

ACROSS THE METAVERSE: POLICY PRIORITIES

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ABSTRACT

This paper will first explain what the Metaverse is by exploring definitions and identifying who is shaping it today, how it differs from the current state of the online world, the possible complexities that arise from the Metaverse, and what policy approaches should be prioritised by governments.

1. INTRODUCTION

There existed a time when dial-up internet was viewed as the peak in technology. We endured 56Kbps speeds and jarring noises of our modems. We endured all this because the internet has always given us a gateway into a world of opportunity. The internet has been both a disruptor and an enabler, and it has not only facilitated globalisation, it has accelerated it. When the world was still relying on dial-up internet, not many would have foreseen a world where a hand-held phone would have the ability to stream 4K movies or connect to smart watches which can measure blood oxygen levels. Similar to the Metaverse, it is not always easy to foresee its true potential. Despite the fanfare, there is still some doubt as to whether the Metaverse is indeed “the future” or just another game [1]. One thing we do know is that the Metaverse is here to stay, at least for the foreseeable future. Increased adoption of elements such as Artificial Intelligence (AI), Blockchain technology, and non-fungible tokens (NFT) also point towards the expansion of the Metaverse.

2. WHAT IS THE METAVERSE?

Oxford Reference has defined the Metaverse as a ‘virtual representation of reality implemented by means of virtual reality software’ [2], and while that does sound promising, it also tells us absolutely nothing. Perhaps it is better defined as a comprehensive “digital playground”, powered by immersion and a steady stream of digital information, albeit through physical spaces or in virtual worlds [3]. In 2007, a “Metaverse Roadmap” was designed by industry players to provide a clearer idea of what the elements of the Metaverse will be, in it, the Metaverse is defined as the convergence of “virtually enhanced physical reality” and “physically persistent virtual spaces” [4]. Deloitte foresees the Metaverse as a “converged world of the virtual and the real” [5], and has interpreted it to mean 4 different things:

- A virtual world that exactly mimics reality;
- A native virtual world that contains some elements of the real world;
- A virtual world where all elements will be a reproduction of the real world, and the virtual world will rely on interactions between it and the real world;
- The convergence and interaction of both virtual and real worlds.

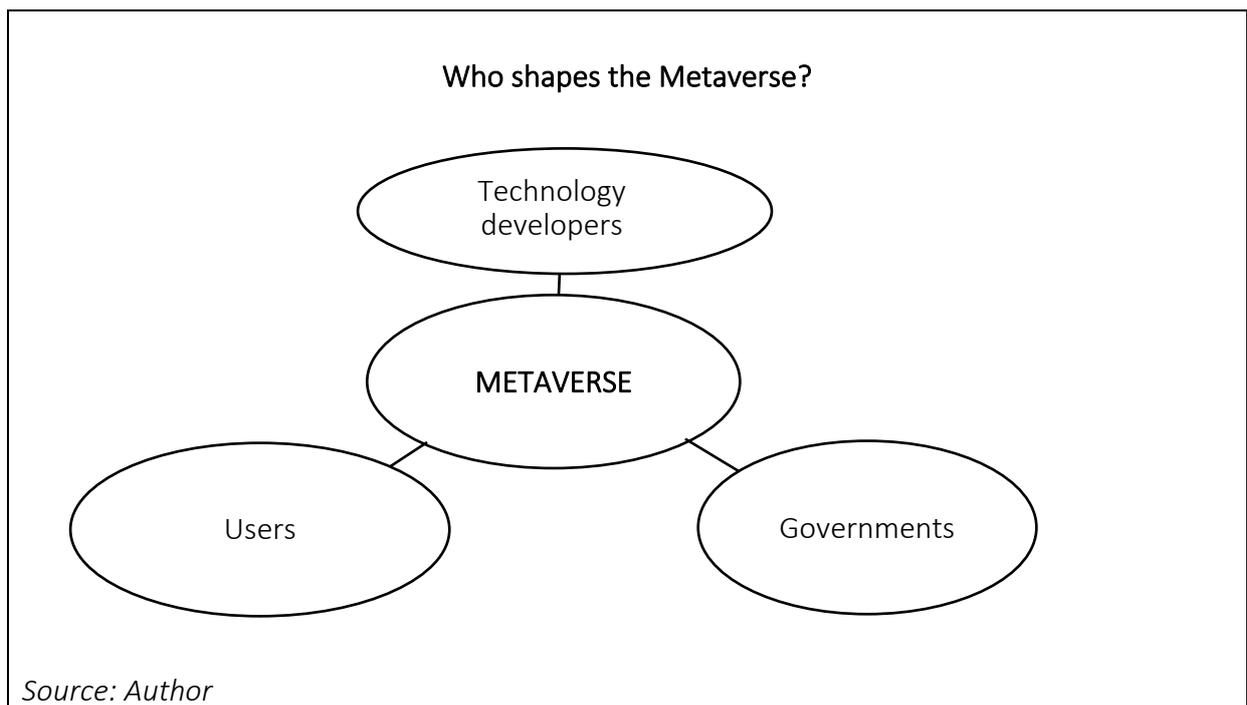
From the definitions above, we can deduce that the Metaverse is anticipated to be:

