

# Not a One-Size-Fits-All Solution: How Different Goals (Re)Define Media Brands in the Metaverse

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**Abstract** — The metaverse is reshaping media industries by providing immersive 3D environments that challenge traditional communication models. This study investigates virtual spaces created by three major media outlets in Portugal: RFM (radio station), TVI (television channel), and Expresso (newspaper). Using virtual ethnographic methods, this study explores how these media brands represent themselves in the metaverse, identifying their differential attributes in terms of content variety, interactive features, and monetisation opportunities. While RFM primarily seeks platform expansion, TVI and Expresso utilise the metaverse as commemorative environments to mark their anniversaries, resulting in distinct experiential approaches. RFM reinforces its identity oriented towards entertainment and youth through gamification and avatar-based engagement mechanisms, including challenges, contests, and a points-based reward system. TVI diverges most from its traditional identity, emphasising innovation with a futuristic cosmic-themed space featuring non-fungible tokens (NFTs) of iconic broadcast pieces. Expresso adopts a more conservative approach, using the metaverse to support journalistic heritage through historical storytelling and new interactive formats. The findings indicate that, despite the participatory potential of the metaverse, Portuguese media outlets are choosing to maintain editorial control over content and user interactions. Ultimately, the research shows that the metaverse is not a one-size-fits-all solution, but a diverse and evolving environment where media brands promote different immersive experiences to position themselves as innovators and leaders in rapidly evolving digital ecosystems.

**Keywords**— Virtual Reality; Virtual Worlds; Media Innovation; Immersive Journalism; Gamification

## I. INTRODUCTION

In 2021, Facebook changed its name to Meta, signalling a strategic commitment to *the metaverse*, which the company regarded as the successor to mobile Internet. One year later, amidst the ongoing Covid-19 pandemic, which had accelerated digital transformation [1], the consultancy firm Accenture projected that, by 2034, the average adult “spends equal amounts of time in immersive virtual worlds as the real one” [2]. This forecast, based on a development roadmap that includes international agreements and substantial public investments to ensure massive user adoption, appears overly optimistic in light of subsequent developments, thereby reflecting what may be described as a technological hype [3].

Driven by the hype, the primary interest of the metaverse for any established brand lies in its potential to present a diverse range of services and products within an emerging

marketing platform [4]. From a media perspective, as Newman notes in the context of journalism, “it’s still early days but if more time is spent in virtual worlds, at least some of it is bound to be spent with news” [5]. If there is a place for news within the metaverse, it logically follows that there is room for all types of media content, particularly considering that the metaverse is primarily designed to foster entertainment and interactive engagement in a shared social space [6, 7].

Competitive pressure and the need to stay ahead in the market drive media organisations to adopt the metaverse [8, 9]. By being first movers, they can establish themselves as innovative leaders, benefiting from the novelty and excitement surrounding the metaverse, leading to a sustainable competitive advantage, especially for organisations with strong research and development capabilities [10].

From a marketing perspective, there is a growing need to understand audience segmentation, creating branded content and utilising multi-channel distribution [11, 12], which includes the metaverse [4, 13]. This shift responds to the decline of audiences in traditional media and the decreasing effectiveness of conventional formats. As a result, brands are seeking to integrate themselves more naturally, non-intrusively, and emotionally into content that aligns with audience interests [14]. Therefore, effective digital communication includes integrating new platforms to create a consistent brand message that can reach new audiences, particularly younger generations [15].

The immersive nature of the metaverse presents media with novel interactive possibilities for storytelling, as well as for the formats and content offered to audiences [16, 17], with potential to enhance learning experiences [18]. While these advancements create opportunities for monetisation [19], they also drive significant transformations in media practices, promoting a reconfiguration of brand identities [20] and raising complex ethical and deontological challenges [21], particularly in how they reframe the relationship between traditional media and their audiences [16].

In this context, it is imperative to critically examine what media brands present to users when they publicly announce their entry into the metaverse, that is, to study the nature and composition of the immersive experiences they claim to offer.



This study aims to investigate Portuguese media metaverse projects and explores how they express their brand identity, utilise interactive features, and explore monetisation opportunities. Its novelty lies in addressing an understudied research object, as the metaverse has not yet been extensively examined from a media industry perspective [22, 23].

## II. METAVERSE

### A. The rise of the Metaverse and its potential

Several studies have examined the rapid evolution of the internet and its impact on media transformations [24-26]. The general conclusion is that we have been witnessing the rise of a hybrid media ecosystem where legacy media coexist and connect with new digital platforms [27, 28]. The transformation so far suggests that the metaverse is not a replacement for existing digital platforms but rather an extension that integrates the broader media landscape.

The current hybrid media environment indicates that the prospect of increasing access to immersive digital environments is progressively more feasible [see 29 for a historical review]. While earlier virtual worlds such as *Second Life* attracted significant interest from both users [6] and media organisations [30], including in Portugal [31], recent technological developments have led to a new era of possibilities. The Covid-19 pandemic accelerated this evolution, increasing the demand for virtual social interactions and new digital communication platforms [32].

The growing viability of the metaverse is driven by several factors [33], including substantial investments by major technology companies in advanced hardware and affordable user devices. Advancements in 5G and emerging 6G networks improve mobile real-time connectivity and blockchain technology reinforces security and decentralisation, while the integration of edge computing and digital twins further optimises processing efficiency. Additionally, innovations in artificial intelligence (AI), and the evolution of extended reality (XR), encompassing augmented reality (AR), mixed reality (MR), and virtual reality (VR), alongside improved haptic feedback systems, have enabled greater personalisation and enhanced immersion and interaction. Besides these technological advancements, the increasing adoption of metaverse applications by both established and emerging enterprises [34], including media brands [35, 36], is accelerating the metaverse transition from a conceptual possibility to a dynamic digital ecosystem.

The metaverse can be described as an “immersive and persistent virtual world where users can communicate and interact with other users and the surrounding environment and engage in social activities, like interactions in the physical world” [7]. According to Sanchez-Acedo et al. [23] the metaverse should not be used as another name for virtual reality, as it includes a broader array of Web 3 technologies designed to create multisensory experiences. Metaverse characteristics include immersion, embodiment, presence, and identity construction [37]. The consequence is a psychological illusion of non-mediation, in which users remain unaware of the medium facilitating their communication [38].

The metaverse is envisioned as an open and decentralised ecosystem built on blockchain technology that enables user-generated content and virtual asset ownership [39]. It aims to provide interoperability, that is, seamless exchange of data, assets, and identities between different platforms, making it possible to move freely across various virtual environments without losing continuity in the experience. As Mustafa asserts “its first incarnation was a web of virtual worlds between which avatars could teleport” [40].

