Possibilities and limitations of media in the metaverse: strategic positioning, narrative exploration and immersion

Posibilidades y limitaciones de los medios de comunicación en el metaverso: posicionamiento estratégico, exploración narrativa e inmersión

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Abstract:

This research explores the possibilities that the metaverse currently provides for the media, as well as the limitations or obstacles that condition or slow down its development and implementation in the coming years. To this end, semi-structured in-depth interviews were conducted with 15 global technology experts specialising in virtual reality and the metaverse, who agreed that the first wave of journalism in the metaverse will be based mainly on immersive entertainment, gamified and experimental content. They also stress that the integration of the metaverse into news routines will be limited and conditioned by the optimisation of VR technology, the democratisation in the acquisition of devices, the progressive migration of the audience to virtual environments for the daily consumption of information, and the establishment and maturation of virtual communities, regulatory frameworks and social norms. It is concluded that this process will be slow and gradual, composed of two phases: a first phase of mass adoption of solutions and familiarisation with the systems; and a second phase that will be characterised by practices and developments of solutions in specific fields, such as those linked to journalistic narrative.

Keywords:

Metaverse; journalism; virtual reality; media; innovation; media enterprise.

Resumen:

Esta investigación profundiza en las posibilidades que ofrece actualmente el metaverso para los medios de comunicación, así como en las limitaciones u obstáculos que condicionan o ralentizan su desarrollo e implementación en los próximos años. Para ello, se realizan entrevistas semiestructuradas en profundidad a 15 expertos en tecnología del ámbito global especializados en realidad virtual y metaverso, que coinciden en que la primera ola del periodismo en el metaverso se asentará principalmente sobre contenidos inmersivos de entretenimiento, gamificados y de experimentación. También inciden en que la integración del metaverso en las rutinas informativas se verá limitada y condicionada por la optimización de la tecnología VR, la democratización en la adquisición de los dispositivos, la migración progresiva de la audiencia a entornos virtuales para el consumo diario de información, y al establecimiento y maduración de las comunidades virtuales, marcos regulatorios y normas sociales. Se concluye que este proceso será lento y gradual, y estará compuesto por dos fases: una primera de adopción masiva de soluciones y de familiarización con los sistemas; y una segunda que estará protagonizada por prácticas y desarrollos sobre soluciones en campos específicos, como las vinculadas a la narrativa periodística.

Palabras clave:

Metaverso; periodismo; realidad virtual; medios de comunicación; innovación; empresa mediática.

1. Introduction

The concept of the metaverse refers to an emerging digital ecosystem that provides a space for creative and commercial freedom for users. This new digital dimension is geared towards constructing a collective virtual environment. One of the most prominent aspects of the metaverse is its ability to offer an immersive experience and empower its participants, granting them

the autonomy to securely commercialize their digital assets. This feature will significantly impact the redefinition of dynamics between media and consumers within the context of the metaverse and artificial intelligence. In summary, the metaverse opens multiple debates regarding the role of traditional actors in contemporary digital society, such as the media in general and television in particular.

From this perspective, it is crucial for media organizations to evaluate and capitalize on the opportunities the metaverse offers to innovate in their business models. However, it is important to recognize that the exploration and implementation of virtual solutions by the media are still in the early stages of development. The main initiatives implemented so far in the metaverse are related to marketing campaigns, digital product design, events, and conferences (McKinsey, 2022). The direct connection of these proposals with the communication sector does not translate into a prolific production of scientific literature on the use of the metaverse in the media industry (Crespo-Pereira et al., 2023). This highlights the need for the present research, which aims to analyze the strategic, narrative, and creative possibilities that the metaverse and virtual environments offer to the media. This article, based on interviews with internationally renowned technological experts, explores in depth the opportunities and challenges involved in adopting these innovative platforms.

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2. Theoretical Framework

2.1. Definition of Metaverse

The definition of the metaverse refers to the existence of virtual representatives of users in the form of avatars that operate in 3D virtual spaces, allowing digital immersion through virtual reality, augmented reality, or mixed reality (though compatible with other traditional devices like the PC) (Hadi et al., 2023; Dwivedi et al., 2022; Lu & Mintz, 2023; Schöbel & Leimeister, 2023; Ball, 2022).

Although the term metaverse gained popularity with Mark Zuckerberg's announcement in 2021, in the absence of technological tools, literature and art, such as movies and books, became the conceptual bearers of the metaverse. Works such as "The Lord of the Rings," "Dungeons and Dragons," "True Names," "Neuromancer," and "Snow Crash" are behind the formation of virtual worlds (Dionisio et al., 2013). The early 1990s science fiction novel "Snow Crash," highly cited by those addressing the origin of the metaverse, coined the term (Wang et al., 2023; Sidorenko, 2023).

