

## **Across the Metaverse: Policy priorities**

The “Metaverse” is a 30 year old term that was coined in 1992 by author Neal Stephenson in his book, Snow Crash; when he described it as a shared three-dimensional digital world that allowed users to escape the mundanities of their physical world. Today the concept has varied meaning depending on who you ask. In the general public imagination, it is a term that many heard for the first time when Meta CEO Mark Zuckerberg, announced his company, “Facebook”, would be renamed “Meta”. Many imagined a science fiction inspired reality where we become consumed by our interactions in the virtual world and where the internet was even more dominated by one company. In reality, this rebrand was a pronouncement of a fundamental shift from being, primarily a social media company and a move towards becoming a “metaverse company”, which will focus on building the future of connection and immersive experiences.

For those who have been operating in the ecosystem for much longer, “the metaverse is the next generation of the internet...” Underpinned by AR and VR development, the metaverse is seen as a technological evolution, where “a virtual, interconnected reality seamlessly woven into our physical world, causing our social, virtual and business experiences” to collide into an intertwined experience.

### **The evolution of the Metaverse world**

It is an experience that is expected to deliver a myriad of benefits across multiple sectors, industries and aspects of social life, including education, healthcare, art, gaming and entertainment and other activities. Tech-optimists and proponents of this view believe that AI driven developments and increased integration of data into people’s lives, will facilitate the creation of embodied experiences of the internet that will enrich people’s experiences across virtual and physical spaces.. They have therefore popularised a conception of the Metaverse where emerging technologies are used to create a set of new interconnected, immersive digital worlds that make up the Metaverse.

However, despite this popular understanding of the metaverse as being a new era of technological developments, the metaverse is in fact, not about the development of new technologies but rather the convergence of existing technologies and various user bases, to facilitate the developments of new ecosystems. The primary technological elements of which the Metaverse experiences will comprise of and be enabled by, such as augmented reality, virtual reality, mixed reality, blockchain, and non-fungible tokens, are in fact already in existence and being used for a variety of social and economic applications.

Industry leaders at the Boston Consulting group posit that the Metaverse lies at the intersection of three key technologies and user bases. The authors offer a comprehensive framework through which to understand these technologies, their applications and the convergent dynamics between them.

There are three main technologies, driven by various developments, converging and intersecting to form what we are referring to as the Metaverse. The first of these converging elements can be described as M-worlds, which are immersive applications in which nearly 400 million active users can interact in hybrid, 2- dimension virtual experiences such as Meta’s Horizon Worlds and sometimes co-create their experiences such as in social gaming applications like Roblox and Fortnite. Supported by growing virtual asset economies that leverage various monetization strategies like subscriptions, advertising and in-app purchases, M-worlds are mainly accessed via technologies such as AR/VR headsets, mobile phones, tablets and PC browsers and are driven by powerful computing capacity, better connectivity and improvements in cloud services.

The mass marketisation and increasing accessibility of metaverse hardware is expected to contribute to the rapid adoption of the metaverse. Indeed, as technology companies continue to reiterate their hardware designs, making them easier to use, investing in content studios and thus improving the user experience, it is likely that the use cases for AR, VR, and MR will span consumer and business applications focused on employee training and workflows. Additionally, AR/VR solutions have the potential to enhance public services and expand economic and social opportunities for individuals. Augmented reality/ virtual reality (AR/VR and mixed reality (MR) hardware and the development of their associated virtual economies therefore form the second set of technologies converging to form the Metaverse.

The third set of technologies that is considered central to the existence of the Metaverse will be Web3 and virtual assets such as NFT wallets and smart contracts. In recent months NFT's or Nonfungible Tokens, which are digital certificates of ownership of digital assets, and cryptocurrencies have been catapulted to the centre of public discussions as their acquisition and exchanges increase across the globe, disrupting various financial sectors and asset classes such as the fine art market.