However, given the persistent challenges of interoperability, the present metaverse should not be characterised as a singular and unified digital space. As Mystakidis declares “cross-platform and cross-technology meetings and interactions, where some users are in VR and others in AR environments, are the next frontier” [37].

The current state of the metaverse includes immersive social VR platforms (e.g. Horizon Worlds), large-scale multiplayer online games (e.g. Fortnite), user-generated virtual worlds (e.g. Roblox), and digital asset marketplaces (e.g. Decentraland). It also integrates dispersed XR experiences and enterprise virtual applications, such as cultural events, educational initiatives, and collaborative social spaces. An empirical study of the metaverse marketing strategies of the fashion industry by Zaki et al. [41] identified six main themes: non-fungible tokens (NFTs), gamification, immersive technologies, avatars, virtual marketing influencers, virtual stores, and exhibitions. The diversity of possible approaches to metaverse projects reflects their evolving and multifaceted nature.

The metaverse introduces novel opportunities for interactive and immersive storytelling, enabling media organisations to pursue greater levels of personalisation, interactivity, and user engagement. This shift fundamentally alters the modes through which content is produced, consumed, and experienced [36]. In particular, VR storytelling environments can place users in simulated or reconstructed real-life scenarios, significantly enhancing narrative engagement through variables such as presence, immersion, agency, usability, and user experience [42].

Within this expanding immersive media ecosystem, immersive journalism, first conceptualised by de la Peña et al. [43], refers to a form of news storytelling that employs VR and related technologies to position users within the narrative frame of journalistic content. This approach fosters a heightened sense of presence, embodiment, and emotional connection to the subject matter [44, 45]. Empirical research suggests that immersive journalism can enhance perceived source credibility, intention to share stories, and audience empathy and understanding, particularly when representing complex issues such as humanitarian crises or social injustices [46, 47].

The global adoption of immersive journalism is evidenced by diverse newsroom experiments and productions. Notable VR projects such as *The Displaced* [48], *6x9* [49], and *Reeducated* [50], alongside significant investments in dedicated VR units or studios within major news organisations worldwide [35, 51], exemplify the potential of immersive formats to reshape the affective and cognitive

engagement between audiences and journalistic narratives [52].

Vundi [53] examined the state of immersive journalism in Portugal through interviews and an empirical analysis of interactive features available on the websites of major Portuguese newspapers. The research identified the presence of interactive multimedia content, infographics, and some gamified news and 360-degree videos. However, it found no evidence of more immersive formats, such as VR or AR. Vundi concluded that the adoption of immersive journalism in Portugal faces several structural and contextual barriers that are particularly characteristic of the Portuguese media system. These include limited financial, technical, and human resources; a structurally highly saturated media market; an aging population; and persistent deficits in digital and media literacy.

It is important to distinguish *immersive journalism* from the broader and more heterogeneous field of *immersive media experiences*. While immersive journalism is grounded in the journalistic truth-seeking ethos and the exposition of socially relevant issues, many immersive experiences offered by media organisations, such as branded storytelling, cultural exhibitions, entertainment simulations, or educational applications, are often produced according to different normative criteria, frequently prioritising brand engagement or entertainment value.

Nevertheless, as journalism increasingly operates within spatialised and interactive virtual environments, immersive reporting practices may become embedded within metaverse platforms, allowing audiences to access journalistic content through avatars and spatial navigation in virtual worlds.

As the metaverse facilitates social connections and content generation [54], platforms that allow users to influence the narrative or actively contribute with narrative fragments can significantly enhance engagement, by giving users a sense of co-authorship [55]. According to Hashem et al. [56] “users can contribute their own content, such as videos, music, or podcasts, which can be incorporated into radio and television broadcasts, fostering a sense of community and involvement”. These dynamics suggest a shift not only in technological infrastructure but also in the cultural expectations surrounding storytelling and authorship, as well as in the evolving roles of journalism and media organisations within immersive spaces.

Within the metaverse, individuals navigate virtual spaces through avatars, which function as extensions of the self, enabling interactions with other users and the development of virtual communities. Customisation features, such as modifying physical attributes, clothing, and accessories, allow users to create avatars that either mirror their real-world appearance or represent an idealised version of themselves [57, 58]. Avatar customisation is not only a matter of individual identity and social connection, as it can significantly influence consumer behaviour and brand engagement within the metaverse. Studies suggest that avatar realism [59] and user-avatar resemblance [60, 61] increase purchasing decisions and attachment to virtual goods, highlighting the importance of high-quality avatar customisation.

Beyond avatars, developing a broader sense of belonging to a specific metaverse platform is essential for sustained engagement [62, 63]. When users develop familiarity and attachment to a virtual environment, they are more likely to stay engaged, which, in turn, supports the platform's social dynamics and growth. For media companies this is vital because greater user adoption increases the effectiveness of investments in the metaverse. However, at the current stage, significant barriers to access remain, primarily due to the high cost of the hardware required to support immersive experiences, as well as the limited awareness among users regarding the full range of possibilities the metaverse offers beyond video games [63].

A fundamental aspect of the metaverse business model is the availability of digital currencies and payment infrastructure connected to real-world financial systems [64, 65]. This virtual economy implies that the metaverse offers direct opportunities for media organisations to develop and sell digital assets, including virtual branded content, thereby creating new revenue streams [66]. Additional revenue can be generated through virtual advertising placements and sponsorship deals [56]. Interactive experiences, especially those that allow users to virtually explore and experiment with products, can even contribute to increased consumer purchase intentions, translating virtual interactions in the metaverse into real-world purchasing behaviour [19, 67].

### III. MATERIALS AND METHODS

This research examines the metaverse spaces developed by three Portuguese media organisations, each representing a distinct traditional media sector: the radio station RFM, the television channel TVI, and the newspaper Expresso. These brands were selected as case studies due to their pioneering role in the Portuguese media landscape, as they were the first in their respective sectors to introduce immersive metaverse experiences.

Expresso, founded in 1973, is Portugal's leading weekly newspaper, featuring various supplements, known for its in-depth journalism and political analysis, and widely regarded as a benchmark for quality journalism in the country.

TVI, launched in 1993, is a major Portuguese commercial television broadcaster offering a wide range of content, including news, entertainment, and reality shows, and occupies a central position in the national television landscape.

RFM, established in 1986, is one of Portugal's most popular commercial radio stations, focused on contemporary music and entertainment, and reaching a broad national audience through strategies such as listener participation via social media and on-air contests.