Virtual experiences have been studied in academia, with the first publication related to the metaverse in 1995 in the Scopus database, primarily tied to computer sciences (Crespo-Pereira et al., 2023). The first publication in Web of Science appeared in 1998 and analyzed the virtual human in the novel "Snow Crash," including its appearance, clothing, accessories, bodily actions, etc., thereby paving the way for the study of the metaverse (Wang et al., 2023).

In the early 21st century, rapid development in virtual reality technology and computer graphics laid the technical foundations for the development of the metaverse (Wang et al., 2023). Dionisio et al. (2013) provide a detailed historical overview of the evolution of the metaverse, noting a significant expansion in the user base of virtual worlds thanks to commercial worlds. The early developments, known as proto-metaverses, have their roots in virtual worlds such as Second Life, characteristic of the Web 2.0 era, fostering interactivity among users and enabling user-generated content (JP Morgan, 2022; Richter & Richter,

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2023). Video games also became a new medium for initial exploration of the metaverse. The game Roblox, launched in 2006, and the development of Minecraft in 2009, inspired a first wave of discussions on this concept (Wang et al., 2023).

Interest in research declined after 2013, as development was still limited by the technology of the time, among other factors. However, 2021 has been considered by some (Wang et al., 2023) as "The Year of the Metaverse," as the concept has once again captured attention and discussion in the technological and academic sectors. Platforms like Fortnite and Roblox are expanding these social experiences through events and shopping spaces, attracting users and enhancing the profitability of virtual events (McKinsey, 2022). Organizations of various kinds have incorporated these platforms into their businesses through advertising, events, meetings, prototyping, training, and simulations of real-world environments (Dwivedi et al., 2022).

Technological development, including extended reality (XR), artificial intelligence (AI), and internet infrastructure (5G/6G, IoT, cloud computing), is paving the way for an advanced version of the metaverse (Wang et al., 2023). IAB (2024, 7) proposes its own definition, highlighting the key role of technologies for the existence of the metaverse: "The Metaverse is the new spatial internet where it is possible to create new digital products and services capable of amplifying our senses through three-dimensional interactive experiences. An internet that combines, to varying degrees of immersion, the real world and the virtual world, and which can be enjoyed under a customizable identity from different devices and visual, haptic, auditory, or other technologies." However, the identity elements of the metaverse go beyond its technological nature.

2.2. Metaverse: Technologies for Socialization and Marketing

The term metaverse (or metaverses, as there is not just one) refers to a network of digital spaces that immerse an unlimited number of users in real-time, interoperable shared experiences, and include commercial and socializing activities (Hadi et al., 2023; Dwivedi et al., 2022; Lu & Mintz, 2023; Schöbel & Leimeister, 2023; Ball, 2022).

The metaverse is a space that adapts to gamification, understood as a strategy that uses game design elements and principles in non-game contexts to increase user motivation, participation, and performance (Deterding et al., 2011), but also for socialization. In this sense, it is worth reiterating that the social aspect is central to its conception. The metaverse is conceived as a space where users adopt avatars that interact with each other (Ball, 2022). From a social perspective, the development of immersive virtual experiences is contributing to the formation of communities based on shared values, where individuals can express their most authentic selves. The capacity for self-expression and communication are the main motivations for individuals to use the metaverse (Yu, 2024).

While the metaverse (Web 3.0 version) is a virtual space with multiple possibilities for socializing, the ability to interoperate between worlds is a key aspect of the phenomenon, so that users must have the capability to freely access and experience with their avatars or virtual assets across various platforms and virtual worlds (Dionisio et al., 2013; Ball, 2022). Thus, it can be stated that the starting point of the metaverse is "to achieve total or partial interoperability of identity and personal assets" (IAB, 2024:7). The goal of interoperability is to provide users with greater accessibility and flexibility, allowing them to experience seamless virtual interactions across platforms.

Today, the lack of interoperability is a crucial aspect that needs to be addressed. Each platform operates in isolation, creating fragmented virtual experiences that are not interconnected. This starkly contrasts with the concept of the metaverse (Web 3.0),

which envisions a unified virtual environment where users can seamlessly move from one world to another, interacting fluidly with other users, objects, and information (Richter & Richter, 2023). This aspect ties in with another significant concept of the phenomenon, decentralization, referring to the independent operation of any central authority; an aspect that centers and empowers the user/individual against the control exerted by large organizations and companies on the Web 2.0 platforms (JP Morgan, 2022).

The state of social interaction, decentralization, and interoperability pose real obstacles to the development of the metaverse from its most advanced conception. Although platforms already exist under both perspectives (Table 1), interoperability has so far not been possible between platforms like Roblox or Sandbox. This prevents the realization of a true metaverse, according to authors such as Richter & Richter (2023).

