

THE IMPACT OF THE METAVERSE ON THE FUTURE OF DIGITAL MEDIA IN IRAQ (Developments and Challenges)

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Abstract

Modern technologies exert a powerful influence across various fields, foremost among them the field of media, which has shifted from its traditional concept to one based on technologies suited to the digital generation. This study examines the impact of the metaverse on digital media in Iraq, together with the principal concepts associated with the metaverse, given the close relationship between the metaverse and media. Many media institutions around the world possess considerable experience in producing outstanding content, and with the metaverse these institutions will gain a new and remarkable opportunity to raise this content to an entirely different level. Most media outlets have now become fully aware of metaverse technology and have begun to benefit from its features and opportunities in order to develop the content they provide, to deliver reports from this virtual space, and to facilitate access to new areas. Major news agencies such as Reuters, among others, have announced their intention to move toward this virtual world. The advantages offered by the metaverse are numerous, and every media institution should begin to explore this transformation, to embrace synthetic media in order to develop unique content, and to use virtual reality and augmented reality to deliver more effective content. In general, the metaverse has the capacity to produce a new category of user who, within any virtual world, can read a newspaper, instantly share it with others, and obtain unique, practicable access to journalistic stories without leaving home.

Keywords: Metaverse, Digital Media, Challenges, Developments.

Introduction

In recent times, and up to the present day, the world has witnessed numerous rapid changes resulting from the emergence of new technologies across various fields, particularly in the field of media, which has moved toward digital technological transformations. These transformations have brought about unique changes in the world of digital media, producing a powerful leap in the field of communication and media, as well as a convergence between technological applications and the Internet with its tremendous developments. It is this convergence that has transported the human element into the virtual world of imaginative nature, keeping human beings in a state of continuous development along a path that combines reality and imagination. These technologies have come to play a fundamental

role in changing the pattern of contemporary life. Among the most important modern technologies that play an effective and indispensable role are: artificial intelligence, the Internet of Things, augmented reality, virtual reality, the metaverse, and other applications.

First: Previous Studies

Study of Shereen Al-Buhairy (2023): This study aims to identify the extent of Egyptian media professionals' exposure to metaverse technology through Arab and foreign media websites and their attitudes toward it. The researcher relied on selecting a purposive sample of Egyptian media professionals working in media institutions, and on designing a questionnaire as a research tool for data collection. The study reached a set of findings, the most important of which is that the level of Egyptian media professionals'

exposure to the metaverse through Arab and foreign media websites was high (mean = 3.6435, standard deviation = 1.12154), and that the attitudes of Egyptian media professionals toward following metaverse technology through Arab and foreign media websites were strong and high (mean = 3.5120, standard deviation = 1.1294).

Study of Ayman Mohamed Ibrahim Brik (2022): This study aims to monitor and analyze the vision of a sample of experts in the field of digital media regarding the future of the digital press industry in light of the announced adoption of metaverse technologies, and the effects that employing these technologies may have on digital journalism in terms of the nature of the medium, the form of the message, and the characteristics of the communicator and the audience. The researcher relied on the questionnaire and the in-depth interview through a foresight study applied to the coming two decades (2022–2042). The study reached several findings, the most important of which is the experts' confirmation that journalism, in both its print and digital forms, faces major challenges in light of modern technologies, including the metaverse; that Egyptian press institutions are not expected to join the metaverse world in the near future; and that the most prominent challenges facing press institutions in joining the metaverse are financial, followed by technical ones.

Study of Wang L. (2022): This study aims to explore the future of traditional and digital journalism in Japan in light of the spread of fifth-generation networks and the birth of the metaverse within Japanese press institutions. The study relied on the analytical survey method as well as in-depth interviews with a number of media editorial directors in the city of Tokyo. The study reached several findings, the most important of which is that press institutions in Tokyo are all working to benefit from developing all the processes carried out within press institutions, such as design, production, editing, and output; that press

institutions seek to expand journalistic services through digital technology; and that a new type of journalism called virtual journalism has emerged, relying on digital technology and the metaverse in addition to artificial intelligence technology.

Study of Joo-Eon Jeon (2021): This study aims to distinguish the UXBDI platform as a metaverse platform from other metaverse platforms, particularly with regard to the services it provides, including augmented reality, live access, and virtual worlds. This was done through a survey study on a sample of 442 metaverse platform users in South Korea. The study reached several findings, the most important of which is that the UXBDI design is characterized by novelty and by products and services that satisfy the user experience; that UXBDI as a metaverse platform renewed attractiveness, interaction, and user engagement; and that it preserved the platform's identity by increasing the user's definition within virtual worlds.