This study employs an exploratory and qualitative research design, utilising virtual ethnographic methods [68, 69] to investigate the virtual/immersive experiences offered by Portuguese media outlets. The methodological approach is also supported by Human-Machine Communication [70], which sees media technologies not as passive objects but as active agents that shape and are shaped by social and cultural

practices. Affordances, as conceptualised by Gibson [71], further enhance this perspective by highlighting that technologies offer potential uses beyond their immediate functional capabilities, influenced by social, cultural, and contextual factors.

Virtual ethnography, or netnography, as an adaptation of ethnographic principles to digital environments, is particularly suited to this study because it combines participant observation and content analysis to explore user experiences and media affordances within virtual spaces. According to Kozinets the “ultimate purpose is to foster an understanding that encompasses cultural characteristics such as meanings, identities, hierarchies and rituals” [69]. Therefore, this approach facilitates an interpretation of how these media organisations develop and deploy immersive experiences to (re)define their identities, formats, and narratives within evolving digital ecosystems.

The metaverse spaces of Portuguese media brands are available across different devices: VR headsets, computers, and mobile devices (tablets and smartphones). Given the distinct nature of these devices, it is important to differentiate between two modes of research: immersive netnography [69] and auto-netnography [72]. In the case of immersive experiences with VR headsets, the researcher adopts an avatar-based, first-person perspective, participating directly within the simulated physical and social environments, enabling an embodiment and sensory understanding of interactions within virtual spaces. Conversely, when analysing experiences on computers and mobile devices, the researcher adopts a third-person perspective, wherein virtual spaces are crossed through an avatar on an explicit screen interface. It is this latter approach to auto-netnography that has been adopted in this study.

The reliance on a computer screen, which has a two-dimensional (2D) interface, to explore a three-dimensional (3D) virtual environment, presents an inherent limitation in this study, as it influences both immersion and the perception of technological novelty. However, given that VR devices still face limited adoption, primarily due to high costs, their strong association with gaming, and user preferences [6, 73, 74], it is likely that most users access these metaverse spaces via 2D interfaces, including computers, tablets, or smartphones. Consequently, although this methodological approach does not capture the full immersive potential of VR, it remains aligned with the predominant user experience.

This research is guided by the following questions:

1. What are the distinctive attributes of metaverse spaces utilised by Portuguese media outlets in terms of content variety, interactive features, and monetisation opportunities?
- 1.1 How do these distinctive attributes contribute to the (re)construction of the identities of Portuguese media outlets in immersive virtual environments?

The fieldwork was conducted over a four-week period in January 2025. Data were collected using various virtual ethnographic techniques and were iteratively organised according to three key domains. These domains were informed by the literature review, guided by the research questions, and operationalised through the selected methods:

- Content variety: thematic analysis of different areas within each metaverse space, exploring brand narratives, visual aesthetics, and identity representation.
- Interactive features: examination of user engagement mechanics, such as gamification, participatory affordances, multiplayer interactions, and avatar customisation.
- Monetisation opportunities: identification of revenue models embedded within these digital environments, including advertising, in-game purchases, subscriptions or digital collectibles transactions.

Given that these metaverse spaces had low user activity during the field work period, direct interpersonal interactions were infrequent, making it feasible to systematically observe the structural, functional, and interactive features of each space. User feedback and interviews were not included, as the study focused on an experiential and affordance-driven analyses rather than user perceptions. Since all observations were limited to publicly accessible spaces, ethical concerns related to informed consent and privacy were minimised. However, researcher reflexivity was maintained to ensure critical awareness of observational biases and the interpretative nature of auto-netnographic analyses.

To ensure systematic data collection and saturation, a randomised scheduling approach was implemented over four weeks in January 2025. The researcher logged into each metaverse space for a minimum of 10 minutes per session across different time slots. Given the low number of active users, this approach ensured equal exposure to all platforms while allowing for detailed documentation of in-platform affordances.

Ethnographic field notes, screen recordings, and in-platform interactions were used to document user experiences and affordances of metaverse spaces. Additionally, desk research on official brand communications (such as websites and social media announcements) provided supplementary insights into the strategic positioning of the Portuguese media brands.

Overall, it is worth noting that our methodological approach reflects the exploratory nature of our study and the nascent stage of this research area, which has thus far been examined in a preliminary manner without the support of established theoretical or methodological frameworks [22, 23].

#### IV. RESULTS

The following image illustrates the organisational structure of each metaverse space, represented by computer-generated drawings that highlight key differences in user navigation possibilities.

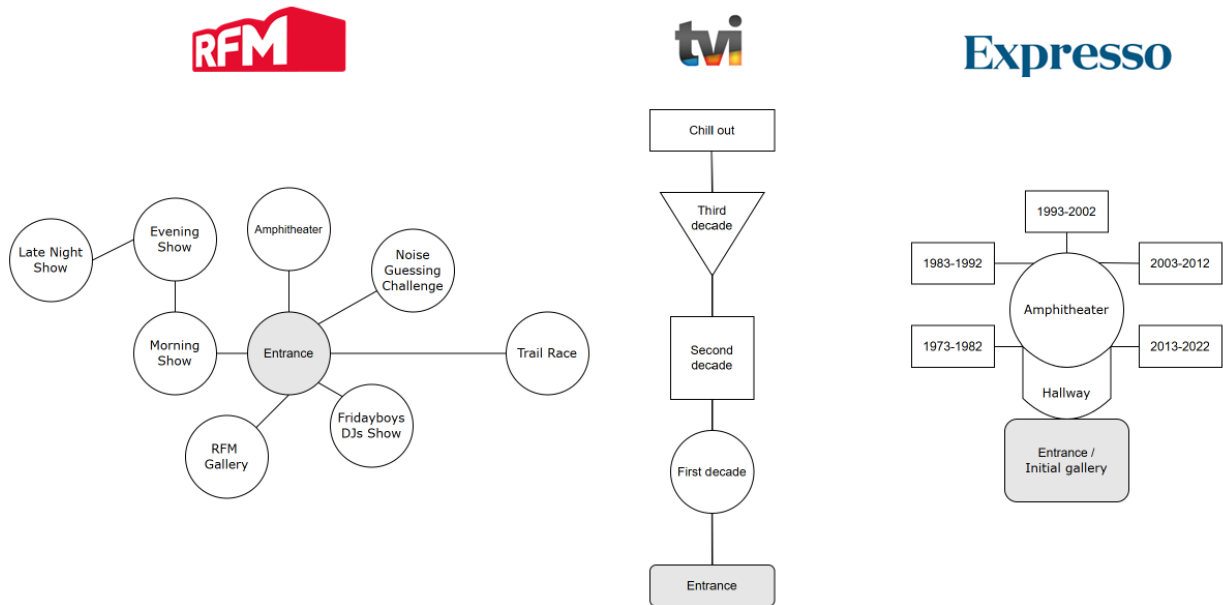


FIGURE I. SPATIAL CONFIGURATION OF RFM, TVI AND EXPRESSO' METAVERSES

RFM is characterised as the most horizontal space, providing users with greater flexibility in choosing their navigation routes. In contrast, TVI adopts a more hierarchical design, where users begin at the ground level and follow an upward trajectory. These differences in spatial configuration reflect distinct strategic objectives for each media brand and indicate varying levels of user agency, which will be further explored through a detailed analysis of each space.

