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## Call for Contributions

### Competition in Virtual Worlds

**1. What entry barriers or obstacles to growth do you observe or expect to materialise in Virtual World markets? Do they differ based on the maturity of the various markets?**

It is crucial to highlight the multifaceted nature of entry barriers and obstacles to growth in Virtual World markets, which indeed vary based on the maturity of these markets.

From a legal perspective, there is a need for regulatory frameworks that both foster innovations in virtual worlds and safeguard consumer data and intellectual property rights. Establishing specific guidelines that balance the interests of developers and users is essential for nurturing a conducive ecosystem for growth and innovation. Economically, it is pivotal to implement measures that enhance competition and prevent the emergence of monopolies, particularly by supporting startups and small enterprises through funding and investment opportunities. This approach is aimed at enabling them to thrive in markets predominantly controlled by larger entities, thereby ensuring a level playing field. Societally, greater consideration of socio-cultural aspects is beneficial to promote acceptance and access to virtual worlds. By fostering social inclusion and respecting diverse cultural norms in the design of virtual environments, we can create inclusive spaces that are appealing to a broad user base. Such measures are critical for establishing an open, competitive, and inclusive market landscape that favors innovation and guarantees fair conditions for all participants. Technically, barriers are increasingly evident in the realms of devices, platforms, and ecosystems. The development and adoption of open standards are paramount to ensuring equitable performance and preventing the disadvantaging of alternative platforms through artificial barriers. It is essential to ensure that every service required by end-users can be offered through alternative, equivalent solutions, thereby fostering an environment of fair competition and innovation.

**2. What are the main drivers of competition for Virtual World platforms, enabling technologies of Virtual Worlds and/or services based on Virtual Worlds (e.g. access to data, own hardware or infrastructure, IP rights, control over connectivity, vertical integration, platform and payment fees)? Do you expect that to change and, if so, how?**

The drive to create virtual worlds is primarily fueled by the ambition to establish an additional digital dimension that becomes as integral to our daily lives as the internet, with the potential to reinvent or replace existing services and utilities. This new market space, with its visible and yet unforeseeable economic possibilities, serves as a main motivator for numerous

entities. The competitive landscape is shaped by various factors including access to data, ownership of hardware or infrastructure, intellectual property rights, control over connectivity, vertical integration, and platform and payment fees. The immersive experience is a key factor in engaging customers, thus serving as a crucial competitive driver.

The advancement of open standards and interoperable technologies is vital for reducing technical barriers and democratizing access to virtual worlds. Furthermore, IT components such as networks, hardware, and software play a significant role in the performance and service offerings within virtual environments. It is anticipated that the drivers of competition will evolve, influenced by technological advancements, changing user expectations, and the development of new business models.

Closed ecosystems present a challenge to competition, as market participants merge or invest in each other to increase entry barriers for competitors. This could result in a limited number of virtual worlds, each exclusively connected to specific devices and platforms. Failing to secure a position in this new environment could lead to significant disadvantages, affecting activities and competitiveness in current markets.

### **3. What are the current key players for Virtual World platforms, enabling technologies of Virtual Worlds and/or services based on Virtual Worlds, which you consider or expect to have significant influence on the competitive dynamics of these markets?**

Current key players in the Virtual World platforms, technologies, and services include prominent entities such as Meta, Epic, Apple, Google, Samsung, Valve, Microsoft, Disney, Lego, and Sony. These corporations not only possess access to the necessary technology but also hold rights to the content crucial for the development and expansion of virtual worlds. Many of these companies have already established alliances and are working towards crafting the next generation of Virtual Worlds. Their collective efforts and resources position them as significant influencers on the competitive dynamics within these markets. This influence is characterized by their technological advancements, content creation capabilities, and strategic partnerships, which are pivotal in shaping the future landscape of Virtual Worlds. The engagement of these entities underscores the importance of fostering a competitive environment that encourages innovation while ensuring fair access and opportunities for emerging players in the sector.

### **4. Do you expect existing market power to be translated into market power in Virtual World markets?**

In considering the translation of existing market power into Virtual World markets for the European Commission, it is evident that several factors predispose leading tech companies to extend their influence into these emerging digital domains. The phenomenon of network effects, where the value of a service increases as more users participate, is particularly pronounced in virtual environments. This dynamic inherently benefits established platforms that can leverage their extensive user bases to gain early momentum. Furthermore, the vast repositories of user data held by these entities enable them to tailor virtual experiences in ways that significantly enhance user engagement and retention, presenting a formidable

challenge to new entrants. Additionally, the ability to integrate Virtual Worlds seamlessly into their existing ecosystems provides a strategic advantage, facilitating immediate exposure to their offerings. Lastly, the financial capacity of these corporations to invest in the necessary infrastructure and acquire emerging VR technologies and startups further cements their position. These factors collectively suggest a landscape where a few dominant players could potentially exert significant control over the development and accessibility of Virtual Worlds, underscoring the need to closely monitor the evolution to ensure a competitive and innovative market.