- Immersive;
- A convergence between the real world and the virtual.

Without these elements, the Metaverse would be no different than the current state of Web 2.0. At this moment in time, we can see hints of this in the use of VR and haptic technology, but where we are at is still nascent in comparison to the grandeur expectations of the Metaverse by futurists. The IEEE categorises the Metaverse into hardware components, software components and content [6], and its these components that need to be constantly innovated for the Metaverse to flourish.

3. WHO DECIDES WHAT THE METAVERSE WILL LOOK LIKE?

While it may seem disappointing that we are at such a nascent stage, it is also pertinent to note that this stage of development is pivotal in shaping what the Metaverse will come to be. Circling back to the earlier days of social media, it was companies like Facebook and Twitter that set the trajectory of what social media platforms will be due to their stake as pioneers in the space. In order to get a glimpse of what the Metaverse may look like in years to come, it would be beneficial to identify who is shaping, and will shape, the Metaverse.



Technology Developers

Probably the most important stakeholder in the development of the Metaverse are the technology developers. These are the stakeholders that play a direct role in forming the hardware, software and content of the Metaverse, regardless of whether they make a profit from providing services or goods, or if they contribute to research in advancing technology relating to the Metaverse. Of course, the ultimate influence over the Metaverse is the stakeholder whose technology or platform is widely adopted and used by users of the Metaverse. Referencing Lawrence Lessig's proposition that "code is law", it is the owners of the "code" (This can be interpreted as owners of a platform or specific technology) that "dictate" how the Metaverse is run [7]. Companies like Meta, Roblox, Nvidia and Microsoft are naturally developing industry standards by creating the technology used for the Metaverse.

Users

The users of are the next most important stakeholder in the development of the Metaverse. Especially with the proliferation of technology such as Blockchain and NFTs, platforms like Web 3.0, and the Metaverse, are set to be more decentralised – further solidifying the influence of User-Generated Content (UGC). UGC is not a new concept exclusive to the digital world. UGC in its simplest definition is any content created by people. Based on this definition, even Sun Tzu's 'Art of War' is UGC. The main point is that UGC, whether directly or indirectly, influences our perception of the world. This is exaggerated even more so today as content online is shared at lightning speed. The question is: who are the users? According to a study conducted by Newzoo [8], 59% of Metaverse players are men, while only 41% of players are women. In terms of age distribution, 38% of Metaverse users between 10 to 20 years old, 36% are between 21 to 35 years old, while only 26% of users are between 36 to 60 years old. This shows us that the current Metaverse is dominated by Generation Z, followed by Generation Y. While the possible conclusions derived from these statistics are person-dependent and would most likely spark arguments on the importance of diversity, it must be worth noting that it is not the technology in itself that harbours influence, but the "social actors" that influence which arrangements are preferred [9]. The landscape of the Metaverse is slowly being shaped by the users who are, and will be, engaging in it the most.

Governments

Depending on who you ask, Governments are merely "users" of the Metaverse. However, I see governments as separate entities from typical users primarily because governments do have authority over the real world, and whether we like to admit it or not, we cannot exclusively live

online. While the issue of “regulating” the online world is complex due to the borderless nature of the online world, as well as market dominance of major Over-the-Top (OTT) providers, some governments still have some degree of regulatory and enforcement power. For example, social media companies in the United States benefit from section 230 of the Communications Decency Act, providing them immunity from civil liability based on third party content posted on their platforms. In contrast, the UK’s Online Safety Bill includes detailed proposed regulation targeted at social media companies, with regards to harmful content online. Governments are not users, however, at this juncture, governments are seemingly more like users in the Metaverse. Governments currently have minimal involvement in developing the Metaverse. Although, this may possibly change once governments decide to establish meta-societies. This is not limited exclusively to regulation, but in leveraging the technological benefits of the Metaverse in itself. For example, in November 2021, the Seoul Metropolitan Government (SMG) invested 2.8 billion euros into creating a virtual communication ecosystem (a Metaverse platform) for all areas of its municipal administration [10]. Barbados is also the first sovereign country to establish an embassy in the Metaverse, specifically on the platform *Decentraland* [11].