The following sections analyse the distinctive elements of each room, highlighting how spatial design contributes to the overall user experience.

#### A. RFM (radio station)

RFM was the first Portuguese media brand to establish a presence in the metaverse in January 2023. In a news article published on its official website this achievement was highlighted as an extension of the station's legacy of innovation and pioneering spirit [75]. The RFM metaverse is envisioned as a dynamic and ever-evolving space, designed not only to engage its listeners but also to serve as an interactive platform for partner brands, fostering new opportunities for audience participation.

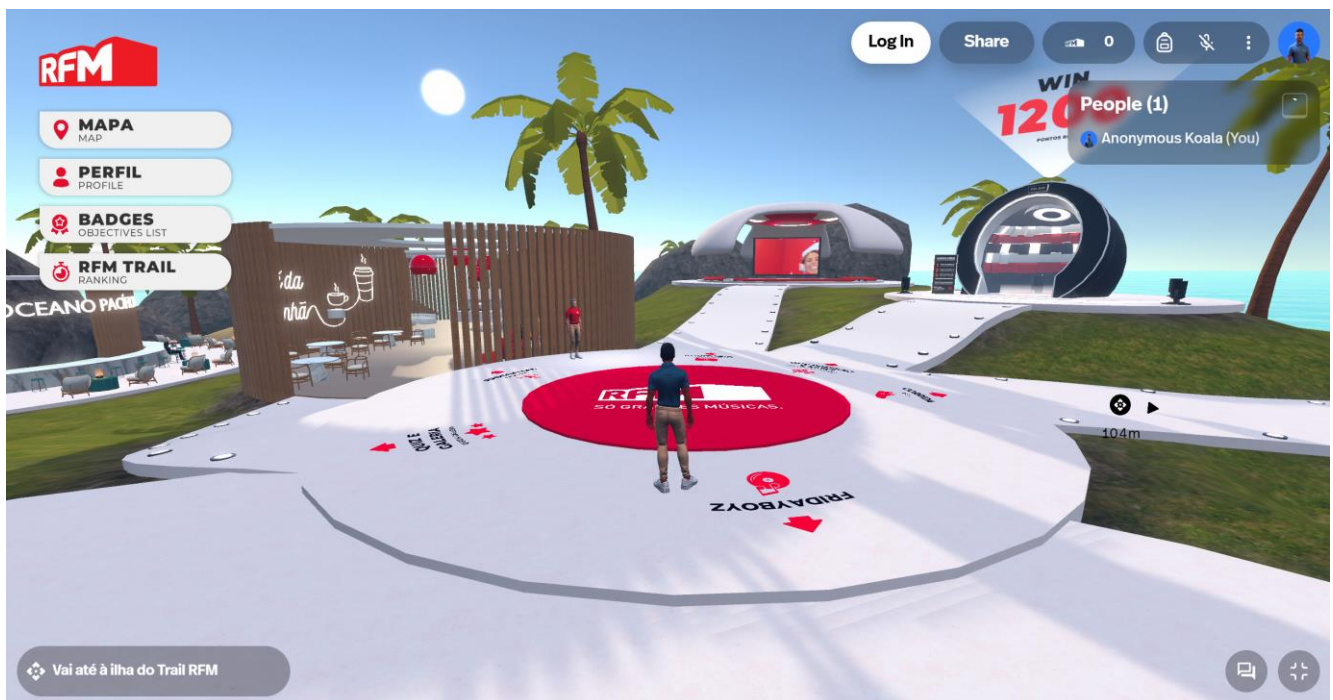


FIGURE II. ENTRANCE OF THE RFM METAVERSE

Notably, this metaverse project has undergone a significant evolution. Initially, it was primarily centred around the station's flagship shows: Morning Show (Café da Manhã), Evening Show (6 PM), and Late Night Show (Oceano Pacífico). However, by the end of 2023, it had expanded into a more gamified experience, incorporating interactive

challenges and a point-based rewards system [76]. This renewed and expanded version of the RFM metaverse is the focus of our analysis, specifically examining its distinctive attributes in terms of content, interactive features, and monetisation opportunities.