Commentary on Previous Studies and Aspects of Benefit

After reviewing the previous studies and examining their findings, it became clear that the impact of the metaverse on the future of digital media in Iraq had not yet been studied. It also clearly emerged that employing the metaverse in media is important and that studying the impact of the metaverse on the future of digital media in Iraq is necessary, given the achievements and numerous benefits it entails and their effect on innovation. In light of the review of previous studies, the following became evident:

- Studying the impact of the metaverse on digital media is among the topics adopted by many researchers, owing to its considerable impact on the media industry and its numerous important advantages.
- The present study agrees with most previous studies in addressing the concept of the metaverse and the concept of digital

media and in presenting metaverse applications.

- The present study resembles previous studies in its use of the descriptive method.
- The present study differs from previous studies in the use of theory, as some studies used the media dependency theory while others did not use any theory.

Benefiting from Previous Studies

- Defining the study's objectives and crystallizing the research problem.
- Identifying and formulating the research questions.
- Assisting the researcher in formulating the methodological procedures.
- Becoming acquainted with the various aspects of the metaverse across different fields and specializations, and the possibility of drawing comparisons and benefiting from them in the present study.

Second: The Study Problem

Digital media, with the modern and advanced technical tools and means it encompasses, is witnessing new and rapid changes resulting from developments in communication technology that have accompanied the tremendous updates of the Internet, which contributed to the birth of the metaverse. This new form of modern technology will have a significant impact and role in changing contemporary life in general and media in particular. Therefore, this study was undertaken in order to establish the concepts associated with the metaverse and to identify the most important technologies related to it, in addition to monitoring and identifying the most significant challenges that hinder metaverse applications. The present study also seeks to determine the extent of the metaverse's impact on digital media in Iraq.

Third: The Importance of the Study

The importance of the study lies in understanding the impact of the metaverse on the future of digital media in Iraq and in identifying the developments and challenges

that hinder the employment of the metaverse in the field of media. The importance of this study is also evident in its focus on metaverse technology, its multiple applications, and the related concepts, as it contributes to saving time, reducing effort and cost, and has become a mainstay for many advanced institutions and bodies. The importance of this study further lies in its treatment of a new subject, namely metaverse technologies, especially given the scarcity of Arabic studies and research related to the subject and the paucity of foreign research addressing it.

Fourth: The Objectives of the Study

This study aims to identify the impact of the metaverse on the future of digital media in Iraq, to examine the developments and challenges that hinder the metaverse, and to determine the extent to which this technology is employed, through the following sub-objectives:

- To identify metaverse applications in the field of digital media.
- To identify the impact of the metaverse on the future of digital media in Iraq.
- To present the most important concepts related to metaverse technology and its principal developments.
- To identify the most important challenges of the metaverse that hinder the future of digital media in Iraq.

Fifth: Concepts Associated with the Study

The Metaverse: It is the post-reality world, in which physical reality is merged with virtual environments through a connected network comprising continuous, multi-person interactions. It contains open worlds and is based on virtual reality (VR) and augmented reality (AR). Users are represented within it by avatars that interact in real time with an immersive sense experienced by users; these representations are called avatars (Al-Sayed, 2023, p. 101).

The metaverse is defined operationally as the digital space that expresses the fifth generation of the Internet, in which users can express

themselves using distinctive avatars to simulate tangible physical reality.

Digital Media: Digital media is defined as any element or group of elements that combines text, sound, video, or images for the purpose of conveying information that produces meaning in the user's mind. Digital media is also defined as a term applied to communication tools that involve converting data into machine-readable formats within networks that people can access. It is likewise defined as the means by which one communicates with data converted into digits through devices such as mobile phones, social media platforms, websites, and e-mail messages (Taskiran, pp. 144–160).