4. WHAT MAKES THE METAVERSE DIFFERENT?

At face value, the Metaverse is currently similar to playing an online game. The key difference lies in the immersive element of the Metaverse. Citing Deloitte’s interpretation of the definition of the Metaverse, the most important factor of it all is immersion, regardless of whether the immersion stems from the blurring of boundaries between the real and virtual worlds, or whether we are able to develop technology so advanced that our senses are unable to differentiate between real and virtual. It is imperative to understand why the Metaverse is different from the internet we generally use today, in order to decide what policies should be formulated.

The Metaverse can completely change the way we do the things we do in the real world, as well as online. A good example is the possible elevation of e-Commerce shopping experiences by introducing a virtual and immersive environment. Instead of adding items on an e-Commerce website by clicking a mouse, imagine virtually “walking” into an online store and “touching” the items vis-à-vis advanced haptic technology. As early as 2017, Walmart has been testing VR technology to provide an immersive digital experience for its customers [12]. Platforms like *Decentraland* and *Upland* are already selling virtual property, in which users host virtual events.

The transfer and exchange of huge amounts of data. This includes the constant real-time tracking of data including what we see, touch (and maybe even smell), in order to provide a better VR experience. Even currently, keystrokes, cookies, web history, location and searches are tracked and analysed by companies. The Metaverse will only amplify this. Interoperability of data will benefit the Metaverse's stakeholders, and will be the major driving force of the virtual world [13]. Currently, and in the foreseeable future, there are multiple Metaverse platforms. Data interoperability will be essential in developing bridges between these platforms.

Unlike the generally used version of the internet in which we rely purely on what we see and hear, the Metaverse is unique in a sense that it leverages on the immersive experience. Assuming technology is advanced to a degree that allows us to fully engage in an immersive experience which engage our other senses beyond sight and sound, this will open the door to a host of possibilities that we may not be able to comprehend fully today. Technology companies are constantly developing new technology to engage the other senses. A recent example of this is how Japanese scientists have developed "smart" chopsticks which transmit sodium ions to mimic the taste of salt [14].

5. THE COMPLEXITIES OF THE METAVERSE

Some complexities that may arise from the widespread use of the Metaverse include:

- **Amplification Effect**

The amplification effect of online crimes, cyberattacks and data breaches. As with being a benefit of the Metaverse, it is also a problem. For example, the gaming industry is central to the Metaverse, and it is a known fact that video games are used by online predators as platforms to groom minors, which often lead to abuse happening in real life once a predator is successful in meeting their victims in the real world [15]. Online predators will have more incentive to take advantage of the Metaverse's generally decentralised and less regulated environment. Another possible scenario is the abuse of immersive technology by online predators to carry out their crimes.

- **Ownership**

Ownership of digital assets will be another complex issue that may be faced by users and governments. As it stands, regulations governing cryptocurrencies consist of piecemeal approaches that differ by jurisdiction. There lacks a global consensus on how cryptocurrency regulation should look like. In contrast, fiat currency is heavily regulated, and backed by sovereign governments. While it may not seem like a problem

on the surface, the vast volumes of which cryptocurrency is traded, does have a macroeconomic impact on the global economy [16]. Currently, virtual property is being sold and rented in the Metaverse, with some investors paying millions for virtual land [17]. The exchange of real-world currency for virtual property does raise questions on the future of the Metaverse in terms of whether current property or tax laws apply to a virtual world we have difficulty in comprehending. Should it be viewed from the same lens as real land, despite it lacking the finite aspect real-world land has? Again, referencing Lawrence Lessig's concept of "Code is law", do we ever own these virtual properties? Or do the platform developers who create and maintain the code of these Metaverse platforms own them?

