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METAVERSE

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ABSTRACT

Many people saw Metaverse as a new word but the concept of Metaverse is not a new term. However, Zuckerberg's press release drew all the attention to the Metaverse. This study presents a bibliometric evaluation of metaverse technology, which has been discussed in the literature since the nineties. A field study is carried out especially for the metaverse, which is a new and trendy subject. In this way, descriptive information is presented on journals, institutions, prominent researchers, and countries in the field, as well as extra evaluation on the prominent topics in the field and researchers with heavy citations. In our study, which was carried out by extracting the data of all documents between the years 1990-2021 from the Web of Science database, it was seen that there were few studies in the literature in the historical process for the metaverse, whose popularity has reached its peak in recent months.

Keywords *– Metaverse, Virtual Reality, Augmented Reality, Blockchain, Artificial intelligence*

1. INTRODUCTION

After the renaming of Facebook into Meta there was a new hypearound the word ―Metaverse‖ but nobody really knows what It meant. In fact, there have been a lot of speculations for many years about how the internet and technologies evolve. Commonly we refer to Web1, Web2, Web3 etc. when we speak about different evolutionary steps of the internet, and now we have the metaverse under discussion. But let's just leave the definitions behind and imagine something: Imagine that you cancreate your perfect alter-ego in a virtual world where you are in control of every aspect. You can do what you want, you can ownwhat you want, and you have almost limitless possibilities. Sucha scenario was often depicted in some science fiction movies or series. But soon it could become reality as there is a big hype in the business world around making every layer, technology and protocol ready to create ―The Metaverse‖.

The metaverse is a massively scalable, persistent network of interconnected virtual worlds focused on real time interaction where people can work, socially interact, transact, play and evencreate. This means that the user can interact live with a world that is always there, and he can always access whenever he wants. Many advocates believe that the perfect futuristic versionof ―The Metaverse‖ there would be one single platform where you have your persona, your identity and platform services connected under which many worlds get created where you can gain access.

Like a world with many sub-worlds which you can join, leaveor even create. Important factors are still that there is a definition for a digital identity, digital ownership, digital currencies and the universal transferability of digital assets – Thus enabling a fully functioning economy in a virtual world.

This way the metaverse could replace several aspects of how tourism works, what it means to go on a concert, how to discover art exhibitions but especially also how people learn, study, interact and even meet friends.

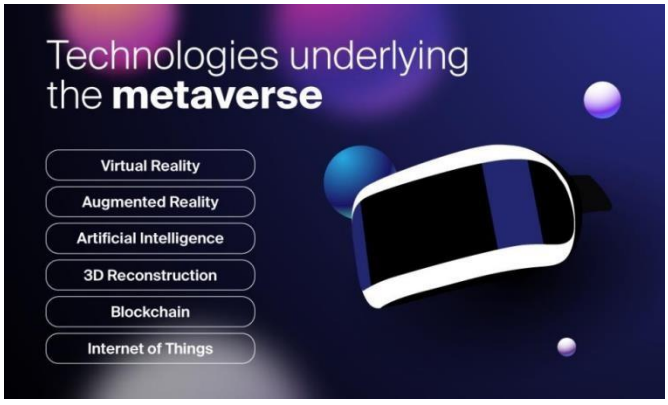

Fig 1: Metaverse [1]Metaverse is shown in figure 1.

1. WEB 1.0: A read-only Internet is significantly a source of information and a research guide. What it is not is a vibrant virtual community for user input or a store for functionality. In fact, it's interesting that even years later when full functionality is delivered over the web, many corporate functions and user experiences are instead provided through mobile applications on operating systems iOS and Android, rather than through an Internet browser.

2. WEB 2.0: Web 2.0 might sound complex and overwhelming, but it is easily broken down into three technologies: Rich internet application, web-oriented architecture, and social web. We'll explain each of these in a little more depth later on in this section. Because of these technologies, Web 2.0 combines client and server-side software to ―provide users with information storage, creation, and dissemination capabilities.

3. WEB 3.0: Web 3.0 (Web3) is the third generation of the evolution of web technologies. The web, also known as the World Wide Web, is the foundational layer for how the internet is used, providing website and application services.

2. WORKING

The idea behind the semantic web is to categorize and store information in a way that helps teach a system what specific data means. In other words, a website should be able to understand words put in search queries the same way a human would, enabling it to generate and share better content. This system will also use AI; the semantic web will teach a computer what the data means, and then AI will take the information and use it.