Beyond conceptual discussions, the intersection of technological, social, and economic drivers fosters a growing and significant interest in the business world (JP Morgan, 2022). Companies find in the Web 2.0 metaverse a space where they can concentrate their product offerings due to increasing demand (Hernández, 2023). The metaverse, whether centralized or decentralized, cannot be understood without the existence of a parallel economy where the community can create and commercialize their own products, as well as acquire physical or virtual goods and services (IAB, 2024). Centralized gaming platforms such as Minecraft, World of Warcraft, and Fortnite already have extensive user communities and robust internal economies. However, there are other decentralized platforms that embody the most comprehensive definition and the most advanced state of development of the metaverses (JP Morgan, 2022), where users not only consume content but can also create and sell their own products, opening up a wide range of possibilities for the digital economy.

Participants are not only part of a dynamic community but also of an evolving economy (Richter & Richter, 2023). In the wake of these virtual communities, there is immense potential for companies and brands that, although traditionally not part of the video game industry, now have the opportunity to reinvent their business models (JP Morgan, 2022). The entry of businesses into the metaverse manifests in various forms, ranging from investment in virtual spaces to the commercialization of digital products and services. Indeed, the flourishing economic activity in the metaverse is another primary reason for the presence of companies and individuals (Yu, 2024).

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Table 1. Characteristics of Web 2.0 and Web 3.0

		Web 2.0	Web 3.0
Platform Characteristics	Examples of Virtual Worlds	Second Life	Decentraland
		Roblox	The Sandbox
		Fortnite	Somnium Space
		World of Warcraft	Cryptovoxels
	Organizational Structure	Centralización	Gobernado por la comunidad, generalmente a través de una organización autónoma descentralizada (DAO, por sus siglas en inglés).
		Decisions are based on adding value for shareholders	Tokens nativos.
			Participation in governance.
			Decisions are based on user consensus.
	Data Storage	Centralized	Decentralized
	Platform Format	PC/consola Hardware VR/AR Móvil/app	PC/consola Hardware VR/AR Móvil/app (por llegar)
	Payment Infrastructure	Traditional payments (credit/ debit card…)	Crypto wallet

Source: adapted from JP Morgan (2022)

2.3. Media Experiences and Innovation in Virtual Worlds

Several critical determinants influence the use of the metaverse by media companies. Organizations that exhibit high digital agility are more likely to adopt the metaverse due to their adaptability, flexibility, and rapid response to technological changes. The perception of the metaverse as an advanced and sophisticated environment may encourage viewing it as a platform offering innovative and unique solutions, attracting users who demand cutting-edge technologies (Kumar et al., 2024).

Today, media companies face the challenge of competing for the attention of young audiences already immersed in platforms like Fortnite and Roblox. Moreover, public media organizations have an additional commitment to ensure that their mission to educate, inform, and entertain provides safe content for younger audiences (CSI Magazine, 2022). They are exploring and

implementing public service algorithms that mimic the characteristic values of these media (Fieiras, Vaz, Túñez, 2023), or exploring new narratives and formats related to virtual environments such as esports (Fieiras, Túñez, Maroto, 2022).

However, technological innovation does not guarantee success. Previous experiences incorporating high technology in the media field (immersive journalism) in Spain have had a short trajectory and do not always respond to a narrative strategy linked to the immersive nature of the technology (Pérez-Seijo, 2020).

Media companies must analyze whether the metaverse is a space with strategic value in their connection with audiences, especially younger ones, and make decisions about the level of integration they wish to have in this domain. This can range from inaction to creating a digital representation of the corporation in the metaverse (CSI Magazine, 2022), and even the possibility of developing their own metaverse.

Whatever the case, the initiatives already underway in the virtual world environment could be the catalyst for new dynamics in content production, distribution, and commercialization among media. The introduction of innovative formulas among competitors increases the perception that the use of the metaverse is a practice that the industry should adopt. Additionally, the possibility of conducting real-world tests on the platform provides valuable information about the technology's viability and suitability for the organization (Kumar et al., 2024).

Despite the possibilities offered by the metaverse in terms of native 3D approaches, media companies are reluctant to make the necessary efforts for this transition (Newman, 2023). Furthermore, the lack of use cases hinders editors' interest in developing applications for the metaverse, with only 5% showing interest compared to 72% who prefer to focus on formats like podcasts and digital audio.

Innovation is crucial for traditional media in a digital environment dominated by video-on-demand (VOD) platforms (D'Arma, Raats, Steemers, 2021), multiplayer platforms, and social networks. Media must understand the needs of new generations to offer tailored products to this segment while integrating the codes of the platforms where they operate. Broadcasting professionals must pay attention to these disruptive trends to maintain their relevance in the entertainment world.

Although media investment in metaverse applications is currently limited, improvements in the user experience with AR and VR devices could change this trend (Newman, 2024). It is expected that media and entertainment will dedicate a significant portion of their digital budget to the metaverse in the coming years (McKinsey, 2022). Media initiatives in the metaverse encompass a wide range of areas. From marketing campaigns to digital product design, this new virtual territory is being explored in multiple ways. Experimental interfaces are closer thanks to improved user experience with AR and VR glasses. This could boost journalistic use of the metaverse, especially with the development of new tools and standards like Web XR, which expand content distribution methods (Newman, 2024).