Sixth: The Theory Used in the Study (The Technology Acceptance Model)

The Technology Acceptance Model is the theory that helps to explain and predict user behavior in accepting or rejecting information technology. It was originally devised by David Davis in 1986. The model provided a comprehensive explanation of the role of external variables in influencing the individual's adoption or rejection of new technology, these variables being (user intention, ease of use, and the perceived usefulness resulting from exposure and use). The model aims to explain the user's intention and behavior, and the theory uses behavioral intention as an indicator of technology-use behavior. The theory proposes that expected performance, expected effort, and social influence significantly affect the intention to use, and that facilitating conditions directly affect user behavior alongside the intention to use. The UTAUT model also seeks to clarify whether individual differences (gender, age, voluntariness of use) affect the acceptance and use of technology (Park, 2019, p. 150).

Seventh: The Methodological Procedures of the Study

Type of Study: This study belongs to the pattern of descriptive-analytical studies, which do not stop at the stage of data collection but

extend to classifying, analyzing, and describing the data, through monitoring the most prominent metaverse technologies employed in the field of digital media and understanding their impact on the future of digital media in Iraq.

Method of the Study: The study relies on the media survey method in order to obtain information about the metaverse technologies used in digital media. The survey method helps to monitor the most prominent metaverse technologies and to understand the developments and challenges, and then to classify and interpret these data in order to reach findings that serve the objectives of this study.

Theoretical Framework

First: Stages of the Development of the Metaverse Concept

- The First Stage: the applications that appeared in the late 1970s.
- The Second Stage: the virtual environment, a three-dimensional online virtual environment developed for various platforms in the 1980s.
- The Third Stage: with the advancement of computer software, numerous models of virtual worlds with better graphics appeared, as virtual worlds became three-dimensional and social aspects began to emerge.
- The Fourth Stage: covers the period from 2000 to 2010, when virtual worlds became more advanced and the number of users increased, including many virtual-world platforms.
- The Fifth Stage: its most prominent features include the emergence of open-source virtual worlds, which appeared in the first decade of the twenty-first century (Awad, 2024, p. 82).

Second: The Emergence of the Metaverse

The term “metaverse” was first introduced in 1992 in the science-fiction novel by the American author Neal Stephenson, entitled *Snow Crash*, in which he used the metaverse to

express the idea of a three-dimensional virtual world that enables users to interact with one another remotely using their avatars, which represent them in the virtual world. Each avatar performs a set of interactions and transactions in the three-dimensional virtual space in several ways as similar as possible to actual reality (Lee, 2021, p. 3).

The concept of the metaverse has evolved from the perspective of virtual worlds to the perspective of virtual business models that combine the physical and the digital through applications of extended reality, blockchain, artificial intelligence, three-dimensional models, and the Internet of Things, supported by three main factors: continuous technological innovation, increased market readiness, and pioneering experiences in the world of the Internet using metaverse technologies, which have made it a strategic partner for digital business (Khamis, 2023, p. 260).

Third: Continuous Technological Developments

The following are the most important technological developments that have driven the evolution of the metaverse from the perspective of purely virtual worlds toward business models and media activities:

- The First Innovation: the fifth generation of wireless communications.
- The Second Innovation: the third generation of the Web (Web 3.0).
- The Third Innovation: spatial computing.
- The Fourth Innovation: the digital human (Garon, 2022, p. 175).
- The Fifth Innovation: interactive reality technologies and devices.
- The Sixth Innovation: virtual-world applications (Ming, 2022, pp. 24–32).

Fourth: The Relationship between the Metaverse and Media Concepts such as Virtual Reality and Augmented Reality

a. Virtual Reality (VR): a three-dimensional computer environment that simulates real

environments and presents its contents so as to enable the user to experience and interact with the components of these computer-generated environments through the senses or through certain assistive tools, making the user feel part of this environment, affecting it and being affected by it (Al-Halfawy, 2018, p. 75).

b. Augmented Reality (AR): this term represents a parallel technology that differs in nature; instead of immersing us in another world, augmented reality integrates computer-designed images into the real environment by sending digital light directly to the human eye. It is an interactive, participatory, and synchronous technology that uses wired and wireless devices to add digital data to actual reality in the form of (images, media, video clips, links) in multidimensional forms without isolating the user from the environment (Awad, 2024, p. 82).

There is a close relationship between metaverse technologies and the media field. Recent years have witnessed growth in reliance on augmented reality (AR) and virtual reality (VR) technologies to tell electronic journalistic stories on a number of news platforms, where a three-dimensional virtual environment is created with which the user can interact, through the simulation of image and sound, so that the user lives within the virtual experience. International and Arab media outlets have taken this technology as an opportunity for marketing, advertising, and interactive journalistic experiences very different from those of the past (Azuma, 2001, p. 36).

