iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** XII **Month of publication:** December 2022

DOI: https://doi.org/10.22214/ijraset.2022.48077

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue XII Dec 2022- Available at www.ijraset.com

MetaHealth – How Metavers will transform healthcare?

Rutuja Gote[1], Dr. Sunita Jadhav[2]
[1]*MCA Department, Shivaji University, Kolhapur*
[2]*Associate Prof. MCA Department, Yashoda Technical Campus, Satara*

Abstract: ***We live in a digital age, and Pandemic has accelerated the development of new health care products and introduced new business models and health opportunities. In addition to tele-medicine, supply chain, payment, secure data exchange, and remote monitoring applications, there and they are the latest innovations in blockchain and non-fungible tokens (NFTs) that enable the exchange of value on fragmented networks. Futurists and technology experts are also exploring how Metaverse can play a role in various fields. This Commentary aims to explore how Metaverse can be used in the future to transform, improve, and possibly transform health care. The following areas covered are teamwork, education, clinical care, wellness, and monetization.***

Keywords: Blockchain ,virtual reality(VR), augmented reality , currencies, NFTs, tokenization, avatars.

I. INTRODUCTION

We have long known that the health care system is unsustainable, with constant stress, chronic illness, rising costs, the elderly, inadequate health care workers, and limited resources. It is need to find models that transport health care from the hospital to the living room.

Digital health is revolutionizing care directly and is becoming a major driver of change in the pharmaceutical and biotechnology industries. The Covid- 19 epidemic also encouraged developers and health workers to find ways to treat patients outside of hospital or remote areas. The spread of smartphones and the expansion of wearables are also contributing to this. At the beginning of 2021, I will see three major changes in the global healthcare environment: the transition of leading technology companies to healthcare, the monetization of consumer data, the creation of the healthcare data market, and the growth of Asia as a leader in digital health. We are now rapidly moving into the Metaverse period . The World Economic Forum has already predicted that the adoption of digital services will be one of the most important factors in transforming health care in the next decade. The combination of blockchain & gamification enables tokenized incentives in the virtual-world(VR). Futurists and experts are exploring how Metaverse can play a role in various fields. One of the boldest things to date was the announcement by the city of Seoul, South Korea. It plans to create a metaverse for the city government, including business, culture, tourism, education, and civic services. Bardi points out that while the entertainment industry first adopted extended reality, such development is increasingly being used for building and construction improvements, telecommunications, health care and emergency training.

Outlier Ventures suggests that the characteristics of the actual Metaverse include its own economy and its own currency, where value can be acquired, used, borrowed, lent, or invested in exchange for both physical or virtual sense, without the need for government.

Metaverse is a combination of DeFi, NFTs, shared governance, shared cloud resources, and autonomous ownership and can the exchange of physical, economic, and content assets.

In this Commentary, I explore how Metaverse can be used in the future to transform, improve and transform health care. I will discuss following areas: collaborative working, education, clinical care, wellness, and monetization.

II. COLLABORATIVE WORKING

The COVID 19 pandemic has dramatically changed social interactions. Social distance measurements, restrictions, and forced quarantine have accelerated the technical intervention of communication at an unprecedented scale. Many physical activities such as office work, education, and meetings are moved online via social media apps, the Metaverse, or mobile phones. During the pandemic, we saw social media grow rapidly and the forums became very busy. Manalova describes the emergence of a new online moment, which creates a basic reliance & Emotional investment in digital solutions like family, friends, communities & bridges between communities.

©IJRASET: All Rights are Reserved

In Metaverse, 3D avatars for health professionals will have space to collaborate with tools such as digital white-boards & will be able to meet face-to-face without any complex conference issues. Equipment, machines, systems, and processes will be safely tested using digital twins to detect faults, errors and damage before performing them in a physical environment.

Samia Rizk gives an example of how a health care application can involve creating a digital copy of a hospital procedure, such as a patient flow, and using advanced statistics and using millions of possible scenarios to find the cause and evaluate different interventions before using them.

Metaverse can also encourage and empower collaboration. Learners can be ranked according to their work and performance and grouped together to form teams with similar levels of achievement. Internal community collaboration will be incentivized with tokens.

In veterinary science (animal science), Neethirajan explains how data augmentation, The use of digital twins and digital avatars or metaverses provides a modern way to explore subtle nuances of animal behavior and understand how to improve animal welfare.

Scientists describe how geo-visualization allows for the exploration of knowledge and sensory perception, in which scientists design and use visual representations to analyze data, generate ideas, develop problem-solving solutions and build knowledge. Metaverse provides the space where it is possible to create a 3D model of almost anything & real-world definitions can similar with digital twin technology.

III.EDUCATION

Education AR (Augmented Reality) & VR (Virtual Reality) change medical education & training, as well as processes & procedures. With VR, students can literally enter the human body, give a comprehensive overview and repeat the actual process. AR was also introduced to provide students hands-on learning, such as simulating patient interactions with surgery, allowing medical students to visualize and practice new techniques. An even more immersive experience can be re-created from actual surgery where students can experience surgery as if they were a surgeon themselves.