Extended reality (XR) technologies, such as VR, AR, and MR, are beginning to integrate into the strategies of both public and private media to create immersive experiences and recreate events and situations of interest (Ortega Rodríguez, 2022; Tejedor et al., 2020). The metaverse opens the door to new forms of storytelling, production, distribution, and consumption of television content. This has led to the emergence of new phenomena under the term BroadcastMetaverse, referring to the use of virtual worlds by media organizations. BroadcastMetaverse includes the immersive experience of live events, similar to a television program, but within an interactive artificial universe. Advanced 3D graphics and artificial intelligence are employed

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to enhance the broadcast of events, such as sports competitions, thereby increasing realism and viewer engagement. In this regard, use cases have been observed in golf championships in South Korea (Anitua, n.d.).

In Europe, the first initiatives for digital twins are already underway (France Tv, 2022; France.tvlab, 2023), a practice that involves reproducing digital versions of physical products, allowing their visualization and the integration of games in the virtual environment (McKinsey, 2022). Movistar Plus+ offers immersive experiences with original content to enjoy in virtual reality (with VR glasses) where users can exercise full control over their experience, ranging from interacting with friends to visiting the set of "La Resistencia" or participating in an Escape Room (Chaou, n.d.).

The way content is produced is also changing with the metaverse. The episode "META" of the German series "Doppelhaushälfte," produced by ZDF, was filmed entirely in virtual reality within Somnium Space. Each actor used virtual reality glasses, and traditional sets were replaced by locations and accessories created by Somnium users. This demonstrates unlimited innovation and creativity, giving users a significant role in content creation (MRTV, 2023).

Fox's television program "Alter Ego" presents a talent show with a technological twist. Contestants perform behind a curtain using motion capture suits to control their augmented reality avatars. The technology used includes advanced cameras and video game design software to render the avatars in real-time, creating a unique competition experience where physical appearance is not prioritized (Hissong, 2021).

The exploration of innovative business models and the creation of new revenue streams (Park; Kim, 2022) is of interest to evaluate the viability of virtual worlds. Regarding monetization, while it may be necessary to offer new formulas and products designed for this new environment to generate income, media organizations have been able to experiment with products with a long tradition and acceptance in the traditional market. The nostalgia element of BBC products could factor into attracting gamer audiences and stimulating the virtual economy (BBC Studios, 2023).

In-game strategies by networks could be successful in attracting new audiences and monetizing products. ITV launched an exclusive experience of the program "I'm A Celebrity... Get Me Out Of Here!" in Fortnite Creative. Some of its most iconic sets were recreated, and the experience was gamified with challenges and trials that run parallel to the television program. "The Voice" is also part of ITV's in-game strategy (ITV Media, n.d.).

Today, immersive 360-degree content and holographic videos in mixed reality are also being explored (CSI Magazine, 2022). Traditional television, with 2D images and sound, contrasts with new possibilities. In the future, immersive technologies could be used as screens. The sensation of being immersed in virtual environments (telepresence) offers new perspectives in creating user experiences (Kim & Biocca, 2006). Holograms, through augmented reality, will become a reality for domestic use and could eventually replace traditional screens, being particularly useful in virtual meetings, family video calls, and remote learning sessions, providing a stronger sense of presence than traditional videoconferencing (Rauschnabel et al., 2022; Lu & Mintz, 2023).

Virtual worlds themselves become an asset for communication and branding. The metaverse is becoming a space of great interest for brand creation and advertising space management. This new space offers unprecedented opportunities for brand promotion and visibility (Rauschnabel et al., 2022). Experiences in virtual worlds can be monitored, allowing the collection

and analysis of business-relevant data, including biometric data that can be used to personalize user experiences (Dwivedi et al., 2022) and enhance advertising actions.

To date, the projected and organized experiences in the metaverse have been limited, mainly linked to marketing actions or event planning and execution. Therefore, it will be of interest to monitor their progress and development over the next decade. This is an initial study that outlines the possibilities and potential that journalism and media may explore and exploit, according to international technology experts.

3. Methodology

This study delves into the strategic, creative, and narrative possibilities currently offered by the metaverse for global media, as well as the anticipated advancements and limitations that may hinder or obstruct its implementation or utilization. To this end, the following research questions are addressed:

- **Q1.** How can the current version of the metaverse be useful for international media? What conditions hinder or slow its implementation?
- **Q2.** What types of content or services can or will media offer in the metaverse, and how can they optimize or enhance their relationship with audiences in these digital environments?
- **Q3.** Is there a place for journalism in the metaverse?
- **Q4.** How will news evolution in the metaverse and the conversation and interaction around it develop over the next five years?
- **Q5.** Is the metaverse a more suitable space for public media, private media, or new native media born within this virtual space?