Where some believe that Web3 is potentially one of the great economic equalisers of our time, there are others who are raising very valid questions about the legal implications of undefined notions of digital ownership and the unregulated virtual marketplaces that could become an extension of the existing dark web and a haven for online criminals.

One is able to better appreciate the potentially democratising potential of Web3 and its associated technologies when one considers the ways in which users consume, create, and own content in Web3. Indeed, "the networks (and the money exchanged) are decentralized, with blockchain technology replacing centralized intermediaries and providing the trust that enables both consumption and exchange." These developments are a far cry from the centralised systems of initial iteration of the internet (Web 1.0) and Web 2.0, which slowly allowed users to not only consume digital content but also become creators of it. However, in both these iterations of the internet, the distribution of digital content and the ability to exploit its economic value remained trapped in centralised networks until the emergence of Web 3. The Boston Consulting Group reported that as at "the end of 2021, a total of approximately \$90 billion in virtual and physical money was circulating on m-worlds, and this number was growing steadily, indicating the rising economic popularity of the metaverse."

Furthermore, despite some of the emerging concerns around the current NFT market, as well as pre-existing issues around the security in the crypto currency economy, there are positive sentiments around the broader emerging metaverse economy. Financial industry leaders, Goldman Sachs predict that "as much as an \$8 trillion opportunity on the revenue and monetization side" of the metaverse while Morgan Stanley likewise sees an \$8 trillion metaverse market—in China alone." Other researchers looking at the potential economic impact of the metaverse, also argue that, it would have a potential contribution to global GDP of \$3.01 trillion (measured in 2015 U.S. dollars) in 2031, if metaverse adoption began today and evolved in similar ways to earlier technologies such as mobile phone technologies, following the same trajectory in terms of levs and rate of adoption by users and impact on GDP. Much of this economic potential will emerge from existing, associated industries such as gaming and digital content, maintaining a mixed model in short to medium term where in-game virtual currencies can be purchased for real money and be used for digital asset purchases. For the foreseeable future, it is expected that Web3 and traditional financial approaches will continue to coexist and this status will continue to be shaped by local laws, regulations and the ongoing advances of Web3 technologies.

Therefore, adopting the framework offered by the Boston Consulting Group, a clearer picture begins to emerge of a metaverse that is an extension of the digital world as we know it, offering a myriad of opportunities for different combinations of technological applications and developments. It is a metaverse of social and economic potential, promising a world of creativity and economic benefit through the expansion of the creator ecosystem and the disruption of the sectors such as the traditional art world. It promises ways to bypass structural barriers, physical distance, and other

obstacles in the educational system by offering solutions such as virtual learning among other things. Much of the potential presented by this version of the metaverse, is one that cuts across sectors and reveals an additional layer of the economy, that offers new solutions to existing problems and the expansion of the global economy through the creation and exploitation of the emerging digital economy.

### **Trouble over the horizon worlds**

While the popular view of the metaverse and its evolution is promising, it is also problematic for two broad reasons. Firstly, it is an econo-centric view rooted in technological determinism, which is the idea that technological advancements are not only inevitable, they also drive our social relations, power relations and our cultures. It is a view that limits our agency and the guardrails provided by our democratic systems while centering the role of technology in obtaining the progress that we need to advance humanity.

Kelly argues that while advocates of the metaverse place the technologies on a pedestal where it offers promises for democratisation of tools and equitable access to the global economy, ultimately the promises of the metaverse will not be realised, in much the same way that earlier promises of the internet were eventually surpassed by the interest of large platforms and surveillance capitalism.

Secondly, the techno-deterministic view of the metaverse fails to address the many emerging issues about the health, safety, security, privacy and economic implications of virtual spaces in the metaverse. Early feedback from experts across the globe reveals growing concerns that the metaverse could intensify both good and bad human traits. We face a high likelihood that problems similar to the current challenges policymakers face in web 2.0, such as discrimination, bullying and hate to egregious crimes such as online gender based violence, sexual violence and exploitation of children, among other potential harms will simply be replicated in the Metaverse. There are clear concerns that there are insufficient systemic and structural interventions that would ensure safe and equitable access to the Metaverse while providing adequate controls and oversight over those who control these technologies and protecting universal human rights.