TABLE I. THEMATIC AREAS AND THEIR ROLES IN THE RFM METAVERSE

| Area                              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Entrance                          | <ul style="list-style-type: none"> <li>– Open outdoor branded-hub with pathways leading to different thematic areas.</li> <li>• Users are free to explore different areas while being subtly guided by the layouts.</li> <li>• A pre-scripted RFM avatar provides onboarding assistance.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Fridayboys DJs Show               | <ul style="list-style-type: none"> <li>– A concert stage where DJ avatars perform music.</li> <li>– The visual branding simultaneously promotes the radio program and a real-world music event.</li> <li>• Users can passively listen to music at any time, but the Friday event from 10-11 AM introduces a scheduled engagement opportunity for a real-time DJ broadcast.</li> <li>• Active audience participation appears limited, with no evident mechanisms for song requests or direct engagement with the DJ avatars.</li> <li>➤ Monetisation occurs indirectly via billboard advertisements for the 2025 RFM Somnii music festival.</li> </ul>                                                                                                                                                                                                                                                                   |
| RFM Gallery                       | <ul style="list-style-type: none"> <li>– A gamified knowledge hub blending brand storytelling with advertising elements, anchored by a central quiz stage.</li> <li>– The trivia challenge provides a gamified learning experience of RFM history, while promotional posters provide visual cues that enhance the recall of RFM's own campaigns and partner brands.</li> <li>• The central quiz stage, hosted by an RFM avatar, provides an interactive brand engagement experience where users can test their knowledge of RFM's history.</li> <li>• The activity is reward-based but lacks social interactivity mechanisms such as leaderboards or multiplayer challenges.</li> <li>• Users earn RFM points, which are part of a broader gamified loyalty system.</li> <li>• The monetisation model relies on sponsored promotional posters, that feature both RFM's branding and external partner brands.</li> </ul> |
| Morning Show (Café da Manhã)      | <ul style="list-style-type: none"> <li>– This area simulates a radio broadcast lounge within a coffee shop-inspired setting, merging traditional media aesthetics with a social engagement design.</li> <li>– The presence of RFM host avatars, a roundtable setup, and promotional visuals reinforces the brand identity of the morning show while creating a more relaxed and lifestyle-oriented socialization zone.</li> <li>• Users can sit, socialize, and observe the pre-scripted movements and speech of the RFM host avatars, who simulate an ongoing radio discussion.</li> <li>➤ The gamified virtual ticket system allows users to exchange earned game points for a real-world breakfast event with RFM hosts.</li> </ul>                                                                                                                                                                                  |
| Evening Show (6 PM)               | <ul style="list-style-type: none"> <li>– This area combines radio broadcasting with lifestyle content, featuring a lounge-style radio discussion setting and a kitchen setup.</li> <li>– Besides the RFM host avatar there is a chef avatar that represents an actual guest who shares recipes on the real-life show.</li> <li>• Users can sit, observe, and engage in casual socialization, but the experience remains passive, as user interaction with the RFM host and chef is limited.</li> <li>• A subtle but effective gamification element is introduced through an RFM host that is missing from the scene, and their disappearance is audibly acknowledged, encouraging users to explore other areas.</li> </ul>                                                                                                                                                                                              |
| Late Night Show (Oceano Pacífico) | <ul style="list-style-type: none"> <li>– This area features a waterfall-themed bar, lounge seating with fire pits, and an RFM host avatar as a bartender.</li> <li>– Users can sit and gather in conversations, but interaction with the RFM host bartender avatar remains pre-scripted.</li> <li>• While the setting naturally fosters social engagement among users, the lack of interactive bar elements or user-customized engagement options limits active interaction.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Amphitheater                      | <ul style="list-style-type: none"> <li>– A large-scale open-air gathering and broadcast space featuring a central circular stage, tiered curved audience seating and a dominant digital screen for video content showing a looped promotional video.</li> <li>• It fosters audience socialization through shared viewing experiences and a public engagement space.</li> <li>• While it is a passive setting, its architecture makes it ideal for live-stream events or audience Q&amp;A sessions.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                           |
| Noise Guessing Challenge          | <ul style="list-style-type: none"> <li>– A gamified adaptation of a radio guessing contest, transformed into a metaverse competition in a futuristic arena.</li> <li>• Users participate in a sound-identification challenge, earning RFM points based on correct guesses.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Trail Race                        | <ul style="list-style-type: none"> <li>– The Trail Race is a running experience inspired by RFM host Pedro Fernandes' personal sports activity, featuring a forest-themed track, an RFM-branded starting gate, and a finish line podium.</li> <li>• Players race solo against a predefined performance time, but their results are ranked on a monthly leaderboard, transforming the race into an asynchronous competitive event.</li> <li>• The presence of a podium for top performers reinforces social recognition and status.</li> <li>➤ Players can purchase avatar customizations and energy supplements, with the first functioning as personalisation features and the second as strategic enhancements within the leaderboard competition.</li> </ul>                                                                                                                                                         |

Note: dashes (–) correspond to descriptions of content, dots (•) indicate interactivity features, and arrows (➤) represent monetisation aspects.

From a user experience perspective, the entrance to the RFM metaverse (see Figure II) conveys a sense of openness and accessibility, welcoming users into a visually dynamic and brand-centric environment.

Visually, the RFM metaverse employs bright colours, modern architecture, and natural outdoor elements, such as palm trees and open green spaces, evoking a relaxed and engaging ambiance. The environment integrates a coastal aesthetic, aligning with the vibrant and entertainment-driven identity of RFM as a music and lifestyle brand.

The presence of avatars and interactive elements, such as challenges or badges, immediately suggests gamification features, supporting the idea that this space is designed not only for passive consumption but also for active participation. The blend of digital and real-world references, including representations of well-known RFM shows, reinforces the station's identity and creates a sense of familiarity for returning listeners.

The virtual ethnographic results (summarised in Table I) reveal a metaverse structured around nine main distinctive themed areas, each serving a specific role in the reconstruction of RFM's brand identity.

## B. TVI (television channel)

TVI became the first Portuguese television channel to establish a presence in the metaverse, commemorating its 30-year anniversary with the launch of TVI 3.0. The initiative was officially announced in February 2023 through a televised news segment available on its website, titled "TVI Celebrates 30 Years in the Metaverse World", highlighting its integration of blockchain technology and digital collectibles.

The TVI metaverse is envisioned as an interactive exhibition space, allowing users to explore key moments in the channel's history through immersive audiovisual content, social engagement, and NFT-based media ownership. The virtual space is structured as three interconnected colour-coded rooms, each dedicated to a different phase of the channel's broadcasting history. At its core, each main room features a curated selection of historical television moments, chosen through audience engagement on social media, where viewers identified the most memorable broadcasts. These iconic clips were transformed into unique digital art pieces using artificial intelligence and are available for purchase in a marketplace for digital collectibles. A total of 21 blockchain-based NFTs were initially released, granting owners exclusive real-world experiences, such as behind-the-scenes studio visits, participation in a TV show, or invitations to a summer party.