To address these questions, this project is designed as an exploratory descriptive study with a blind hypothesis. Qualitative methods are employed, and semi-structured in-depth interviews are conducted with 15 global technology experts specializing in virtual reality and the metaverse. The selection of these professionals was carried out in two rounds through the LinkedIn employment portal, followed by the snowball method based on recommendations and responses from the initial interviewees. This number of interviews achieved the desired point of saturation, defined as the moment when fieldwork can be considered complete, as interviewees repeated what previous ones had expressed (Callejo, 1998). Two of the experts expressed their desire to participate anonymously, while the final configuration of the sample of the remaining 13 interviewees is presented in Table 2.

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Table 2. Intentional Convenience Sample

Name	Affiliation	Company
Karthik Krishnan	Vice President of Business	MEA
Alex van der Baan	Chief Executive Officer	YOM (Your Open Metaverse)
Salman Halawi	Founder and Chief Executive Officer	Metadesignerz
Sergio G. Gómez	Co-founder	FLOC
	Professor of Metaverse, NFT, and Digital Asset Management	IEBS Business School
Noel Myers	Co-founder and Chief Operations Officer	Metaverse Solar
Emilio Blanque Martínez	Head of Sales	Union Avatars
Antovany Reza	CEO	Suzuverse Indonesia
Vikrant Argade	Metaverse Expert. New Media Consultant	Independent Professional
Fatemeh Monfared	Founder and Chief Metaverse Architect	Spaces
Giuseppe Vásquez	Senior Consultant	NTT DATA
Terry xR. Schussler	Senior Director of Computing	Deutsche Telekom
Valéria Carrete	Metaverse Director	Converge
Tommaso Guerzoni	Brand Director	Formules

Source: own elaboration

The interviews were conducted between September 15, 2023, and January 15, 2024, via Microsoft Teams, with an average duration of 20 minutes. A semi-structured questionnaire, never exceeding 8 questions, was used, containing specific questions depending on the professional or company interviewed. Nevertheless, the common blocks in all interviews were: current possibilities of journalism in the metaverse; limitations or obstacles to its integration into the media; and the future of news, informational content, and entertainment in virtual environments.

The interviews were recorded and then transcribed to allow for an exhaustive analysis of their content in relation to the research objectives. This analysis was carried out using Atlas.ti version 9.1.7 for Windows, in four consecutive stages: first, the information was recorded from the interview transcriptions; then, the data was coded; next, relevant information related to each of the aspects linked to the stated objectives was identified; finally, a detailed interpretation of the obtained results

was conducted. It is important to highlight that the coding and categorization of the data were performed in a replicated and consensual manner to minimize possible subjective biases and ensure the reliability of the obtained results. Additionally, all interviewees gave their explicit consent to use their responses and personal information.

4. Results

4.1. Possibilities and Limitations of Media in the Metaverse

The existence of innovative actions that implement high technology presents a competitive advantage for reaching fragmented audiences. In this sense, the metaverse could follow the trend of so-called "VIGI" content: visual, interactive, gamified, and immersive (López-García et al., 2020). There are precedents of media experimenting with technologies that allow them to narrate and distribute content in diverse ways. The use of immersive journalism in Spain, in the mid-2010s, already introduced multiple possibilities concerning cultural and entertainment storytelling and consumption through virtual reality and 360º video. However, this approach proved limited in both time and content offered, predicting a short future trajectory (Pérez-Seijo, 2021).

The initial initiatives of media companies in the metaverse are mainly focusing on immersive, gamified, and experimental entertainment content. All 15 experts consulted for this study agree that there will indeed be a space for informative journalism in these virtual worlds. However, they believe its progressive integration and utility will be limited and slowed by the complex optimization of VR technology and the democratization of device acquisition. Certainly, the migration of audiences to virtual environments is crucial to motivating media companies to multiply their efforts and consolidate firm strategies in these spaces, as well as the establishment and maturation of virtual communities, regulatory frameworks, and social norms.

> **Karthik Krishnan (MEA):** "As the metaverse evolves into a shared virtual space where people spend time and interact, the need for accurate and reliable information will remain essential. Just like in the physical world, journalism in the metaverse can promote transparency, facilitate informed decision-making, and contribute to an informed and engaged virtual society."

Issues such as privacy, consent in the use of personal data, algorithmic bias, and digital rights will be key to developing new ethical frameworks in an information landscape that is expected to have a higher degree of decentralization due to the citizen's value contribution to the conversation. Experts predict that the relationship between media and the metaverse will be established essentially on four axes:

- Verification of information, detection of manipulation, and assurance of credibility.
- Immersive, innovative, engaging, and bidirectional storytelling.
- Co-creation of content with user contributions through the involvement, selection, aggregation, and contextualization of user-generated pieces.
- News coverage of events developed in virtual spaces (virtual conferences, esports tournaments, art exhibitions, political or social events), or on improper behaviors in these environments (cybercrimes, fraud, personal data breaches).