Arguably, while there has been an increase of public policymaking initiatives to address the problems emerging from the online world, policymaking and regulatory development processes have been slow and lacklustre, often not able to match the dynamic pace of development of the technological sectors. There is a prevailing sentiment that policymakers are often playing catch up as the environment is gripped beset by a myriad of issues. There are multiple reasons for this state of affairs, including the lack of global cooperation on setting global standards and frameworks for new emerging technologies and their applications. At the heart of this is the enormity of the responsibility facing Policymakers to balance innovation principles with public interest imperatives in an emerging sector. It is a responsibility shared by governments and tech companies as they too will have to play a role in shaping not only the technologies required in the metaverse but also setting up the frameworks that will be required for the equitable governance of the Metaverse. Nevertheless, public policy makers should continue to seek to develop and make Metaverse policy interventions to respond to the needs of the sector as well as the many publics who will be immersed in and interacting with it as it evolves and its technologies continue to be developed.

### **Shaping the Future of the Metaverse**

The metaverse will evolve in ways that many of us cannot fully comprehend at present. However, our inability to conclusively predict the future does not limit our ability to shape said evolving future. As policy makers currently grappling with various challenges that stem from the internet as we know it today, we have ample information to map out various policy strategies by focusing on a few key emerging principles. Indeed if the, Metaverse is an evolution and convergence of existing

technologies and how we experience them, one could argue that today's policy concerns will certainly replicate themselves in the metaverse and thus, various steps should and can be taken now, building in the policy interventions being made today to create a safer and more inclusive internet.

There are four priority areas in which policymakers could take steps to shape the future as we move towards a more immersive environment. These priority areas, which are set out below, overlap with some of the emerging concerns highlighted above around the health, safety, security, privacy and economic implications of the metaverse and were first raised by policymakers at the 2021 AR/VR Policy Conference.

### **Privacy and Data Governance**

The first broad priority area that requires immediate action to be taken by policy makers is Privacy and Data governance. To deliver tailored immersive experiences, AR/VR devices are expected to require vast amounts of persona data, and other types of information that are currently not covered by policies such as the EU's GDPR, which makes provision for transfers of data between jurisdictions but may not be applicable in the metaverse where the notion of jurisdictions is yet to be imagined. Data for AR/VR will go beyond static forms of data to include newer forms of biometric data such as motion tracking or eye tracking, the uses of which users will need to understand. Additionally, data protection and privacy measures need to be revised and customised, not only to keep user data out of the hands of unauthorized third parties but to also ensure that those who have permission to use the data, practice responsible data stewardship and comply with emerging regulations such as South Africa's Protection of Personal Information Act (POPIA), which among other things, seek to prevent the over exploitation of personal data beyond accepted and agreed uses. Therefore, privacy and data governance, and the development of tech agnostic privacy local laws need to be priority for the Policymakers and the companies building AR/ VR technologies to ensure impactful policymaking that address the unique challenges presented by the Metaverse.

### **Safety and Security**

The second broad priority policy area of concern identified by policy makers, academics and industry and government stakeholders alike is safety and security. There seems to be consensus around the need to protect children and young people from online emotional and physical harms. Recently, there have been reports of human rights violations and egregious acts of online sexual violence being perpetrated against the avatars of female and young users in the Metaverse. The anonymity of avatars is allowing predators to violate others with impunity because existing laws are not designed to address instances of gang rape in an immersive virtual world.

Safety concerns also extend to protecting other users from real life harms that may manifest from AI developments such as situations where AI systems malfunction and lead to harms, for instance an application that shows that a street is safe to cross when in actual fact, it is not.