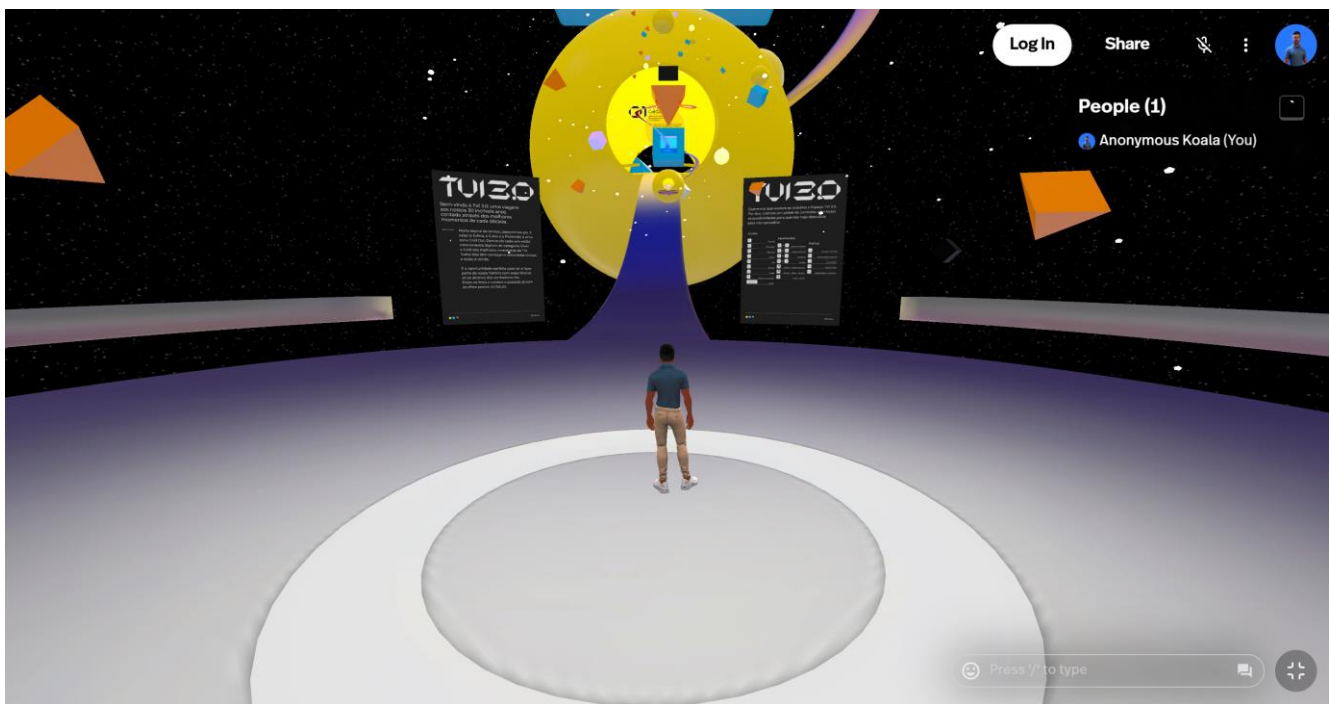


FIGURE III. ENTRANCE OF THE TVI METAVERSE

From a user experience perspective, the entrance to the TVI metaverse (see Figure III) conveys a futuristic and abstract aesthetic, diverging from the traditional visual identity of the channel.

The TVI metaverse employs bold geometric forms and vibrant colour schemes in contrast to the vast darkness of the cosmos, thereby creating a futuristic and immersive environment. The design follows a unique graphical language inspired by three core symbols from TVI's branding and

television remote control interfaces: the circle (REC) representing the past, the square (STOP) symbolising the present, and the triangle (PLAY) signifying the future [77]. This conceptual framework informs spatial organisation, reinforcing the idea of a temporal journey through the evolution of TVI's broadcasting.

The virtual ethnography analysis (summarised in Table II) identified that the virtual environment is composed of three primary thematic rooms, each corresponding to a different

decade of TVI's existence, and a final socialisation area at the top where users can interact and engage in live events.

TABLE II. THEMATIC AREAS AND THEIR ROLES IN THE TVI METAVERSE

| Area                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Entrance Hub        | <ul style="list-style-type: none"> <li>– A visually immersive gateway into TVI 3.0, introducing users to the metaverse through informational panels, floating geometric shapes, and abstract 3D elements.</li> <li>• A passive onboarding space, with informational panels providing background on TVI 3.0's virtual world.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Main rooms (1 to 3) | <ul style="list-style-type: none"> <li>– Historical digital media archive and an NFT marketplace, allowing users to explore key moments from three decades of TVI broadcasting.</li> <li>– Each room presents curated audiovisual content, converting historical TV clips into AI-stylized digital collectibles.</li> <li>– Informational panels provide historical context, and the color-coded thematic spaces (yellow, blue, red) reinforce the temporal journey, guiding users through three different decades of TVI programming.</li> <li>• Users engage with historical TV segments through an exhibition-style interface, where evolving content on digital screens transforms iconic moments into interactive media objects.</li> <li>• While the primary engagement is visual exploration there are additional options and information when choosing to interact with any of the NFTs. <ul style="list-style-type: none"> <li>➢ The NFT-based economy is central to TVI 3.0's metaverse model, allowing users to purchase and own historical TVI moments as digital collectibles.</li> <li>➢ These NFTs provide exclusive real-world experiences, including studio visits, TV show participation, and VIP events, among other options.</li> </ul> </li> </ul> |
| Chill-Out Area      | <ul style="list-style-type: none"> <li>– Designed as an open-air social engagement space set against a futuristic cosmic backdrop, reinforcing the communal dimension of the TVI metaverse.</li> <li>– A large digital screen continuously plays a curated loop of TVI's 30-year anniversary content, serving as both a nostalgic retrospective and an immersive multimedia experience.</li> <li>• Users can engage in free socialization, forming temporary virtual communities while passively consuming the broadcasted TVI content.</li> <li>• Originally promoted as a space for broadcasting the official gala celebrating TVI's thirtieth anniversary, it also has the potential to host various events and gatherings.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

Note: dashes (–) correspond to descriptions of content, dots (•) indicate interactivity features, and arrows (➢) represent monetisation aspects.

### C. Expresso (newspaper)

Expresso became the first Portuguese newspaper brand to establish a presence in the metaverse in March 2023, following its celebration of 50 years of history. In an official

announcement on its website [78], the Expresso metaverse was envisioned as a digital exhibition space that commemorates its journalistic trajectory, but also serves as an interactive hub for users to explore key moments in Portuguese and global history through a multimodal immersive experience.



FIGURE IV. ENTRANCE OF THE EXPRESSO METAVERSE

The Expresso metaverse is structured as a museum-like space, emphasizing historical reflection and knowledge dissemination. The metaverse also includes an amphitheatre, which promises special events featuring Expresso's editorial team, making it a potential space for contemporary journalistic discussions.

From a user experience perspective, the entrance to the Expresso metaverse (see Figure IV) conveys a sense of institutional gravitas and historical continuity.

The architectural design aligns with the brand's visual identity, employing the newspaper's signature colour scheme and aesthetic to reinforce brand recognition. The environment is carefully curated to evoke an open-air gallery-like ambiance,

with a traditional newsstand emphasising Expresso's historical role.

The presence of audiovisual elements underscores the metaverse's function as an educational and narrative-driven space. Overall, the design encourages users to engage with Expresso's legacy, fostering a deeper connection with journalism's role in documenting and shaping societal transformations.

The virtual ethnographic results (summarised in Table III) demonstrate that the spatial arrangement of the metaverse is structured around four distinct thematic zones, each contributing to the reconstruction of Expresso's brand identity within this new digital frontier.