Augmented reality (AR) is among the technologies that rely on the actual reality experienced by the user while feeding it with some additional information and data. For example, a user may wear special augmented-reality glasses to see the street exactly as it is and perfectly clearly, while certain data and information about some of the places the user is looking at appear, including the display of certain signs or identifying markers.

Augmented reality is divided into two types: the first relies on wearable devices, and the second relies on mobile devices supported by an augmented-reality application with spatial display video (Morgan, 2016, p. 50).

The scientific and practical presence of the virtual media environment is realized through augmented-reality and virtual-reality applications. The simplest model of this is the construction of a virtual weather-map model: when you watch a weather presenter pointing to the movement of wind, rain, or other phenomena in different parts of the world, with a map behind them over which clouds float and the sun rises or sets, in reality the presenter is standing in front of a blue or green screen, while the virtual map is in fact an environment created by the computer, called chroma keying. Different environments can also be created in television and cinematic drama, in advertisements, children's programs, cartoon films, football matches, and various types of sports—environments that do not actually exist in the studio but can be embodied on screen as if alive. They are produced by artists specialized in this type of special effect using a Virtual Studio Environment system; some are produced, as in cinema, shot by shot, and some are generated collectively (Sadiq, 2008, p. 154).

Augmented reality has also become prevalent in social media and marketing, in addition to its potential use in highly visual and interactive forms of learning by combining the use of the camera, the Internet, and rich media with Global Positioning Systems (GPS) to create interactive and attractive maps. Augmented-reality applications are used for other purposes such as marketing; for example, some major companies send promotional postcards by regular mail, with the card containing images of a new car model, and once the user installs a particular application on the mobile phone and views the image with the camera, the car is brought to life through a video advertisement of the new model (Greener, 2014, p. 20).

Fifth: The Metaverse Environment and the Technology Used in It

The core technologies (VR, AR, MR, and blockchain) are considered the technological infrastructure of the metaverse. The metaverse is based on complex and interwoven types of virtual reality (VR), augmented reality (AR), and mixed reality (MR), which together form what is called extended reality (XR), relying on three-dimensional technologies to create virtual objects that integrate closely with physical and human tangibles. Artificial-intelligence technologies also overlap with them, as do the Internet of Things, computer vision, sensory sensors, and other technologies such as blockchain to ensure the storage and handling of data in a way that guarantees protection and privacy for users. The metaverse is also said to rest on eight core technologies, including extended reality, user interaction, robotics, artificial intelligence, and other related technologies, as follows (Lee, 2021, p. 5):

- **Extended Reality (XR):** extended reality is an umbrella term encompassing all the interactive media technologies of the metaverse world—that is, an umbrella for virtual reality, augmented reality, and mixed reality. Virtual reality refers to the computer simulation of environments that can be physically simulated in the real world, while augmented reality refers to the use of the computer to create virtual elements within actual reality; thus augmented reality focuses on a real environment and enhances how users interact in the tangible physical world. Mixed reality refers to the merging of virtual reality with real reality, enabling the user to interact with the virtual elements added to real reality (George, 2021, p. 4).
- **Blockchain:** blockchain technology refers to decentralized databases operating on a peer-to-peer system, in which data are stored in blocks shared by all network

nodes and monitored by each, owned and controlled by no central authority. Its main features therefore include decentralization, anonymity, and real-time verifiability; it can accordingly help store vast amounts of data while ensuring user privacy, security, and interoperability. It is therefore ideal for creating, registering, distributing, transferring, and tracking digital assets, and is among the most important technologies used in the metaverse (Yang, 2022, p. 8).

- **Artificial Intelligence:** artificial intelligence is associated with the technologies that enable machines to learn, think, and act like humans. These capabilities have reached a stage at which robots can make predictions through learning, recognize patterns from data, and perform repetitive tasks (Huynh et al., 2022, p. 2).

The metaverse benefits from artificial-intelligence technologies in several ways, including the following:

- Artificial-intelligence algorithms coupled with machine learning allow systems to process how users interact within the metaverse and to use these data to improve user performance.
- Creating pre-planned scenarios for AI-endowed characters with a realistic appearance, or creating their own scenarios, enabling these characters to roam the metaverse and interact with it.
- Automating software-development processes so that more complex software can be built within the metaverse world with less effort than expected.
- **Three-Dimensional Modeling:** the term three-dimensional modeling refers to the techniques used to create three-dimensional representations and visually interact with them on computers. It includes techniques for three-dimensional design to create three-dimensional dimensions of the user's environment,

body, posture, and location, thereby making the sense of the metaverse appear like the real physical world (Ning et al., 2022, p. 10).