The Study is an example of learning made gamified in practice. Users are rewarded with each class of attended , each video watched, every task is complete. All tasks must be completed. Some rewarded are given NFT crypto collections. Augmented Reality(AR) allows AI (Artificial Intelligence) instructors to show students how to stand, sing, and appear more confident. By using these techniques, people can learn in a completely playful environment and well-known trainers will demonstrate certain skills. This could be a famous surgeon, ”the surgeon is rewarded for his teaching, and for the students who receive awards for their education.

Sin-nosuke et al explores the learning system for analyzing devices in the virtual world and demonstrates their value in research collaborations and borderless collaboration. .They describe this as a response to enable collaboration between remote organizations and countries. They show the concept of a metaverse learning system.

Education will be transformed into a immersive experience where learning is fun, success is rewarded and data analysis is focused on learning accuracy.

IV.CLINICAL CARE

Medicine has always been a hands on personal encounter, where doctors can detect physical and emotional responses. However, the pandemic has forced the rapid acceleration of remote care technology. For example, before the pandemic, 43% of healthcare facilities were able to provide tele-medicine, but by 2020 that percentage had risen to 95%.

In a study of the impact of Covid19 on clinical research, Tufts University found that increasing adoption of electronic informed consent was the second largest trend after tele- healthcare use. These and other improvements have opened the way for remote and digital technology experiments.

Metaverse in clinical care has many uses. An immersive experience modeled from surgery can be used to provide real-time guidance from the surgeon's perspective. AR provides access to information in the sterile area of the operating room, improving the accuracy and flexibility of surgery. Metaverse will allow simultaneous education, training, planning, & shared medical procedures.

The Combined with AI, this can empower clinical decisions and ensure more accurate interventions designed for each patient. As an example, Veyond Metaverse creates the future Healthcare Metaverse ecosystem. It aims to improve education, training through a participatory learning platform, training, planning and collaborative medical procedures.

Initially, Metaverse will be used to simulate surgery, diagnostic imaging, patient care management, rehabilitation, and health management. For patients, these techniques can help them better understand their illness and treatment plans. In the clinical setting, AR and VR can support the care team with a point of care.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

Combined with radiology, AR can give doctors the ability to produce medical imaging, such as a CT (Computed Tomography) scan, directly into the patient's body, even when the person movement to provide clinicians with a clearer view of the internal anatomy.
This may improve the patient's experience, for example, intravenous injections may benefit from similar Accuvein technology that can visualize a patient's veins on the skin. Medtronic has acquired Digital Surgery, and Zimmer Biomet has announced OptiVu ™ Mixed Reality that will use Microsoft HoloLens to create real & digital worlds. Avatar mimics realistic counseling, personal care, treatment and diagnostics through data connections.
Extended reality headsets are also used as a way to alter the psychological experiences of users for the treatment of addictions & phobias.

V. WELLNESS

Gamification is a new way to connect healthcare providers and patients, especially in the areas of wellness and fitness where AR can do smart jobs under the guidance of visual trainers. For example, in Geno pets, using data from smartphones and accessories, players can be rewarded with walking, dancing, running every day, or just getting up and making a living.
Medical schools are beginning to incorporate AR into the curriculum to give students valuable learning opportunities. The program can use AR to simulate the interaction between the patient and surgery, allowing medical students to visualize and practice the technique during training.