TABLE III. THEMATIC AREAS AND THEIR ROLES IN THE EXPRESSO METAVERSE

| Area                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Initial gallery                  | <ul style="list-style-type: none"> <li>– Open-air gallery that introduces Expresso's legacy, featuring historical photographs, a founder's video interview, Expresso-branded cubes and a newsstand with virtual newspapers hanging.</li> <li>• Users experience is a structured but passive onboarding process, with the founder's video interview automatically playing upon entry.</li> <li>• While the static nature of the historical exhibition suggests limited engagement, the newsstand offers interactive elements, allowing users to exit the metaverse to visit Expresso's website or subscribe to the digital newspaper.</li> <li>• The limited interaction beyond the newsstand, with no salesperson to interact with, suggests a mostly passive experience.</li> <li>➤ The newsstand serves as the primary monetisation tool, encouraging users to subscribe to Expresso's digital newspaper or visit its website.</li> </ul> |
| Hallway                          | <ul style="list-style-type: none"> <li>– A commemorative space, marking 50 years of Expresso through large-scale branding elements, including the 50th Anniversary Exhibition Panel and a 3D "50" Logo Sculpture.</li> <li>• User engagement is limited to passive observation, as space does not feature interactive elements beyond visual branding.</li> <li>➤ The primary monetisation mechanism is corporate sponsorship visibility, featuring static a panel that visually connect Expresso's historical legacy with its partners (Altice, BPI, Hyundai, Navigator).</li> </ul>                                                                                                                                                                                                                                                                                                                                                       |
| Amphitheater                     | <ul style="list-style-type: none"> <li>– An open space, featuring a central discussion stage, a tiered audience seating, and a large video screen showcasing Expresso-produced documentary-style content about its newsroom.</li> <li>• Currently lacks interactive elements, functioning as a passive media viewing space.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Exhibition Galleries<br>(1 to 5) | <ul style="list-style-type: none"> <li>– A chronological newspaper gallery and an interactive audio journalism space, featuring 50 pivotal front pages from Expresso.</li> <li>– Each newspaper front page is accompanied by a podcast narrated by Expresso journalists, offering deeper historical context.</li> <li>• Users engage with historical front pages through an audio-guided experience, where circle-marked areas activate journalist-narrated podcasts.</li> <li>• This interaction model mimics museum-style storytelling, allowing users to experience news as a narrated historical journey.</li> </ul>                                                                                                                                                                                                                                                                                                                    |

Note: dashes (–) correspond to descriptions of content, dots (•) indicate interactivity features, and arrows (➤) represent monetisation aspects.

## V. DISCUSSION

The adoption of metaverse spaces by Portuguese media brands (RFM, TVI, and Expresso) reveals distinct strategic approaches to content variety, interactivity features, and monetisation opportunities. These differences highlight the transformative potential of the metaverse for brand positioning while also exposing challenges in long-term sustainability.

### A. Content Variety

Content variety serves as both a branding tool and a narrative strategy, highlighting the importance of differentiation in digital ecosystems [14]. Media brands are exploring virtual worlds to move beyond traditional content formats and create immersive experiences that expand traditional media consumption boundaries.

At the entry point of these metaverse environments, visual branding elements such as logos, colour palettes, and environmental design serve to establish immediate brand

recognition for RFM and Expresso. However, this is not the case for TVI. Beyond these aesthetic markers, each metaverse employs interactive storytelling [36] and unique spatial design [20] to reinforce brand identity or, in the case of TVI, to significantly depart from it.

RFM demonstrates the greatest content variety among the three brands, recreating rooms for its flagship radio shows while also leveraging music-driven environments and gamified experiences. These elements align its identity as an entertainment brand with content particularly appealing to younger audiences [73, 74]. In contrast TVI offers the least variation, curating three colour-coded futuristic virtual rooms that repurpose its broadcast archive into collectible NFTs, thereby emphasising digital ownership and exclusivity [66, 79]. Expresso, by comparison, presents a virtual exhibition structured around two main sections and adopts an educational orientation [18], using testimonial videos, a virtual newsstand, and audio-guided podcast experiences to support historically

grounded journalistic storytelling that reinforces its brand identity [80, 42).

### B. Interactive Features

The transition to the metaverse redefines media engagement, shifting users from passive consumers to active participants [54]. Among the media brands analysed, RFM offers the most interactive environment, while TVI and Expresso mostly limit engagement to content exploration.

The Spatial platform<sup>1</sup>, utilised by all three media brands, offers chat features and dance animations, highlighting the inherent constraints imposed by the platform's affordances, but also how certain design choices by the media brands further shape the interactive experience. Notably, RFM is the only brand that incorporates avatars (besides the users) in its metaverse. However, these avatars are pre-scripted with automated speech and movement, restricting opportunities for more personalised interactions.

In RFM's metaverse, interactivity is primarily gamified, fostering exploration, competition, and socialisation through structured yet engaging experiences. Users can participate in interactive contests, complete challenges, and compete in virtual races, earning RFM points and badges, which contributes to making it the most dynamic and participatory environment among the three.

TVI adopts a highly structured model, guiding users through a chronological media archive. While users can explore content and acquire NFTs, they cannot vote, comment, or contribute with their media content, restricting engagement to passive media consumption. The so-called "chill-out room" is framed as a social space, but the looped anniversary video suggests a commemorative rather than participatory intent.

Expresso's metaverse presence features the fewest interactive elements, primarily resembling a digital museum. In the main exhibition, users navigate front-page archives accompanied by audio narration, an effective multimodal experience [80], but interactivity is limited to passive exploration. Interactive features such as user-submitted articles, crowd-sourced archival materials, or guestbooks for visitor commentary could enhance engagement through participatory storytelling.

Research suggests that integrating user-generated content can enhance community participation and co-creation [55, 56]. However, this option is absent in the three analysed metaverse spaces. In addition, features like advanced avatar customisation, which can strengthen emotional attachment and user loyalty [57-60], remain underexplored, with only partial implementation in the RFM case. This absence raises critical questions regarding the strategic orientation of media brands, that opt to develop brand-controlled metaverse experiences without investing in participatory affordances that are essential for fostering long-term engagement and platform sustainability.

Long-term user retention requires not only interactivity but also a sense of belonging and familiarity with the virtual space [62, 63]. Despite the availability of mobile-friendly alternatives, significant challenges remain in terms of accessibility of immersive hardware and awareness about metaverse platforms beyond gaming [63], which structurally hinder widespread adoption.