- **The Internet of Things:** the term Internet of Things (IoT) refers to an open network of smart devices that have the ability to share data and resources and to interact in the face of situations and changes in the environment. These devices, together with remote sensors, can serve as an extension of the human senses to help transfer data between the physical world and the virtual worlds through the devices and virtual environments integrated into the metaverse (Lee et al., 2022, pp. 1319–1338).

Sixth: The Metaverse and Media Applications

The Impact of the Metaverse in Changing the Media Industry: In the digital age in which all media outlets live, and amid the transformations witnessed by digital media and the emergence of new trends in news coverage on various websites using modern digital tools and technologies, media in general—and the news content presented to the recipient in particular—have been affected, culminating in journalism's entry into the metaverse world. All these technologies have contributed to enriching media content and increasing interactivity between the target audience and the media message by placing the viewer at the heart of the event and allowing them to experience it. The metaverse is considered a rich technology because it contains live three-dimensional visual images and texts, and is characterized by rapid reach to the audience and by in-depth understanding of the message and content (Al-Qulaini & Abu Al-Qasim, 2022, p. 597).

The future will serve as a carrier transporting people into the digital age, meaning that we will live in a digital network that is ubiquitous and that will contribute significantly to changing the current manner of social communication. In the new-media industry, the

transformation will continue to reshape scenes of social life such as human interaction, entertainment, and transactions. In this case, both the form of the digital products and services offered by new-media institutions and the manner of acquiring users will change; for example, time and place will no longer be an obstacle for people, who can enjoy a virtual concert at home or participate in climbing Mount Everest online (Lin, 2022, p. 160).

Metaverse Applications in Journalism and Advertising: The media field in general, and the journalistic field in particular, has witnessed extremely rapid and unprecedented developments during the recent period, especially after Mark Zuckerberg's announcement in October 2021 of the move toward transforming into the metaverse world and changing his company's name to Meta. This development came as a result of the emergence of new patterns of journalism relying on what is called artificial-intelligence journalism, such as, for example, automated journalism, robot journalism, algorithmic journalism, and artificial-intelligence journalism, in addition to metaverse journalism, which relies on metaverse technologies. It is clear from the foregoing that employing metaverse technologies in particular, and technology in general, in the journalistic field heralds a new era in journalistic work through the modern tools and capabilities it provides that facilitate journalistic work (Sharif, 2023, p. 975).

As for advertising through the metaverse, it offers a new opportunity to make consumers aware of the brand and to involve them in the product experience in a unique way. Although traditional public-relations techniques were a fundamental element of the advertising industry for a long period, the shift to the virtual world has allowed brands to reach a broad audience. Being present alongside popular gaming spaces and global brands now represents new interactive advertising opportunities, and displaying products in a

three-dimensional environment adds a kind of vitality to the experience, giving customers the chance to explore products from all sides and learn how they work and interact with them. This necessitates good planning before launching any advertising campaign in the metaverse and ensuring the consistency of the messages directed through virtual spaces with those broadcast through the campaign's other channels (Anbar & Al-Mahlawy, 2023, p. 594).

Advertising opportunities in the metaverse, analogous to the shift from television, radio, and billboard advertisements to social media, see the world now shifting from digital advertising to metaverse advertising. The metaverse enables marketers to embed their brands within that experience in a way that makes every user a star of the show, rather than seeing celebrities and fashion models displaying the latest styles. If it is a clothing or fashion brand, it allows users to try out its latest offerings. With regard to social-networking sites, communicating with friends is much easier in the metaverse; in addition to video calls, users can host or attend online events and parties such as weddings, birthdays, and other types of celebrations, attending regardless of where they are in the world (Yassin, 2022, p. 134).

Experiences and Cases of Media Institutions Using the Metaverse

The metaverse relies on combining many modern technologies such as artificial intelligence, augmented reality, virtual reality, cloud computing, blockchain and cryptocurrency, three-dimensional reconstruction—which allows virtual visits to and viewing of real sites—and the Internet of Things (IoT). Major international media institutions seek to benefit from this new approach in updating and developing performance and modernizing productive work in the journalistic and media field, such as The Washington Post, The Guardian, Reuters, The

New York Times, and other media institutions (Rosenberg, 2022, pp. 25–27).