**5. Do you expect potential new entrants in any Virtual World platforms, enabling technologies of Virtual Worlds and/or services based on Virtual Worlds in the next five to ten years and if yes, what products and services do you expect to be launched?**

In the next five to ten years, the Virtual World sector is expected to see significant innovation and the entrance of new players, bringing forth specialized platforms and technologies that cater to diverse interests and needs. We anticipate the development of advanced collaborative workspaces, virtual education platforms tailored to immersive learning styles, and hyper-realistic simulations for both professional and recreational use. The mental health sector may also benefit from therapeutic spaces within virtual environments.

Decentralized platforms leveraging blockchain technology could introduce new models for digital asset management and user governance, emphasizing user ownership and control. Innovations in enabling technologies, such as affordable VR hardware and cloud-based streaming, are poised to make virtual reality experiences more accessible to a broader audience. AI-driven world-building tools and advancements in haptic feedback devices are expected to enhance the creativity and immersion of virtual environments.

Additionally, the virtual services sector is likely to expand, including professional services in virtual settings and immersive commerce platforms. These developments, while promising, hinge on overcoming technological barriers, a facilitating legal framework and adapting to evolving social standards within digital spaces, indicating a vibrant future for Virtual Worlds driven by accessibility, innovation, and user empowerment.

**6. Do you expect the technology incorporated into Virtual World platforms, enabling technologies of Virtual Worlds and services based on Virtual Worlds to be based mostly on open standards and/or protocols agreed through standard-setting organisations, industry associations or groups of companies, or rather the use of proprietary technology?**

The evolution of technology in Virtual Worlds is likely to manifest through a nuanced balance between open standards and proprietary technologies. The argument for open standards is compelling, offering interoperability, innovation, competition, and decentralization benefits. Open standards could enable users to move seamlessly across virtual worlds, promoting a landscape where innovation thrives on a common foundation and fostering a competitive market with diverse offerings.

Conversely, proprietary technology holds the allure of differentiation and control, allowing companies to establish early mover advantages and unique selling points. These

technologies can be crucial for companies aiming to carve out a distinct presence in the Virtual World market.

A hybrid model appears to be the most probable outcome, with foundational components of Virtual Worlds adopting open standards to ensure basic interoperability, while companies layer proprietary technologies atop this infrastructure to differentiate their offerings. The final balance will likely be influenced by user demand for openness and interoperability, as well as potential regulatory interventions aimed at promoting competition and preventing monopolistic practices.

## **7. Which data monetisation models do you expect to be most relevant for the development of Virtual World markets in the next five to ten years?**

The development of Virtual World markets over the next five to ten years is expected to be significantly shaped by both traditional and decentralized data monetization models. The fusion of these models will navigate the delicate balance between user empowerment, privacy concerns, and commercial interests. Key areas of focus include the creation and distribution of digital assets, integration of e-commerce platforms within virtual spaces, and the utilization of blockchain technology to enhance user control over digital assets and data.

This approach is likely to foster new monetization models where users can directly benefit from their data or creations, alongside traditional models. The integration of Web3 technologies could further improve interoperability between different virtual worlds, expanding monetization opportunities across platforms. The evolving landscape underscores the importance of innovative and equitable monetization strategies that align with user interests and market sustainability.

## **8. What potential competition issues are most likely to emerge in Virtual World markets?**

As Virtual World markets evolve, they are likely to encounter competition issues reminiscent of those in the broader tech and online platform sectors. The consolidation of market power by a few dominant platforms could lead to gatekeeping behaviors that unfairly restrict entry and competition. Such platforms might engage in exclusionary practices, limiting interoperability and consumer choice, thereby stifling innovation. The competitive advantage afforded by the use of data for personalized virtual experiences could further entrench the market position of established players. Aggressive acquisition strategies might absorb innovative startups, diminishing the vibrancy and diversity of the ecosystem. Furthermore, practices such as self-preferencing and cross-subsidization could unfairly benefit the virtual platforms of these dominant firms. Additionally, concerns over fairness and access, such as algorithmic bias and disparities in access to virtual worlds, could exacerbate existing inequalities. Addressing these potential issues requires establishing a level playing field and the promotion of fair competition practices to ensure the benefits of virtual worlds are widely accessible and that the sector remains innovative and dynamic.