

What Are the Challenges to Building an Interoperable Metaverse?

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As the lines between the real and the virtual continue to blur, the Metaverse is taking us towards a more immersive, enhanced, and realistic digital environment. Businesses and brands are actively looking for strategies to position themselves in the [Metaverse](#) so they can take advantage of its unlimited potential. Having said that, the Metaverse still faces significant obstacles, which hinder its widespread acceptance.

One of the primary hurdles is a lack of interoperability. By preventing users from freely navigating between several virtual worlds interconnected with each other via uniform standards, it limits users' access to the Metaverse and confines their movement to a single project. To overcome this, industry stakeholders must work towards interoperability, much like how APIs enable the same for unified communications or any other business app.

Understanding What is an Interoperable Metaverse

An interoperable metaverse is essentially one without borders. In our real world, people may travel to several locations and easily transport their material possessions from one location to another. The same interoperability and consistency are desired by users inside a Metaverse project.

As a result, the interoperable metaverse will be a global network of linked systems. To enable it to function across jurisdictions, it will be constructed on a network of public and private guidelines, norms, and regulations. Cross-chain design improves interoperability, which is a "communication connection" that enables easy information transfer.

A Metaverse initiative with interoperability features may communicate with other Metaverse projects, use their services and features, and allow cross-chain social networking, commerce, and a variety of other activities that are impossible in an ecosystem that is divided into separate sectors.

Challenges to Building an interoperable Metaverse

An [interoperable Metaverse](#) has not yet materialized in our time. In an ideal world, it would encourage collective experiences for everybody. The first impediment is that each user needs a Quest VR headset in order to come together in Meta's Horizon Worlds. It is also difficult to move a user's assets from one Metaverse to another. Additionally, there are business implications. If a user requests that their avatar wear a brand-name clothing they purchased in Metaverse B, it signifies that Metaverse A's economy missed out on a sale.

The technological difficulties come next. Even though the two hypothetical Metaverses use the same engine, it could be difficult to import things between them. In this example, for instance, the garment really acts like a real-world shirt in Metaverse A, which may be attempting a realistic appearance and supporting cloth physics. On the other hand, Metaverse B may prefer a pixelated, two-dimensional style, which is completely different.

Here, instead of attempting to create a single interoperable garment, a company would be better off creating two fresh shirts, one for each Metaverse. Further, challenges in creating an interoperable Metaverse are the following:

- **Economic issues:** establishing the right economic incentives and mechanisms that encourage users to exit core apps or platforms and traverse multiple worlds via the Metaverse.
- **The problem of persistent connectivity:** For the Metaverse to have a growing user base, it must constantly be open and accessible. To permit global participation, the Metaverse must be accessible and decentralized, with an uptime comparable to that of the internet.
- **Technology lagging behind:** There will be specific software and programming techniques required to integrate off-chain and on-chain platforms into a unified, open metaverse. What innovations in computer engineering are needed to make this happen?
- **Challenges rooted in user psychology:** Most users are largely pragmatic; they wouldn't ever leave their home apps if there is no motivation to engage in other applications. This leads to a conflict between interested parties for both the right resources and adequate capital, further hindering the pursuit of an interoperable metaverse.

Interestingly, Meta Platforms Inc. writes in a [blog](#) that an interoperable Metaverse “isn’t an absolute — not every element of metaverse experiences needs to be, or will be, compatible with others.”

Addressing the Interoperability Challenge in the Metaverse

Projects may identify workarounds for this problem on a business level. Fees on the sales of interoperable items might be used to split the profit across all participating Metaverses. As an alternative, Metaverses may work out cross-promotional agreements and look at additional opportunities to produce shared value.

Developers working on the Metaverse will find it simpler to manage interoperability inside larger cross-platform ecosystems thanks to ready-made frameworks and SDKs. In fact, these are already in development, with initiatives creating a backbone that Metaverse developers may utilize to integrate their works into a larger network of interconnected services and decentralized apps.

Furthermore, improvements in computing capability and power are required to operate a linked Metaverse environment. This area has witnessed progress because of developments in quantum computing, which have significantly increased rendering speed and computational power. Remember, modern computers are just unable to handle the demands of such a complex environment, necessitating the development of inventions like [Meta's RSC](#).

Although the most challenging component of interoperability may be technical interoperability, appropriate meta-economics also need a high level of interoperability. The World Economic Forum has established a project titled "[Defining and Building the Metaverse](#)" in response to this. In order to create an economically sustainable, interoperable, secure, and inclusive metaverse, the project brings together important stakeholders.

Two elements will be the initiative's focal points. The administration of the metaverse, or how its technologies and environments may be built in a safe, secure, interoperable, and inclusive manner, is the primary area of focus. The second will concentrate on value creation and outline the opportunities and dangers that organizations, people, and society as a whole will face as the Metaverse comes alive.

Closing Thoughts

In order to attract more users, interoperability may become a critical selling factor for projects. Developers of the metaverse should make an effort to address the associated commercial and technical issues. Rather than developing isolated hardware and software stacks, they need to look to the future and create what would become, "a metaverse of metaverses."