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Currently, companies have found in the metaverse a new way to conduct branding and provide hedonistic experiences related to events and shopping (Bourlakis, Papagiannidis, Li, 2009; Dincelli, Yayla, 2022), making this direction more promising than other alternatives linked to information and hard news.

In a later stage of development, the metaverse could establish itself as a new social sphere that acts as a meeting point between digital and physical life. Thus, journalism, along with curated, accurate, and reliable information provided by media companies, will remain necessary in a context of communication disorder where citizens interact, create content, participate in various activities, and where citizen journalism may play a more prominent role.

However, doubts arise about the real journalistic application of the metaverse at present, being in an embryonic phase and dependent on public involvement. This could be stimulated by factors such as decentralization and remote consumption of news on the ground, and slowed by the emergence of fake news in unregulated spaces.

> **Antovany Reza:** "The development of the metaverse is ongoing, and the way journalism will integrate into it and the productive dynamics that will settle will evolve over time. In the next five years, we will notice changes. There will be a place for media in the metaverse, although with unique considerations and adaptations, different from those of other sectors with different characteristics."

4.2. Construction of Immersive News in Virtual Environments

In the informational segment of news production and distribution, the next five years are anticipated to be a period of experimentation and exploration where media companies, technology firms, and users will navigate the opportunities and challenges presented by virtual environments. This process of normalization and assimilation will be slow and gradual, comprising two phases: the first phase involves the mass adoption of solutions and familiarization with the systems; the second phase will focus on practices and developments in specific fields, such as those related to journalistic narrative.

> **Salman Halawi:** "I feel that news will be more immersive and much more personalized. Metaverse and AR/VR experiences will allow us to see events in a more practical and on-site manner, and NFT ownership distributed by journalists/companies will optimize the user experience."

> **Sergio G. Gómez:** "With the settlement of the latest mixed reality prototype from Apple, the Vision Pro, everything will move very quickly. Devices will evolve and become easier to use. Traditional media will have to adapt, and native media to this technology will emerge. The support of AI will also be fundamental."

Experts are cautious when predicting how the evolution of news in the metaverse will unfold, understanding that instances of immersive journalism in virtual environments have so far been sporadic and not very representative or conclusive. The greatest changes and potential impacts expected are related to increased user-generated content, the possible establishment of virtual news platforms, personalized news delivery, and engagement with social and collaborative news.

However, traditional modes of consuming information will remain a priority, at least for the next decade. These virtual news experiences will be primarily demanded for viewing specific events with high-quality recreation that requires leisurely consumption benefiting from immersion, rather than for immediate news consumption as in the current model.

> **Emili Blanque Martínez:** "I believe that news and content will be more relevant to the consumer profile thanks to the use of data. Today, most virtual platforms do not deliver data-driven products, but I think that with decentralization, digital identity, and the freedom this will give users to share certain levels of data, the content they receive will be more refined and more relevant to them than it has been so far."

Despite the less visible action of artificial intelligence to the public compared to metaverse actions, currently, over 75% of media use AI in their value chain to gather content, produce it, and distribute it (Beckett & Yaseen, 2023). Media companies will use AI to offer customized products for each user, so that the content can be tailored (Túñez-López, Fieiras Ceide, Vaz-Álvarez, 2020). How AI will integrate into the metaverse is a topic of interest in this study.

The role of artificial intelligence in the metaverse could also become significant if informational formats consolidate in virtual environments. In this way, AI could transfer its current newsroom capabilities to immersive formats and their distribution. By integrating AI into virtual platforms, it could help analyze the volume of content and generate personalized news programs that provide the themes and formats of information desired by users, leading to greater interaction with the news, requiring less time to obtain feedback, and creating a conversation that generates value.

These experiences, fueled by augmented reality and virtual reality, will enable the remote consumption of events in a more practical way. The added value provided by NFTs distributed by journalists or media companies will allow their holders to gain benefits within this space, enhancing their user experience.

Adding value and differentiating oneself is indispensable for the survival of any media outlet. Currently, AI implementation is accessible to small media outlets; however, larger media organizations have a superior capacity to scale effectively and offer more personalized content (Túñez-López, Fieiras Ceide, Vaz-Álvarez, 2020). The value proposition in the context of AI seems more complex to achieve, considering that although AI-generated content is relevant, truly unique stories will still be created by humans. Media face the challenge of differentiating themselves through data-driven content, unless it is highly specialized or niche (Túñez-López, Fieiras Ceide, Vaz-Álvarez, 2020).