We find that when The New York Times conducted an experiment in producing news stories using virtual-reality technology (The Displaced; The Fight for Falluja), which is considered the most popular in the world of virtual production, it showed great empathy with the audience participating in the story, who found no barriers between themselves and the news story (Mohammed, 2021, p. 109).

We also observe in the marketing world the fundamental reliance on metaverse technology, as there are major companies that have adopted this technology, such as Deliveroo, whose marketing campaign relies on deploying virtual contestants in a delivery game across a virtual island; participants can obtain a digital code that they can activate in the real world, and within the first hour alone the campaign gained three million in-game participations (Kang, 2022, pp. 285–291).

The British Broadcasting Corporation (BBC) followed suit, producing 360-degree visual stories about the arrival of thousands of African and Syrian refugees fleeing the horrors of war and heading to Europe across the Mediterranean via the “Balkan route,” their living conditions, and what they are exposed to on the way to certain countries such as Britain and Germany. These stories carried viewers to the heart of the event without determining the angles or selecting the images (Mohammed, 2021, p. 9).

Seventh: Interaction and User Experience

How Users Interact with the Metaverse: Scientists in the state of Pennsylvania discovered a sensory system for users, a new vapor-saturated technology that makes it possible to touch someone in the metaverse world virtually by sending lifelike sensations. The scientists modified the virtual-reality (VR) headset by equipping it with haptic technology, meaning that it simulates touch by applying forces, vibrations, and movements (Al-Khouli, 2022, pp. 178–179).

Many major institutions and companies have introduced a large number of tools and technologies used with the metaverse. For example, the global platform Horizon Home introduced new smart glasses that allow their users to spend virtual time holding their business meetings from home, called “Oculus” glasses. The metaverse also introduced a new set of 2D Apps that allow the user to continue using their various favorite applications without needing to remove their smart glasses to check their phone. Amazon also announced a new set of tools that allow users to deliver diverse experiences and software within the metaverse world, offering a new level of interactivity that the user can experience through their smart glasses, mobile phone, or personal computer. Foremost among these tools was the Presence Platform, which allows developers to use numerous application programming interfaces dedicated to controlling elements and the virtual world through hand movements in the air as well as through voice commands, as well as the Voice SDK interface, which allows the development of many voice-based experiences. It is possible for a user to be wearing virtual-reality glasses and interacting with a group of people inside a store or club and speaking to them by voice (Anbar & Al-Mahlawy, 2023, p. 591).

Fifth-generation networks (5G), which appeared in April 2019, are the successor to the fourth generation and are used by communication and mobile-phone companies to transfer data and information at a high speed exceeding the bandwidth speed of the fourth-generation network (Agiwal, 2022, pp. 1–9).

Institutions and communication companies have resorted to using these networks owing to the successive development in information and communication technology, in addition to the size and large volume of information transferred worldwide. It was therefore necessary to search for a fast network that meets these needs and enables them to transfer data and information among the audience.

With the increasing size of information, which has become (4K, 8K) and is characterized by large size, fourth-generation networks cannot transfer such huge files; hence the alternative was in fifth-generation networks, which enable the ordinary public, and even companies, media institutions, and others, to transfer data and information at very high speed (Moudoud, 2022, p. 5).

Eighth: Challenges and Future

Opportunities

Technical and Social Challenges Facing the Metaverse: There are some technical and social challenges related to the novelty of the metaverse that may hinder its employment, the most important of which are:

- Isolation from reality and the negative effects that may work to detach users from reality.
- The high costs of metaverse technologies, as digital infrastructure and devices are considered essential enablers of the metaverse.
- The ease of infringing intellectual property, as brands in the metaverse world can see a copy of users' identity in the form of a three-dimensional avatar.
- The absence of legislation governing the economics of the metaverse.
- The lack of knowledge about protecting brand image in light of the interoperability and interconnection of metaverse platforms (Yaghoubi, 2021, p. 27).

Future Opportunities for Development and Innovation: Employing the metaverse in the field of media can lead to numerous opportunities and benefits, the most important of which are:

- Eliminating spatial barriers: the metaverse moves beyond the physical scope and enters a fully virtual environment.
- Improving communications and social interactions: this means that the metaverse world is more than merely a social-networking platform.