Fig 2: Virtual Reality [2]

Fig 2 Shows the Virtual reality is an artificial environment thatis created with software and presented to the user in such a way that the user suspends belief and accepts it as a real environment. On a computer, virtual reality is primarilyexperienced through two of the five senses: sight and sound.

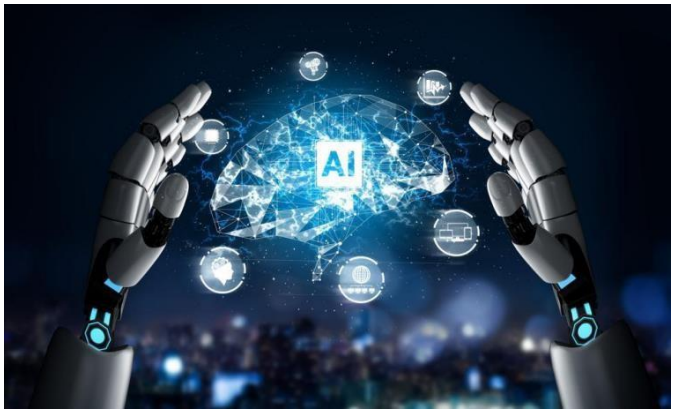

Fig 3 : Artificial Intelligence [2]

Fig 3 Shows the AI is accomplished by studying how human brain thinks, and how humans learn, decide, and work while trying to solve a problem, and then using the outcomes of this study as a basis of developing intelligent software and systems.

Fig 4 Shows the Augmented reality (AR) is a technology thatlets people superimpose digital content (images, sounds, text) over a real-world environment.

AR got a lot of attention in 2016 when the game Metaverse Pokémon Go made it possible to interact with Pokémon superimposed on the world via a smartphone screen.

. Fig 4 : Augmented Reality [3]

Fig 5 Shows the Blockchain technology offers a decentralized and transparent solution for digital evidence of ownership, digital collectability, value transfer, governance, accessibility, and interoperability. Cryptocurrencies allow people to transfer value in the 3D digital environment while working and socializing.

Fig 5 : Blockchain Technology [4]

Fig 6 Shows the BCI creates a new non-muscular channel for relaying a person‘s intentions to external devices such as computers, speech synthesizers, assistive appliances, and neuralprostheses. That is particularly attractive for individuals with severe motor disabilities. Such an interface would improve theirquality of life and would, at the same time, reduce the cost of intensive care.

Fig 6 : Brain Computer Interface [5]

Fig 7 Shows the Internet infrastructure. At the most rudimentary level of the Internet infrastructure is endless milesof telephone lines and fibre optic cable.

Fig 7 : Internet infrastructure [6]

Fig 8 Shows the the web, also known as the World Wide Web, is the foundational layer for how the internet is used, providing website and application services.

Fig 8 : Web 3.0 [7]

Fig 9 Shows the Mixed Reality is a blend of physical and digital worlds, unlocking natural and intuitive 3D human, computer, and environmental interactions. This new reality is based on advancements in computer vision, graphical processing, display technologies, input systems, and cloud computing.

Fig 9 : Mixed Reality[8]

Fig 10 Shows the Without cloud technology, there wouldn‘t be the processing power or speed required to send the data collected by IoT devices to the metaverse in real-time. It‘s this underlying infrastructure of IoT devices, data analytics and services, built on top of cloud technology, avatar in the metaverse.

Cloud-native platforms will drive innovation in the coming years, enabling forward thinking developers to build new application architectures that are resilient & agile to change so they can quickly adopt the metaverse.

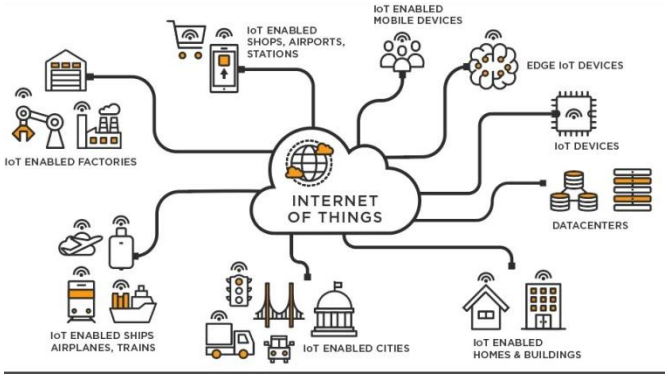

Fig 10 : IOT [9]

3. APPLICATIONS

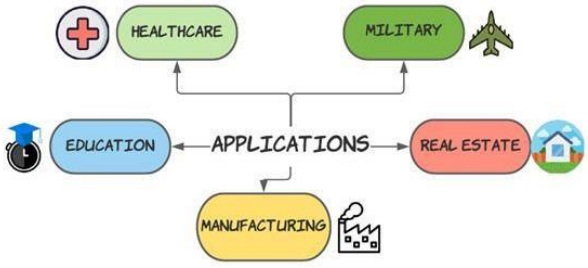

Fig 11 : Applications of Metaverse [10]Fig 11 shows the applications of metaverse.