> **Terry xR. Schussler:** "There is already a trend towards AI-generated content on social media platforms. It is easy for automation and algorithm-generated content to introduce biased news into the conversation, so there must be regulation in personalization to avoid the filter bubble. Optimizing the user experience through personalization will also be strongly linked to the acquisition of NFTs, allowing even more differentiated virtual identities."

4.3. Public, Private, and Native Media in the Metaverse

The experts consulted agree that the current version of the metaverse still does not provide optimized features for media workflows. However, they do not rule out that beyond the current isolated uses and attempts, applications and tools could be established for public, private, or native media created in this space to coexist and evolve, offering beneficial features to improve their relationship with their audience.

This transition towards virtual structures will cause substantial changes for media over the next decade. The specific suitability and impact of each type of media in the metaverse will depend on factors such as the governance structures of these virtual

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environments, user preferences, regulatory frameworks, and the balance between public interest, commercial viability, and creative exploration.

> **Salman Halawi:** "I feel that the idea of native media depends on user acquisition and how many people use the platforms. They fit within the vision of Web3, but thinking about them today is far-fetched. In my opinion, the metaverse is suitable for both public and private media as long as they have sustainable strategies and a positive and transformative approach."

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The group of professionals interviewed highlights that there is already a real interest from various media outlets in activating initiatives on virtual platforms. For example, Los 40 Principales and Cadena Ser are trying to find new methods to create communities and reach Generation Z and Alpha, who are moving away from conventional media consumption patterns. El País and CNN are also using emerging immersive technologies to explore new transmedia formats such as 360º video or augmented reality to produce documentaries, increase user interaction, or tell news stories in different ways, attempting to teleport the user to hard-to-access places like war zones or nuclear areas.

Immersive journalism in Spain began in the mid-2010s using virtual reality and 360º video. However, this approach proved limited by various factors, including the lack of a narrative strategy that exploited the immersive nature of the technology (Pérez-Seijo, 2021).

> **Emili Blanque Martínez:** "Media should leverage the features of the metaverse to benefit and optimize society's informational consumption. Although there is still a long way to go, I envision breaking down access barriers to complex, conflict areas to view the reality of those places with greater precision and detail."

> **Tommaso Guerzoni:** "In my opinion, virtual worlds are more suitable for private media than public ones. I believe we are still quite far from the establishment of new native and fully virtual media, which will take more than a decade and will go hand in hand with the maturity of young people who have grown up farther from traditional consumption and are more accustomed to digital or disruptive consumption."

4.4. Media Projects and Initiatives in the Metaverse

Although so far initiatives related to informational content in the metaverse are few and practically non-existent, various global media outlets have already projected different proposals in virtual environments and platforms, exploring this field to improve content distribution, organize events, and create immersive experiences for their audiences.

These initiatives range from the creation of virtual offices to the organization of concerts and festivals in digital environments, thus transforming the way users consume information and entertainment and providing new experiences. The adoption of virtual reality (VR) and augmented reality (AR) technologies by these organizations not only enriches the user experience but also opens new avenues for education and global collaboration.

Among the highlighted projects are the interactive experiences of El País and BBC, the virtual music events organized by Radio Nacional de España and Los 40 Principales, and the virtual offices of Reuters in Decentraland. Additionally, platforms like CNN VR and Al Jazeera in VR have revolutionized news presentation by allowing full immersion in reported events. Warner Music Group has taken music to new dimensions through concerts on Roblox, while Forbes has used the metaverse to facilitate global business conferences. These examples illustrate how media outlets are integrating advanced technologies to redefine

their strategies and offer unique experiences to their audiences. Table 3 below describes a total of 10 media projects on virtual platforms and scenarios.

Table 3. Media Projects in the Metaverse

Project or Media Name	Description
El País VR	Virtual environments and interactive reports that allow users to immerse themselves in the news. El País has explored the use of the metaverse for education, where students can interact with content in an immersive and personalized way, thus fostering greater motivation and participation. This initiative underscores the importance of security and privacy in the use of emerging technologies.
Radio Nacional de España	Concerts and events on metaverse platforms like Second Life and Decentraland. These events not only allow listeners to virtually attend live performances but also facilitate social interaction among attendees, creating a richer and more dynamic concert experience.
Los 40 Principales	This broadcaster has taken music to the metaverse by organizing virtual festivals and concerts on platforms like Roblox and Fortnite. These events allow fans to enjoy performances by their favorite artists while interacting with avatars and exploring themed digital environments
BBC	The BBC has created documentaries and educational programs in virtual reality, allowing viewers to deeply immerse themselves in stories and events. They have used VR to recreate historical and natural moments, offering a unique and educational perspective that cannot be experienced through traditional media.
The New York Times	NYT has implemented augmented reality (AR) to complement its reports, allowing readers to interact with 3D models of news scenes. This technology has been used in articles about natural disasters, space explorations, and war reports, offering a more visual and immersive reading experience.
Warner Music Group in Roblox	This company has collaborated with the Roblox platform to hold virtual concerts where artists can connect with their fans in an interactive environment. These events are not only globally accessible but also offer unique experiences, such as the ability to customize avatars and participate in concert-related activities.
Reuters in Decentraland	Reuters has established virtual offices on the Decentraland VR platform, offering users access to news, reports, and press events in an interactive 3D environment. This space allows users to explore content innovatively and participate in discussions and events in real time.
CNN VR	CNN has developed a virtual reality platform that allows users to watch news and special reports in an immersive format. Viewers can explore news events and locations in 360 degrees, enhancing the understanding and impact of the stories. They have covered significant events such as elections and natural disasters.