- **Psychological effects**

Social media is proven to affect the development of the prefrontal cortex, especially amongst children and adolescents [18]. The constant exposure to content online has led many to develop addictions to social media, instigated through feedback loop mechanisms, mimicking a dopamine reward system [19]. We are living in a time where content is presented to us faster, and at a higher volume, than ever before. That being said, the majority of us are only utilising our sense of sound and sight to engage with content online. Imagine the overstimulation that will follow once we are engaging all our senses in the Metaverse, on a more consistent basis. As it stands, Generation Z holds on to the social value that their online and offline selves are not any different [20]. Playing video games causes sensory assaults humans are biologically programmed to identify as danger, and with these assaults, our hormones enter into a state of anxiety which can lead to a fight-or-flight response [21]. The constant state of fight-or-flight causes the brain to have difficulty in regulating itself back to a state of calm, which leads to constant anxiety and stress [22]. The online world is filled with content that can cause fight-or-flight reactions in our brain. Once again, the key element of a successful Metaverse is immersion, and if the current state of the online world today is enough to cause psychological harm, it would be daunting to imagine how a fully immersive environment will be. This is not to say that our dependency on the online world is inherently bad, but there is a need for more studies to be conducted on the possible psychological effects of a fully immersive Metaverse. Additionally, seeing as to how the current Metaverse's largest demographic are aged 10 to 20 years old, there is an even bigger need to focus these studies on children and adolescents.

6. POSSIBLE POLICY APPROACHES

Policy should aim to ensure security and safety, foster innovation, prioritise comprehensive and sustainable policies, and to provide equal access to opportunities, so as to minimise developmental gaps. In this section, I will list down possible policy approaches which can support the following policy objectives with regards to the Metaverse:

- **Ensure security and safety**

The Metaverse, coupled with Web 3.0 and 5G speeds, will see the generation and transfer of massive amounts of data. The security of user's personal data will need to be ensured through legal instruments. This will need to be done by identifying data protection requirements relative to the Metaverse. For example, a study conducted by the EU High-Level Expert Group on AI found that the current provisions of the General Data Protection Regulation (GDPR) can be applied to data protection in the context of AI, hence not requiring any major change to current law [23]. The increased adoption of the Metaverse may also see the expansion of the Internet of Things (IoT) through VR and AR devices, which will increase the attack surface and cybersecurity risks to networks [24]. Governments should ensure national cybersecurity policies are up to date with security requirements of the Metaverse.

- **Foster innovation**

Innovation is key in advancing technology to support the Metaverse. Policymakers must tread carefully when developing policies, so as to avoid hindering innovation. Considering the nascency of the Metaverse, it would be wise for governments to refrain from formulating reactive policies or regulations. Adopting a “watch and observe” approach will allow technology developers to freely innovate without the hindrance of regulatory barriers. Additionally, governments may also consider providing financial incentives for technology start-ups to develop the Metaverse. This will not only facilitate competition, but provide accessibility to smaller companies to enter the Metaverse market. At the same time, governments should also monitor the expansion of the Metaverse to identify signs of market failure and whether policies or regulation are required. Policies should also be formulated to increase accessibility to the Metaverse. The International Telecommunication Union (ITU) estimates that 2.9 billion people are still offline [25] – this translates to 2.9 billion people who may have a long way to go before experiencing the privilege of the Metaverse and immersive technology. Policies should prioritise closing this digital divide, which will support the accessibility of the Metaverse.

- **Prioritise comprehensive and sustainable policies**

The most important approach when formulating policies with regards to the Metaverse is to ensure they are comprehensive and sustainable. Too often policy failure is due to siloes and a lack of collaborative policymaking [26]. The concerns relating to the Metaverse range from property, data protection, law enforcement, cybersecurity, psychological effects, environmental considerations, industry standards to a whole host of issues. It would then be short-sighted to formulate policy without intensively obtaining stakeholder input. This also includes engaging in discourse on international

platforms, be it government-government or government-industry players. A pluralistic approach to developing policies and regulations is necessary in ensuring the Metaverse reaches its full potential.

7. CONCLUSION

The Metaverse could either die an unfortunate death, or it could open a realm of possibilities in the world of technology. As with the internet and the Fourth Industrial Revolution, we can only hope that the Metaverse evolves into a welcomed disruptor that positively transforms multiple sectors. At this moment, governments may not play a massive role in shaping the landscape of the Metaverse. However, governments also play a very important role in ensuring its success. Policymakers need to refrain from making knee-jerk decisions that will only hinder the progress of the Metaverse. Instead, policymakers should observe its evolution and monitor discourse on its development. Lastly, policymakers need to adopt a pluralistic approach in policymaking, by ensuring policies with regards to the Metaverse are comprehensive, sustainable and aid in long-term policy goals.

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