- Enhancing brand visibility: media institutions that integrate metaverse technologies into their campaigns can generate more followers who may not have been exposed to their brand before.

Future Expectations for the Metaverse in the Field of Media

It is difficult to predict the final form of the metaverse given the industry's life cycle and its tremendous developments. The metaverse is currently in its nascent state, which is expected to continue until at least 2024. A number of interoperable, decentralized, and interactive services and products have already been launched, such as virtual reality and NFTs, which align with the features of the metaverse. Nevertheless, people still wonder about the final path by which we will enter the metaverse. Moreover, owing to the lack of technological levels and infrastructure, the metaverse is unable to host a massive virtual civilization, because the amount of information and data the network would then need to process is enormous; thus, how to use artificial intelligence to process data and communicate with it instantly represents a challenge (Qi, 2022, p. 81).

At present, the metaverse has a realistic foundation in terms of its conceptual and technological reserve, driven by long-term technological development, and the transformation will become a leap in the relatively stagnant development of the current new-media industry. According to the content and characteristics of the metaverse, the core businesses closely linked to metaverse planning in the media and new-media industry include games, social media, news, and the cultural and creative industries, among others. This section will explore the future trends of the media industry in the context of the metaverse (Lin, 2022, p. 160).

As for the expected effects resulting from media institutions' use of metaverse technologies, as indicated by experts, they are:

- Development at the level of form, content, and services provided by the media institution in a way that enhances its standing.
- The emergence of new forms of journalism in the metaverse world.
- The disappearance of some current media institutions in the metaverse world and the trend toward new media mergers.
- The domination of the media industry by businesspeople and major corporations.
- The metaverse will become an alternative to traditional digital platforms in their current form.
- Media institutions' need for financial and technical support to have a presence in the metaverse world (Ibrahim, 2023, p. 67).

Conclusion

In brief, the metaverse is a network of three-dimensional virtual worlds based on the idea of social communication among users, through combining a set of different technologies such as augmented reality, virtual reality, and video. Many media institutions around the world now possess considerable experience in producing outstanding content, and with the metaverse these institutions will gain a new and remarkable opportunity to raise this content to an entirely different level. The opportunities offered by the metaverse are numerous, and every media institution should begin to explore this transformation, including learning how to incorporate non-fungible tokens (NFTs) into its experiences, embracing synthetic media to develop unique content, and using virtual reality and augmented reality to deliver immersive experiences.

The metaverse represents a radical transformation in the world of technology, offering unprecedented possibilities for media and journalism through the integration of virtual reality and augmented reality. Iraqi journalism can benefit from this technology to provide interactive and innovative content that goes beyond traditional texts and images. As

individuals increasingly rely on virtual worlds, it becomes necessary for media outlets to keep pace with this development so as to remain able to reach their audience in new and more impactful ways.

Nevertheless, adopting the metaverse in Iraqi journalism faces major challenges, including weak digital infrastructure, a shortage of technical expertise, and concerns about security and privacy. Therefore, using this technology in Iraq requires strategic planning and the development of the skills of journalistic cadres in order to provide innovative content that preserves professionalism and credibility.

Recommendations

- Investing in digital infrastructure: media institutions should invest in strengthening the technological infrastructure so as to be able to benefit from the metaverse effectively.
- Training journalists: it is necessary to provide training programs for journalists on how to use metaverse technology in preparing content, in order to enable them to deliver innovative and interactive media experiences.
- Strengthening cybersecurity: with the increasing reliance on technology in journalism, cybersecurity measures must be strengthened to protect sensitive data and information.
- Supporting innovation in content: media institutions should be encouraged to experiment with new patterns of storytelling using metaverse technologies, such as augmented reality and virtual reality, to reach new audiences.
- Cooperation with governmental and private entities: cooperation between media outlets and governmental and private institutions can contribute to developing and adopting this technology, helping to overcome challenges and achieve the maximum possible benefit.

- Focusing on local content: media outlets should invest in producing content that reflects the Iraqi reality and makes use of the metaverse's capabilities to convey local stories in a distinctive and attractive manner.

These recommendations can help guide Iraqi media institutions toward adopting the metaverse in an effective and sustainable manner, thereby contributing to improving the future of journalism and media in Iraq.

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