The metaverse is still under development, and it is too soon to identify the top metaverse applications in a specific order or ranking. As of now, metaverse technologies are powering new waves of digital transformation across different industries. At the same time, metaverse technologies like VR, AR, and XR aretransforming the conventional perspectives on industry best practices and business models.

1. Healthcare
2. Military
3. Education
4. Real estate
5. Manufacturing

4. ADVANTAGES

1. Connecting the world and negating physical distance
2. Immersive experience
3. Better social interactions online
4. Upgrading social media
5. New business opportunities
6. Improvements to online learning and education
7. Positive impact on cryptocurrencies and NFTs
8. Improvements to gaming
9. New opportunities for financial gain
10. Improvements to the work environment

5. CONCLUSION

The Virtual World of Metaverse has the potential to become the next great technological innovation. By presenting its multidimensional aspects, the Metaverse has already caught the attention of some of the Technological Giants of the world. Not only does it bring people together, but also enhances their User Experiences. There is a great scope for the Metaverse to become the next ―Reality‖. A version of the Internet where most of the aspects of a human life will be virtualized. Be it, Entertainment, Economy or Education.

REFERENCES

[1] Mystakidis Stylianos, Metaverse, Encyclopedia, Vol 2, Issue 1, February 2022, pp.486-497.

[2] Lee, Lik-Hang, et al, All one needs to know about metaverse A complete survey on technological singularity, virtual ecosystem, and research agenda, Vol 2, Issue 5, October (2021), pp.2110-05352.

[3] Ning, Huansheng, et al, A Survey on Metaverse, the State-of- the-art, Technologies, Applications, and Challenges, November (2021), pp.2111-09673

[4] Jeong H,. Rethinking Open Universities, Int. Rev. Res. Open Distrib. Learn, June (2019), pp.152–166.

[5] Salmon, G. May the Fourth Be with you: Creating Education 4.0. J. Learn. Dev, December(2019), pp.95–115.

[6] Chan, P.; Van Gerven, T.; Dubois, J.-L.; Bernaerts, K. Virtual chemical laboratories: A systematic literature review of research, technologies and instructional design. Comput. Educ, March(2021), Vol 2, pp.100-053.

[7] Yuste, R.; Goering, S.; Arcas, B.A.y.; Bi, G.; Carmena, J.M.; Carter, A.; Fins, J.J.; Friesen, P.; Gallant, J.; Huggins, J.E.; et al. Four ethical priorities for neurotechnologies and AI. November(2017), pp.159–163

[8] Mystakidis, S. Distance Education Gamification in Social Virtual Reality: A Case Study on Student Engagement. In Proceedings of the 11th International Conference on Information, Intelligence, Systems and Applications (IISA 2020), Piraeus, Greece, 15–17 July 2020; pp. 1–6.

[9] Mystakidis, S. Motivation Enhancement Methods for Community Building in Extended Reality. In Augmented and Mixed Reality for Communities; Fisher, J.A., Ed.; CRC Press: Boca Raton, FL, USA, 2021; pp. 265–282.

[10] Barteit, S.; Lanfermann, L.; Bärnighausen, T.; Neuhann, F.; Beiersmann, C. Augmented, Mixed, and Virtual Reality- Based Head-Mounted Devices for Medical Education: Systematic Review. JMIR Serious Games 2021, 9, pp.290- 80.

[11] Silva, H., Resende, R., & Breternitz, M. (2018). Mixed reality application to support infrastructure maintenance. In 2018 International Young Engineers Forum (YEF-ECE) Costa da Caparica, Portugal, 4 May 2018, pp. 50-54.

[12] Logishetty, K.; Rudran, B.; Cobb, J.P. Virtual reality training improves trainee performance in total hip arthroplasty: A randomized controlled trial. Bone Joint J. 2019, pp.1585–1592.

[13] Jeon YA. Reading Social Media Marketing Messages as Simulated Self Within a Metaverse: An Analysis of Gaze and Social Media Engagement Behaviors within a Metaverse Platform.2022 Mar 12, pp. 301-303.