Additional safety concerns arise from considering the implications on Nation states and how legal systems will be impacted if the mass adoption of AR/VR capabilities such as deepfakes, which can fabricate recorded images or video, presenting falsified realities in real-time, begin to affect people's lives in a negative way at mass scale. For example, a person could appear somewhere they are not through the use of digital overlays or use the intelligence received by officials on the ground during a crisis, where imagery could be distorted and falsified. Lawmakers and Policymakers will need to develop guardrails and laws that will protect the physical and emotional safety of users in the metaverse, and ensure that child safety in particular is a forefront consideration in these processes. █

### **Accessibility, Inclusion and Responsible Innovation**

The third priority policy area seeks to pre-emptively address concerns around accessibility and inclusion, through the adoption of responsible and ethical innovation principles. Considering the power and potential of metaverse technologies, ensuring equitable access and inclusive design at inception should be a key focal point for all creators, developers and innovators working in the ecosystem.

While the metaverse is expected to be accessed through hybrid 2D screens such as mobile phones, tablets, and PC browsers and expand into AR and VR hardware, many of these existing technologies are not as inclusive as they could be. Often, access and inclusivity have been limited because they have been approached as an afterthought or an add on function by designers. In other instances, the functions are not included simply because the technology to do so did not exist and until recently. Consider the advent of closed captions in this regard.

Furthermore, increased accessibility would in turn drive opportunities for broader innovation and economic participation, for example by making workplaces more accessible to those who face mobility constraints. There are therefore clear policy imperatives needed to design emerging technologies with inclusivity at the heart of the process in order to enable meaningful access to the Metaverse by all.

### **Universal access and Economic opportunity**

Lastly, universal access is another policy concern that requires immediate intervention in order to facilitate the realisation of the positive economic benefits offered by the Metaverse. While it is hoped that the metaverse will come into full fruition, supported by growing investments in the development of the infrastructure and technology required, the reality is that the metaverse will be built on the back of an already inequitable digital landscape that comprises an expansive digital divide. Just as many people are currently excluded from the existing digital economy of web 2.0, it is highly likely that this digital divide will be maintained, if not exacerbated as millions more continue to be excluded from the formal digital economy and not having the opportunities to realise its benefits. Therefore building an accessible, inclusive, and safe metaverse is going to require policy interventions that will work towards the narrowing of the digital divide. However, AR/VR devices could benefit the wider population if policy interventions are made to drive equitable adoption in much the same way that mobile phones, which were initially luxury items for the wealthy, became essential devices.

Therefore, there is a policy opportunity to enable the distribution of AR/RVR/XR technologies through the softening of regulatory barriers that may currently discourage technology companies from entering developing markets, particularly in the global south.

Furthermore, policy action and international cooperation can be taken by policymakers to address the inequalities, as expressed in the Global Government AI Readiness index report to support the development of emerging technology markets. The report proposes the incorporation of elements like R&D, digital infrastructure and innovation in international development initiatives like the UN 2030 Agenda.

Policymaking that enables increased investment in local technological sectors by multinational private companies, drives the development of local country AI strategies and supports the growth of local data and infrastructure initiatives. This would play a critical role in supporting the AI capacities needed by governments to deliver public services in the new era and to grow their local digital economies. Therefore resulting in reducing the digital divide at both the macro and micro levels, ensuring that metaverse adoption is accelerated and enables further development of its innovative technologies and associated economy.

### **Conclusion**

Metaverse technologies have transformative potential that promise to alter the very fabric of our daily lives in many exciting ways. However, considering all the above concerns, as well as the enormous impact that Metaverse based technologies will have on our democracies, economies

and societies, the sector should not be left to develop without direct policy interventions. While the application of Metaverse technologies raise unique policy considerations, these emerging issues are playing out in maturing policy areas such as data, privacy, safety, security, and the digital economy. Policymakers, lawmakers, industry leaders and academics who have already been grappling with these issues in relation to existing web2.0 technologies are more than prepared to begin the task of safeguarding the public interests while enabling innovation in the metaverse.

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