VI. MONETIZATION THROUGH GAMIFICATION

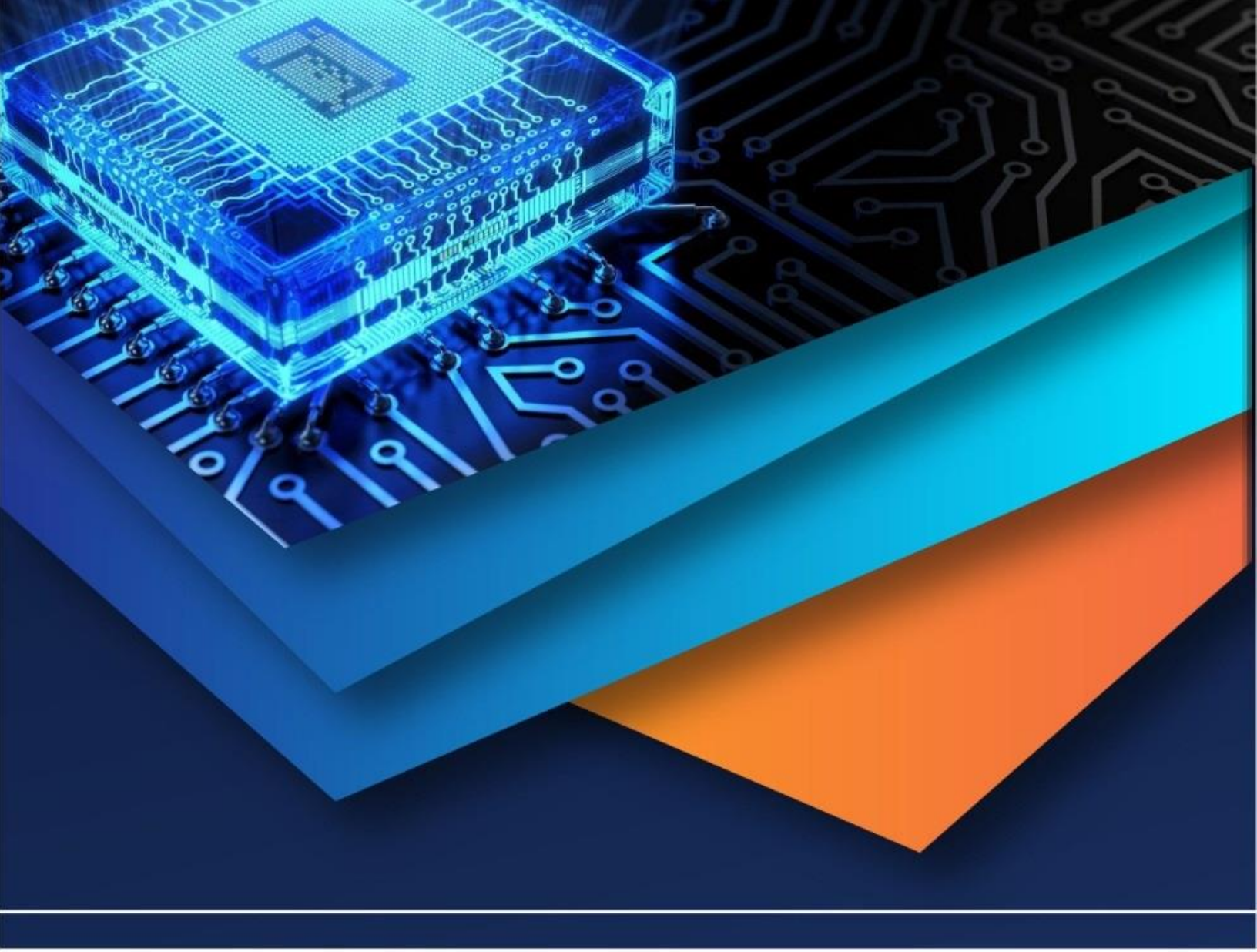
Monetizing health data will opens up new economic opportunities. ‘Play to earn’’, ‘learn to earn’ and ‘move to earn’ can be a huge income for millions of people.
We are witnessing the consumerization of healthcare. Combining data with a blockchain will enable data owners to monetize their data . Self-sovereign identities will allow individuals to monetize medical data in the future, and consumer-focused healthcare driven by data will change past institutional models. Harnessing technology will also give consumers better ability to manage their health and wellness as well as make better, more informed decisions.
New forums that create ways for people to "learn to do" can be integrated into health care. This could be for wellness , or for community collaboration, or medical education. Non-fungible tokens (NFTs) play an important role in value trading. NFTs play an important role in value exchange.
The Collaboration is essential for digital health care. Blockchain and the token economy will allow for both secure sharing & monetization of data & value for intellectual value.

VII. CONCLUSIONS

In this analysis, the ways in Metaverse can be used in the future to transform, improve & possibly transform health care are explored. The five areas discussed are collaborative working ,education , clinical care, wellness, and monetization . There is no doubt risks, but the opportunities are immeasurable. The ability to use young people who have studied digital to manage their health care and to be motivated to learn, follow a healthy lifestyle & educate their peers in a safe social network is a powerful idea. Innovators are revolutionizing immersive micromodules that can teach health education online to anyone, anywhere. A precision feature to help clinicians collaborate globally and open up opportunities to overcome the shortage of healthcare professionals using augmented reality. The ability of communities, patients, and professionals to be rewarded for their efforts to improve health opens up a whole new economy and opportunities for profit.
This is a new world that evolves day by day, and our knowledge grows as innovators build these new metaverses. It is possible to create a sustainable & affordable paradigm in healthcare ,and healthcare leaders must be part of that creation.

REFERENCES

[1] .https://reports.weforum.org/digital-transformation/wpcontent/blogs.dir/94/mp/files/pages/files/wef-dti-healthcarewhitepaper-final-january-2016.pdf
[2] https://dergipark.org.tr/en/pub/jmv/issue/67581/1051 379
[3] https://techjockey.com/blog/what-is-metaverse.
[4] https://www.influencive.com/flickplays-3d-social- media-platform-presents-as-an-industry-first/
[5] https://www.euronews.com/next/2021/11/10/seoul- to-become-the-first-city-to-enter-the-Metaverse-what- will-it-look-like.
[6] https://www.studyum.org/
[7] https://www.frontiersin.org/articles/10.3389/fvets.2021.74 0253/full
[8] https://academy.studyum.org/everything-you-need-to- know-about-gamification-and-studyum-part-iv-gamifying- your-learning-through-studyum/.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)