Sodhro AH et al., *Convergence of IOT and Product Lifecycle Management in Medical Health Care*, 86 Future Generation Computer System 380-391 (2018)

<sup>8</sup> Minera R et al., *Digital Twin in the IOT Context: A Survey on Technical Features, Scenarios, and Architectural Models*, 108 Proceedings of the IEEE 1785-1824 (2020)

<sup>9</sup> Farsi M et al., *Digital twin technologies and smart cities*, Springer (2020)

<sup>10</sup> World Economic Forum, "Building the healthcare system of the future," 2016, <http://reports.weforum.org/digital-transformation/building-thehealthcare-system-of-the-future/>.

<sup>11</sup> J Thomason, *Metahealth-how will the metaverse change health care?*, 1Journal of Metaverse, 13-16 (2021),

<sup>12</sup> J Bardi, *3 secrets to creating immersive virtual environments*, Unity and Vuforia. Marxent Labs., (2018) <https://www.marxentlabs.com/virtual-environmentsunity/>

Now students can go inside the human body and get a better understanding. With this, AR students are learning to use new equipment and can be better doctors. Now with the help of Metaverse, a medical practitioner can perform surgery on a patient and can save both life and time. In a study on the effects of Covid-19 on clinical research, Tufts University discovered that telemedicine delivery was the most significant developing trend, followed by the increased acceptance of electronic informed consent.<sup>13</sup>

## V. SMART CITIES - THE FUTURE AID BY METAVERSE

The main reason why the metaverse is at the boom is that it brings ultimate imagination power to people. By giving them new life and broadening the scope of possible uses, the explosion of the metaverse notion will help intelligent cities advance. The advantage of using metaverse in developing smart cities is that it will interact in digital space as a virtual image. This will help the authorities to tackle problems efficiently and effectively. It provides better accessibility ensuring that people sitting in different parts of the city can enjoy the same information and experience.<sup>14</sup>

Metaverse helps in urban planning and construction. When we use metaverse, we can create a digital model of a city and can do all the experiments we want to do in that digital reality. This helps in the city's development more safely because we will be experimenting with everything before implementing those in the actual real world. Another advantage is that the metaverse creates a world parallel to the real world. This provides the mapping of the natural world, and with that, we will be able to recognize problems in advance. In the digital world, we get warnings if something is malfunctioning in the environment. This can be a great asset in saving a city from disaster. Now, the use of quantum computing and bio-computing creates a promising future.

## VI. METAVERSE: THE GAME CHANGER

Games are the field where we use music, computer programming, AI, user experience, and many more to create a better gaming experience. Metaverse can encourage people to use their creativity and explore more fields.<sup>15</sup> Games like Portal and World of Warcraft employ the metaverse to connect players in a social and collaborative setting; this kind of experience may

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<sup>13</sup> Breton Le at el., *COVID-19 and Its impact on the future of clinical trial execution*, Applied Clinical Trials (2020) <https://www.appliedclinicaltrials.com/view/covid-19-and-its-impact-on-the-future-of-clinical-trial-execution>

<sup>14</sup> J Wang & G Medvgy, *Exploring the Future of the Metaverse and smart Cities*, 22 proceedings of The International Conference on Electronic Business 106-115 (2022).

<sup>15</sup> Bourlakis at el., *Retailspatial evolution: paving the way from traditional to metaverse retailing*, 9Electronic Commerce Research 135-148 (2009).. <https://doi.org/10.1007/s10660-009-9030-8>

be applied in the workplace with the proper training and development.<sup>16</sup> It is often said that creating a virtual environment gives us visual clues and freedom to the space for different applications. In order to facilitate communication and engagement within virtual environments, avatar interactions use virtual representations of the participants.<sup>17</sup> As we know that virtual space is open to anyone; because of this, the metaverse is capable of bringing people together and building connections. With actions like adding friends and participating in group activities, users can connect with like-minded individuals, exchange ideas, and overcome personal difficulties, improving group communication.<sup>18</sup> There is a considerable scope for games and metaverse as they are capable of transforming the lives of people, and meeting individuals who enjoyed the series of games and had similar interests of their own led to a rise in social interaction for those who played those games.<sup>19</sup> Having the ability to communicate with both familiar and unfamiliar individuals is one of the most essential skills to develop. Using communication-based games, this skill could be effectively taught, along with others, like independence and patience with irritability. This results in turning a person not just active and conversational but also a great social person.<sup>20</sup>

## VII. METAVERSE A THREAT TO CIVILIZATION

We discussed how with the advancement in the metaverse system, there had been a great impact and changes in the internet world. Our society is not a primitive one, and almost everyone has internet connectivity. When the metaverse improves the world, it also drives wrong-minded people towards new technology, which can be misused to destroy human civilization. Metaverse, also known as Web 3.0, is being utilized by terrorists. Before the advancement of Web 3.0, terrorist organizations used Web 2.0, the Internet we know today. It is widely accepted that terrorist activities and Web 2.0 are deeply linked.<sup>21</sup> The way terrorist organizations use Web 2.0 is for advertisement, to give financial assistance to their organization and attacks, to

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<sup>16</sup> Van der Land et al., *Modeling the metaverse: a theoretical model of effective team collaboration in 3D virtual environments*, 4Journal of Virtual Worlds Research 2011. <https://www.learntechlib.org/p/178160>

<sup>17</sup> Id. at 70.