### C. Monetisation Opportunities

The Portuguese media brands demonstrate varying monetisation strategies, using digital spaces not just for branding but exploring it as an emerging economic ecosystem.

RFM's metaverse serves as a marketing tool, using virtual billboard ads and promotional posters to extend offline marketing efforts into digital spaces. In doing so, it exemplifies virtual advertising as a core monetisation model within the metaverse, aligning with brand partnerships and sponsorships [56]. Additionally, its gamification model fosters user engagement through the RFM points system, where participants complete challenges to earn branded digital assets. This system holds potential for integration with real-world purchasing behaviour [19, 67]. However, its long-term sustainability depends on fostering and maintaining user interest over time [63].

TVI employs blockchain technology as a key monetisation strategy within its metaverse, utilising NFTs of historical TVI moments to establish a digital media ownership model. This approach aligns with scarcity-driven NFT economies, in which exclusivity enhances perceived value and drives consumer demand [66]. Beyond digital collectability, these NFTs also grant access to experiences related to TVI by integrating virtual ownership with tangible real-world benefits. However, the long-term sustainability of this model remains uncertain due to the volatility of blockchain markets, evolving regulatory landscapes, and shifting consumer interest in digital assets [19].

In the case of Expresso's metaverse, beyond sponsorships integrated into the broader celebration of its 50th anniversary, monetisation opportunities primarily stem from interactions with the virtual newsstand. This interactive 3D element is designed to encourage users to subscribe to the online newspaper. While immersive storytelling has the potential to enhance the perceived value of Expresso's legacy [16, 17] and, consequently, incentivise subscriptions, the metaverse's predominantly passive design and lack of a clear subscription funnel throughout the space raises doubts about its effectiveness in converting visitors into long-term subscribers.

Across these metaverse platforms, monetisation strategies remain largely latent, with an initial emphasis on community-building rather than immediate financial returns. However, these virtual spaces present significant untapped monetisation potential, as emerging research suggests that metaverse environments offer diverse revenue opportunities for media organisations [66]. Advertising remains central in the metaverse, with possibilities for dynamic in-world ads, including interactive billboards and personalised video

<sup>1</sup> Available at: <https://www.spatial.io/>

placements that might tailor brand engagement to users with different interests. Corporate sponsorships also represent opportunities for seamless logo placements, branded experiences, and interactive promotions that enhance advertiser visibility. Moreover, paywall premium content offerings and subscription-based access can unlock exclusive digital features, VIP events, and gated content, thereby fostering user retention. Digital collectibles, including limited-edition NFTs, create scarcity-driven value and can grant access to exclusive real-world experiences, reinforcing the intersection between digital ownership and offline engagement. Meanwhile, virtual goods, such as branded digital assets, function within gamified reward systems, incentivising participation and fostering a dynamic in-platform economy. Lastly, virtual events and experiential monetisation, including ticketed concerts, live talk shows, and interactive product launches, provide an additional revenue stream by leveraging the metaverse's interactive and globally accessible nature.

## VI. CONCLUSIONS

The comparative analysis of RFM, TVI, and Expresso demonstrates that media brands strategically align their metaverse presence with their broader identity goals, using immersive digital spaces as marketing extensions, commemorative projects, and experimental revenue models. However, despite strategic differentiations, audience engagement remains largely passive, as none of these metaverse environments fully integrate content created by users, real-time personalisation of interactions between users and avatars, or participatory storytelling mechanisms, which support the development of a sustainable digital community.

From a critical media perspective, the metaverse follows a recurring historical pattern in technological innovation, where new digital paradigms are presented as revolutionary despite being reconfigurations of existing technologies [81, 82]. This is particularly relevant for the three Portuguese media brands, whose metaverse projects closely resemble earlier virtual world endeavours, such as Second Life [80], rather than introducing fundamentally new media experiences. Instead, they primarily translate existing branded products into digital environments with limited innovation in user interaction or user content creation. Moreover, the hype surrounding metaverse adoption frequently obscures deeper questions regarding the long-term strategic value of these projects. While RFM's iterative approach to expanding engagement suggests a degree of adaptability, TVI and Expresso's more static digital experiences reinforce concerns that metaverse projects may function as short-term brand showcases.

Beyond branding strategies, the presence of media outlets in the metaverse raises critical ethical and social concerns [21]. RFM's gamified model, while engaging, potentially incentivises prolonged user tracking, raising concerns over data privacy and commodification. TVI's NFT-driven approach reinforces financial barriers that exacerbate digital inequalities. Meanwhile, Expresso, as a journalistic brand, faces challenges in maintaining credibility in an immersive space mostly perceived as for gaming and susceptible to misinformation and deepfakes. Additionally, the role of

avatars as digital representations of audiences introduces new ethical complexities to target advertisements, and unmoderated virtual interactions can foster exclusionary or harmful behaviours.

These challenges highlight a broader disconnect between the current use of metaverse environments by media organisations and the foundational principles of immersive journalism. Contrary to expectations, especially concerning a leading news outlet like *Expresso*, engagement with the analysed virtual spaces diverges from immersive journalism's emphasis on narrative depth and audience-centred storytelling. Instead, it prioritises product showcases and commercial objectives over critical enquiry. Consequently, this study demonstrates that, in the Portuguese context, the metaverse remains distinct from immersive journalism and does not yet serve as a platform for immersive news consumption.

Ultimately, the metaverse experiences of RFM, TVI, and Expresso reflect broader industry tensions, demonstrating that the metaverse is not a one-size-fits-all solution for media brands. Its long-term viability depends not only on broader user adoption, an expectation that has yet to materialise beyond the initial hype, but also on a well-defined strategic vision that aligns with brand identity, audience expectations, and internal organisational capacities. While innovation and the exploration of new marketing channels are crucial for maintaining competitiveness, the sustainability of metaverse projects requires deeper commitment beyond short-term experimentation.

Media organisations must critically assess whether their investment in new virtual environments aligns with long-term objectives, ensuring that these projects evolve beyond promotional showcases into meaningful, community-driven, and enduring digital experiences.

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## AUTHORS' CONTRIBUTIONS

There is only one author.

## CONFLICT OF INTEREST

The authors certify that there is no conflict of interest with any financial organisation regarding the material discussed in the manuscript.

## DATA AVAILABILITY

The data supporting the findings of this study are available upon request.

## ETHICAL STATEMENT

In this article, the principles of scientific research and publication ethics were followed. This study did not involve



human or animal subjects and did not require additional ethics committee approval.

#### DECLARATION OF AI USAGE

AI tools were used exclusively for copy-editing purposes, to enhance the clarity, language, and overall readability of the manuscript.

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