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Al Jazeera en VR	Al Jazeera uses virtual reality to create documentaries and interactive reports, offering viewers a profound way to experience and understand the news. They have produced content on international conflicts and humanitarian crises, allowing for total immersion in the reported contexts.
Forbes and the Metaverse Conference	Forbes organizes conferences and business events in the metaverse, facilitating global collaboration and knowledge exchange in a virtual environment. These conferences include discussion panels, presentations, and networking opportunities, attracting industry leaders and experts from around the world.

Source: own elaboration

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5. Conclusions and Discussion

It is a reality that virtual worlds are beginning to establish themselves as occasional alternatives for socialization, shared content consumption, and human interaction. They are also becoming spaces for the free creation and development of messages, products, and ideas. This is why content creators are entering a period of exploration regarding the possibilities and features offered by these environments. Similarly, independent producers, media organizations, and the journalism sector are monitoring the advances of this solution and remain intelligent followers of the possibilities that the metaverse can offer to renew their services and stay competitive in the hyper-competitive attention market, where public interest is the most coveted asset.

This article stems from the need to initiate a research line that tracks the relationship and incorporation of the metaverse and virtual worlds into the workflows of media organizations. To date, contributions are scarce and mainly linked to the business or marketing field. The same applies to the initial and most advanced brand or project experiences in the metaverse, closely related to advertising campaigns or events in virtual scenarios.

Upon completing this study, the main objective is achieved: to delve into the strategic, creative, and narrative possibilities and limitations that the metaverse can offer to media organizations considering its current evolutionary trend. To this end, qualitative interviews were conducted with 15 international technology experts who agree that the initial media experiences in the metaverse will mainly focus on producing immersive, gamified, and experimental entertainment content. However, their progressive integration into informational functions or aspects will be closely linked to the improvement of virtual reality (VR) technology, the democratization of device acquisition, the gradual migration of audiences to virtual environments in their daily consumption routines, and the establishment and development of virtual communities, regulatory frameworks, and social norms (Q1/Q2).

Crucial issues such as privacy, consent, algorithmic bias, and digital rights will be paramount in developing new ethical standards for an information landscape that will likely become decentralized due to citizen participation in the conversation. In the realm of news production and dissemination, the next five years will involve experimentation in virtual environments, where media, technology companies, and users will explore opportunities and challenges. According to the consulted experts, the normalization process will be gradual, with two phases: first, widespread adoption of solutions and familiarization with

the systems; and then, a phase focused on specific practices and developments, such as innovation in journalistic storytelling (Q3/Q4).

The forecast is that this behavior of the media will follow the same roadmap regardless of their public or private nature, as the potential of the metaverse can be leveraged by any communicative agent by directly linking with the journalistic essence of offering the public content and information through appropriate, effective, and attractive channels, and reinventing narrative formulas and formats. As the metaverse becomes more relevant in people's lives, its strategic importance in media priorities will grow in parallel, with media organizations already beginning to include it in their operations (Q5).

The analysis conducted in this study underscores the importance of continuing to explore the possibilities that the metaverse and virtual worlds offer to media organizations. As these technologies evolve, several promising research areas emerge that deserve attention. Firstly, it is crucial to monitor how human-computer interaction adapts to immersive virtual environments and the psychological and social impacts associated with prolonged immersion. This line of research can provide valuable insights into optimizing these experiences to improve user well-being and satisfaction.

Another relevant aspect is the integration of artificial intelligence (AI) in the metaverse to significantly enhance content personalization and create realistic avatars, as well as contribute to the safety and moderation of these environments. Investigating how AI can be used to create more customized and secure experiences will be fundamental to developing sustainable and attractive virtual environments.

Furthermore, it is necessary to deepen the understanding of regulatory frameworks and social norms that will emerge with the expansion of the metaverse. Issues such as privacy, consent, algorithmic bias, and digital rights will be crucial for establishing robust ethical standards in these new spaces, where experimenting with new forms of narrative and immersive content production in media should be a continuous focus. This includes exploring how virtual environments can transform journalistic storytelling and offer new ways to engage and educate audiences. By observing these lines of research, media organizations can stay at the forefront in an increasingly competitive and dynamic market.

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8. Conflict of Interest

The authors declare no conflict of interest.

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