<sup>18</sup> Gomez-Diago & G, *Brainflowing, virtual/ physical space and the flow of communication: An explanatory approach to the metaverse through a tool designed for brainstorming*, 1Metaverse Creativity (new title: Virtual Creativity) 51-67 (2010). [https://doi.org/10.1386/mvcr.1.1.51\\_1](https://doi.org/10.1386/mvcr.1.1.51_1)

<sup>19</sup> Marton et al., *Do World of Warcraft (MMORPG) players experience less loneliness and social anxiety in online world (virtual environment) than in real world (offline)?*, 56Computers in Human Behavior 127-134 (2016). <https://doi.org/10.1016/j.chb.2015.11.035>

<sup>20</sup> Ritterfeld et al., *Video games for entertainment and education*, Playing video games: Motives, responses, and consequences 399-413 (2006). <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.456.5116&rep=rep1&type=pdf>

<sup>21</sup> B Todorovic & D Trifunovic, *Prevention of (Ab-)Use of the Internet for Terrorist Plotting and Related Purposes 616-643 (2020)* <https://icct.nl/handbook-of-terrorism-prevention-and-preparedness/>

train members of their organization, and the planning and execution of cyber attacks.<sup>22</sup> The reason is that the internet offers a massive pile of information at a very cheap cost.<sup>23</sup> Terrorists can quickly interact with one another and disseminate their message through the Internet.<sup>24</sup> Experts think that the metaverse will boost the coordination and planning opportunities and create a new target group.<sup>25</sup> Extremist leaders and aspiring extremists may run into one another in the metaverse and speak to one another directly through their avatars, assisting extreme groups in recruiting new members. The metaverse would also make it simpler to plan and coordinate attacks.<sup>26</sup> To keep the use of metaverse in safe hands, we need to make laws and regulations that will control human behavior in this online universe.<sup>27</sup> These terrorist organizations have found a new way of funding their attacks, and that is through cryptocurrencies. To keep a check on the transaction, the lawmakers need to change the existing laws, which might create a conflict between security and freedom.<sup>28</sup> To balance this online world will be tricky for lawmakers, and this is building a new challenge in lawmaking.

## VIII. ATROCITY IN METAVERSE

### (i) Money Transfer Fraud

With the metaverse's development, people are becoming more conscious of this. As more people start using metaverse platforms, this creates more opportunities for the fraudster, as we have seen with Decentralized Finance (Defi) and NFTs. Fraudsters will use the Metaverse-based resources like games, property, clothes, or native Metaverse crypto assets to organize frauds by swapping them. In 2021, digital assets, including land, were sold for more than \$500 million" by Decentraland, Cryptovoxels, The Sandbox, and Somnium Space combined.<sup>29</sup> This is just the beginning. The said amount can even reach four times in the near future and will create a more captive field for fraud. The only payment method for buying any real estate property in the metaverse is a crypto asset address and a small amount of money. KYC checks

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<sup>22</sup> Id. at 647.

<sup>23</sup> D. C. Benson, *Why the internet is not increasing terrorism*, 23 *Security Studies* 293-328 (2014). B Hoffman, *The New media, Terrorism, and the Shaping of Global Opinion*, 266-311 (3rd ed. 2017)

<sup>24</sup> B Hoffman, *The New media, Terrorism, and the Shaping of Global Opinion*, 266-311 (3rd ed. 2017)

<sup>25</sup> J S Elson et al., *The metaverse offers a future full of potential – for terrorists and extremists, too*, (2022) <https://theconversation.com/the-metaverse-offers-a-future-full-of-potential-for-terrorists-and-extremists-too-173622>

<sup>26</sup> Id.

<sup>27</sup> V Combs, *Metaverse security: How to learn from Internet 2.0 mistakes and build safe virtual worlds*, (2022) <https://www.techrepublic.com/article/metaverse-security-learn-lessons-from-internet-2-0-mistakes-to-build-safe-virtual-worlds/>

<sup>28</sup> O Bureš, *Freedom and/or versus security*, EU Counterterrorism Policy: A Paper Tiger? 203-227 (2013)

<sup>29</sup> Harsh Kumar, *All You Need To Know About Crimes In Metaverse World*, OUTLOOK MONEY (Sep. 17, 2022), <https://www.outlookindia.com/business/all-you-need-to-know-about-crimes-in-metaverse-world-news-207619>.

are never needed in the process, and money transferred is worth millions of pounds.<sup>30</sup>

### **(ii) Scams**

There has been massive propaganda concerning crypto assets, bitcoins, and digital currency. Those not well-versed in the functionality of these sectors are most vulnerable to scams. Fraudsters can make them easy targets. This is also a result of ignorance of the warning signals of fraud and how to keep money secure. According to reports, crypto assets valued over \$14 billion were reportedly robbed through scams in 2021.<sup>31</sup> To overcome these frauds, we need to educate people about the functionality of digital currency and how to keep your money safe and beware of fraudsters.

