

Call for Contributions: Competition in Virtual Worlds and Generative AI
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1) What entry barriers or obstacles to growth do you observe or expect to materialize in Virtual World markets? Do they differ based on the maturity of the various markets?

The main obstacle when it comes to the Virtual Worlds market is fragmentation, which stems from a lack of collaboration. The European market for extended reality (XR) is a very promising one, as it could reach over 800 billion in 2030, but it is also a highly fragmented one: European start-ups lack funding in stages later than seed and pre-seed, which makes it difficult for them to scale up. This is why often they have to go overseas when they find themselves in the critical stage of exporting their product globally. One critical improvement that could be made in this sense is to create a unified capital market in Europe. Moreover, collaboration needs to be established between public and private actors to enforce common standards without over-regulating: finding a dialogue to set clear industry standards when it comes to the virtual world market, as well as AI, is pivotal to ensuring massive and responsible technology adoption. A central European institution in the digital policy field could be created in the EU with exactly this objective.

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 main driver when it comes to competition in the virtual world market is profit, like in any other market. However, in the case of tech profit is linked usually to the adoption of a new technology: in this case, for instance, virtual worlds or AI. This shifts the dynamic a little bit as to adopt a new innovative idea standardization is needed, which is linked to collaboration: a standard can, indeed, be created through a public-private partnership, a public regulation, or even a private agreement between major tech players. The healthiest scenario is one where public and private players collaborate: in this case, not only does the standard set usually take into consideration both competition and public good, but also there is a reduced likelihood of a clash between private actors and regulations (which can lead to results like sanctions). Once the innovation is adopted, the driver remains purely profitable for the private sector. On the public sector side, the driver is usually political consensus: therefore, to find a common standard, a political consensus and a profit regarding a technological innovation need to be present. Without standards setting, it is unlikely for the company to create large profits (as technologies like XR could remain niche products) and for the public sector to push to improve public services like education or health where XR could be particularly useful in the long run.

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?

I think that when it comes to European institutions the focus should be on public education and healthcare. These are the two spheres that are most likely to be impacted by the advent of the virtual world market on a mass scale.

When it comes to public education, the impact of virtual worlds will be probably greater than the advent of the internet: if accurately handled by the institutions, this could lead to a much more inclusive education. On the contrary, not allowing such technologies to be accessible on a large scale could mean a deepening of the European digital divide.

When it comes to public health, instead, the focus should be placed on the role that these technologies can have in prevention and in helping tackle the consequences of epidemics and pandemics like the COVID-19 one.

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

The transition from 2D technology to 3D technology will probably have the same effect on the economy that the advent of the internet had, if not greater. This means that there are some positive (and negative) aspects to it:

- Increased (or decreased) competition: the rise of the internet led to the advent of new companies, but also of new monopolies. This is already happening in the virtual world market with big techs and new companies competing.
- Increased (or decreased) accessibility: with the rise of the internet, a larger number of people now have access to a larger amount of information, though the divide between those who have access to knowledge and those who don't has become bigger. This is also happening in the virtual world market: people who use XR have access to even more experiences now.
- Increased (or decreased) democratization: the internet led democracy to become more transparent, but also more polarized given its dimensionality. It is difficult to estimate now if moving into a third dimension will restore a 3-D view also in politics or not.

In short: market power in the metaverse will probably be the same as in the real world because the real point is that the advent of the metaverse will reshape our economy.

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?

On the software side, I think that we will see the rise of new companies offering to build virtual world experiences and that a few of these companies will become very well known. As the virtual worlds market is currently very niche, there will be a few people accessing it first and providing digital 3D experiences: for instance, we are seeing now 3D experiences in fashion. Building 3D experiences might become a real product and we could see companies becoming very successful: the same way some companies in the '90s rose to fame by digitalizing payments and other data like phone numbers or even mail, we will see companies becoming famous by producing experiences like following maps or sightseeing in 3D.

On the hardware side, the entrance of new players in the market depends on what kind of new technology will be needed: at the moment, it looks like big tech, computer, and mobile producers are already able to produce what is needed. On the software side, instead, the rise of new companies is linked to the fact that the existing players often do not have the labor with the skills to produce such experiences.

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 upon through standard-setting organizations, industry associations, or groups of companies, or rather the use of proprietary technology?

I think that the virtual world market needs collaboration between the public and the private sector to succeed. Metaphorically, we could think of the metaverse as a distant destination in the universe where now some private actors are taking us. Nonetheless, it is up to both the private and the public to then regulate such space. Indeed, in virtual worlds, there will be both public and private spaces so there must be at some point an agreement at a European level on this.

In general, I assume virtual worlds will simply be a 3D extension of the WWW so to run on the internet initially no agreement will be needed. The issue will arise later when these virtual worlds will need some type of unification.

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

I think that in the virtual world space, there will be the need to tie avatars to people in the real world through a verification method, most likely a credit card. Then, depending on the space that the avatar uses the person owning the avatar will be charged differently: for instance, an avatar entering only public spaces will not be charged, while an avatar entering a luxury online 3D shop could be either charged a weekly/monthly/yearly subscription proportional to how much the 3D space cost to the brand (hence, how exclusive it is) or a one-time fee.

8) What potential competition issues are most likely to emerge in Virtual World markets?

On the public sector side, we could see virtual worlds' public spaces being regulated very differently in different parts of the world: this could lead to an increase in the global digital divide and a likely success not only of countries home to big techs but also of countries like South Korea, Japan or even Israel that are at the front run in this sector.

On the private sector side, there is the question of how geopolitics will impact the moves of the businesses: for instance, if it will be possible for an Asian brand to develop a 3D experience for an American company in a virtual world that is mainly accessible in Europe. Hence, collaboration on regulation will be the key.

9) Do you expect the emergence of new business models and technologies to trigger the need to adapt certain EU legal antitrust concepts?

For sure the EU will have to redefine its antitrust legislation in response to emerging technologies such as AI and Virtual Worlds, however, in which direction this is still unclear. The possibilities in this sense are multiple:

1. Deregulation: There is the possibility that, if the transition to a 3D virtual world will be mainly privately led, this will come at the expense of public sector regulation in favor of private competition. Hence, legal framework can change and become more agile.
2. Over-regulation: If the transition will be mainly led by public actors, in the EU the risk is to go toward an over-regulated legislative landscape.

The most likely outcome is that the legislation at a European level will have to adapt itself as case studies arise and that public actors will find themselves in the need to keep up with the quick pace of the private sector to keep their regulatory framework agile and up to date.

10) Do you expect the emergence of new business models and technologies to trigger the need to adapt EU antitrust investigation tools and practices?

Probably investigation practices will also face the main challenge of having to keep up with a different timeframe, a much quicker one, which is the one defined by technology development.

A potential development is to see the establishment of a centralized European institution, working in the field of digital governance with the specific mandate of supervising and tackling timely possible misconducts so that the procedure is quicker.