

Patents and the Metaverse – Technologies for Development of Platforms

13.12.2022 4 min read

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On September 13, 2022, the **Federal Court of the State of Paraíba ("JFPB")** established an interesting precedent in a conciliation hearing: it was the first time in Brazil that a hearing occurred "inside the Metaverse".

The representatives of the parties, the state-owned bank **Caixa Econômica Federal** and a company in debt, interacted with each other through customized three-dimensional (3D) avatars in a virtual meeting room and reached an agreement to put an end to a lawsuit filed in 2018.

The virtual hearing, part of a project from the **Innovation Office of the JFPB** ("Conciliating in the Metaverse is better"), indicates that the public authorities are receptive to new technologies, heralding their widespread adoption in the country. While this immersive experience is a step ahead the now ubiquitous videoconferences, the Court's metaverse is still far from the futuristic vision of a single and universal virtual world, to be accessed by a variety of devices. Yet, innovation directed to the Metaverse has been increasing in the past few years.

Current patenting activity can give us a glimpse of the efforts in this direction. Recent pending applications and granted patents show that further development of the Metaverse is likely to be supported by converging technologies such as hardware and software for the generation and delivery of Metaverse media – particularly 3D computer graphics, augmented reality (AR) and virtual reality (VR) content – and blockchain technologies to back a Metaverse economy, just to name a few.

Beyond the required increase in computational power to handle such media, new hardware is under development for experiencing the Metaverse. The present generation of smartphones provides AR capabilities, adding computer-generated content to the real-world environment. For a more immersive user experience, head-mounted displays (HMD) and other wearable gadgets are underway, although several improvements are still to be made.

For example, a recently published patent application¹ by **Magic Leap, Inc.**, an American startup company among the top current applicants in Metaverse technologies, describes lenses for HMD that can adapt to the users need for correction due to short- or far-sightedness, or astigmatism.

On the software front, advances for generating interactive 3D media commonly originate in game developer companies. Notably, another top applicant, **Microsoft**, recently announced the acquisition of **Activision Blizzard** by almost US\$ 70 billion². Still, there is a need for interoperability, as it occurs by means of the current coding standards for delivery of high-

definition video by streaming services.

Again, for example, recently published patent applications describe systems and methods related to creating and delivering 3D content, suggesting a possible future technological standard for the Metaverse media.

In this regard, a patent application by **Nvidia**³ is directed to a content management system maintaining a scene description that represents a 3D world, aiming at platforms for collaboration and connectivity. Another patent application, by **Tencent**⁴, is in turn directed to data processing techniques to adapt a source of media to a format suitable for streaming to heterogeneous devices. Both applications refer to Universal Scene Description by **Pixar** – originally developed for its animated movies – as a scene graph format that is suitable for representing visual immersive media and that could become a coding standard in the Metaverse.

Finally, distributed ledger technologies seem to be inevitably connected to the development of a Metaverse economy. A recently granted patent in the name of **Nike**⁵, directed to "CryptoKicks"⁶, describes how such virtual markets could operate. The technology enables "a company to control the creation, distribution, expression and use of digital objects that represent their brand" and to "create controlled scarcity if so desired". In this manner, companies can effectively be economic agents in the Metaverse.

In one example of the invention, a blockchain ledger is used to connect a virtual pair of shoes to a physical one. The consumer can, thus, buy a real-world pair of shoes from a seller and receive a cryptographic token for a digital representation of the same pair. The token and the digital shoes could be used inside the Metaverse in gaming and collaborative creation settings, but also to authenticate the tangible pair of shoes as genuine in a subsequent transaction, illustrating a possible interplay between real-world and Metaverse economies.

While we now have several virtual environments providing immersive experiences to a lesser or greater degree, the examples described in this article show how patent literature is a valuable source of technological and legal information and can unveil the future of the Metaverse, which may be just as imagined by science fiction.

>>> This article belongs to the e-book: "Intellectual Property". Click here to read more articles.

NOTES:

¹ WO 2022/197603 A1, "Optical devices and head-mounted displays employing tunable cylindrical lenses", Magic Leap, Inc., published 22.09.2022.

² See "M&A and the Metaverse", by Ian Bussinger and Felipe Palhares, in our e-book "Metalaw: reflections on law in the Metaverse".

³ US 2022/0134222 A1, "Delta propagation in cloud-centric platforms for collaboration and connectivity", Nvidia Corporation, published 05.05.2022.

⁴ US 2022/0182432 A1, "Set up and distribution of immersive media to heterogenous client end-points", Tencent America LLC, published 09.06.2022.

⁵ US 10,505,726 B1, "System and method for providing cryptographically secured digital assets", Nike, Inc., published 10.12.2019.

⁶ The neologism is a portmanteau for the pair formed by the digital representation of a shoe, colloquially "kicks", and the corresponding cryptographic token.