### **(iii) Sexual Abuse**

As per recent cases, even the virtual world is unsafe from sexual abuse. There have been many instances where people have reported that they were verbally or physically sexually abused in metaverse platforms. Games like Lego, Minecraft, or Secondlife are the primary medium for spreading sexual abuse. This has given rise to child-related sexual abuse, pornographic content, and sexual harassment. 'Within 60 seconds of signing onto "Horizon Worlds," co-founder and vice president of metaverse research at Kabuni Nina Jane Patel reported experiencing "verbal and sexual harassment." She said that three to four male avatars "virtually gang raped" her while taking pictures of them while yelling vulgarities.'

## **IX. THE LEGALITY OF METAVERSE IN INDIA**

### **(i) Data Security Rules**

In India, the data protection framework is maintained by The Information Technology Rules, 2011 and the Information Technology Act, 2000.<sup>32</sup> These laws put an obligation on the business to have security policies in order to establish code Compliance, physical safety measures, written information security strategies, and other measures.

### **(ii) Privacy and Security**

As of now, VR and AR sets are designed to collect the user's biological data, creating a threat to the individual's privacy. These sets can collect compassionate information about the individual. Because they can collect bio-metrical data, they are being considered as "highly

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<sup>30</sup> Clare Puplett, *The Metaverse and Money Laundering*, NORTHROW (Aug. 19, 2022), <https://www.northrow.com/blog/the-metaverse-and-money-laundering/>

<sup>31</sup> Andrew, *Using Benford's Law to Detect Bitcoin Manipulation*, COLUMBIA EDU. (Jul. 15, 2021 9:15 A.M), <https://statmodeling.stat.columbia.edu/2021/07/15/using-benfords-law-to-detect-bitcoin-manipulation/>

<sup>32</sup> The information Technology act, 2000, No. 21, Acts of Parliament, 2000 (India)



confidential data” under IT rules.<sup>33</sup>

### (iii) Anti-Trust and Competition Laws

There have been many difficulties in applying the current laws in the metaverse because of their unique characteristics. With the introduction of Metaverse, there have been issues related to it. Under the Competition Act of 2002, which implements antitrust laws, a contract, combination, or conspiracy to block commerce is also unlawful, as well as monopolization and attempted monopolization.<sup>34</sup> When we see all these laws mentioned here, we can clearly say India does not have proper laws regulating Metaverse, and there is a need to create new laws.

## X. NEED TO CREATE NEW LAWS

To maintain Metaverse as a safe place, India needs to put effort and bring new laws into play.

**1. Strict Rules:-** The human nature is that they are afraid of speaking in public, and because of that reason, when they enter the digital world, they think no one knows them, so they spread toxicity there. It is challenging to keep people in control in the digital world. Hence we need strict rules.

**2. User Identification:-** It is very easy to make fake identities and engage in immoral actions. Because of fake IDs, it makes it difficult to punish them.<sup>35</sup>

**3. Restriction on consumption:-** when a person starts enjoying the virtual reality more than the actual reality, it can create a problem. That person will spend most of the time in virtual reality only and will not focus on the actual reality. To stop this from happening, we should have some reasonable restrictions.

## XI. CONCLUSION

The research paper concludes that there are Metaverse is the future. Soon there will be a day where every single thing will be related to the metaverse and practically, we will be living in a metaverse world. The World changed with the internet's innovation and made a new world for netizens. Now metaverse is influencing the internet and shaping the future by changing cyberspace. In this journey, VR and AR are the main instruments in enhancing the scope of the metaverse. Metaverse has yet to mature and reaching everyone in society will take a few years to reach everyone in society. While we are on this journey, it is our responsibility that we create

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<sup>33</sup> Vinod Joseph et al., *A Review Of The Information Technology Rules, 2011*, MONDAQ (Mar. 19, 2020), <https://www.mondaq.com/india/privacy-protection/904916/a-review-of-the-information-technology-rules-2011>.

<sup>34</sup> The Competition Act, 2002, No. 12, Acts of Parliament, 2002 (India)

<sup>35</sup> Shade Oladetimi, *Protecting Your Digital Identity in the Metaverse*, JD <https://www.jdsupra.com/legalnews/protecting-your-digital-identity-in-the-6040663/>.

rules that protect people's rights and dignity.

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