

Digital Policy Hub – Working Paper

Forgotten Web3 and Metaversal Technologies in the Wake of AI

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Key Points

- Artificial intelligence (AI) has recently dominated attention in the media, academia and the tech industry, which has overshadowed previous attention paid to the metaverse and Web3, although these technologies are still operational.
- The use of competitive language in media and academic discourse, reminiscent of the space race era, contributes to the hype surrounding emerging technologies. The need for rapid innovation is rooted in the capitalist need to generate profits; this framing also reinforces socio-technical imaginaries, which can inflate the capabilities of technologies such as Web3 and metaversal tech. As a result, focusing solely on regulating specific technologies is inefficient because they fluctuate in popularity depending on their position in the hype cycle. Effective regulation requires analyzing the behaviour of entities controlling emerging tech, particularly their political and economic motives.
- Technology exists in an ecosystem, in which its different forms rely on one another in order to develop. A crucial point in understanding this ecosystem is that it exists within big tech ownership, which highlights the importance of regulating big tech monopoly power. Big tech corporations play a significant role in developing and maintaining emerging technologies, such as Web3 and metaversal tech, by providing cloud infrastructure services that enable developers to create and deploy these technologies.
- This working paper proposes two policy recommendations: fostering partnerships with experts in emerging technologies to ensure that information used in research and policy making is accurate and impartial, thereby minimizing dependence on sensationalized sources; and establishing an independent regulatory body to monitor big tech compliance with antitrust regulations, focusing specifically on analyzing rents being used as a means to evade current antitrust laws.

Introduction

AI has garnered significant attention from the media, academia and the tech industry in the past year. ChatGPT's explosive release is associated with this new AI craze. In 2022, however, the metaverse and Web3 were the technologies that were predicted to change the internet. While much investment and capital went into funding these technologies, they quickly became insignificant once AI entered the spotlight. But this does not mean that the metaverse and Web3 are obsolete. This paper aims to locate Web3 and metaversal technologies in the age of generative AI, arguing that although these technologies have surpassed their peak in the Gartner hype cycle and are now in the trough of disillusionment, the notion that either has failed is not entirely accurate.

In contrast to how hype portrays emerging technology such as AI, new technologies do not exist in a vacuum. Instead, technology operates in an ecosystem, in which its different forms rely on one another in order to develop. This ecosystem exists within big tech ownership, which highlights the importance of regulating corporations rather than individual technologies. This is not to say that certain technologies must not be regulated; instead, this paper argues that when an emerging technology is garnering hype, there is a tendency to focus solely on how that technology will revolutionize our way of living. But hype discourse tends to separate the technology from the context in

which it will operate. The big tech corporations that control the technological ecosystem will use these new technologies to actualize their interests. Thus, technologies within the ecosystem are merely a component of the more extensive system that relies on rent extraction. The need for regulation does not rest with the technology itself, but rather in its development via cloud services through rent extraction. By controlling cloud services, big tech corporations secure their influence and means of profit over emerging technology. Thus, the true capabilities of emerging technologies are dependent on how big tech intends to utilize them. As a result, regulating big tech is imperative to ensure fair competition and innovation. This research pays specific attention to antitrust regulation, as it has significant spillover effects on various areas of regulation.

Definitions

Web3

Web3 can be conceptualized as “self-infrastructure,” in that it originates in anti-establishment ideology (Nabben 2023); it advocates for an entirely decentralized internet that intends to avoid the pervasiveness of platform monopolies on the internet we use today (Cao 2022). Web3’s decentralized internet would allow users to have the ability to read, write and own their data without the interference of big tech platforms (ibid.). In 2022, the World Economic Forum characterized Web3 as a novel method of engaging stakeholders, reshaping corporate governance and fostering value creation, wherein individuals are not merely commodities, but rather owners and developers of their own data and creations. Some critical technologies that comprise Web3 include:

- blockchain;
- cryptocurrency;
- smart contracts;
- decentralized autonomous organizations;
- decentralized applications; and
- decentralized finance (Hawes et al. 2023).

The Metaverse and Metaversal Technology

The concept of the metaverse can be traced to a 1992 science fiction novel by Neal Stephenson titled *Snow Crash* (Ball 2022), in which the developing 3D-enabled digital environment is made possible by emerging technology, such as augmented and virtual reality, allowing users to have lifelike experiences while online (McKinsey & Company 2022). Metaversal technologies further blur the line between the physical and digital realms and aim to augment a user’s physical senses or create immersive experiences through computer-generated elements (Renieris 2023, 106). Like Web3, the metaverse is imagined as a successor to today’s internet, but unlike Web3, the metaverse does not require decentralization or a shift of power and value from platform corporations to users (Ball 2022). There may also be more than one version of the metaverse: Meta (previously Facebook) has stated that

there will be no Meta-run metaverse, just as there is no Microsoft internet today (Clegg 2022). Some critical technologies that comprise the metaverse include:

- extended reality technologies (augmented, virtual and mixed);
- non-fungible tokens;
- cryptocurrencies;
- AI; and
- the Internet of Things.

Competition and Hype: Why Current Dialogue Is Unhelpful in Tech Regulation

AI has recently undergone rapid development, significantly enhancing its accessibility for the average user. The advent of ChatGPT has initiated fervent competition with major players in big tech vying for supremacy in AI development, while nations attempt to shape the trajectory of AI advancement within their borders — for example, China’s Next Generation Artificial Intelligence Development Plan (Klimentov 2023). In 2022, the United States dominated private AI investment, with a staggering \$47.4 billion invested, surpassing China’s investment by 3.5 times and the United Kingdom’s by 11 times (Samson et al. 2023). Technology has always been at the forefront of global competition and is often used as an extension of military power. AI discourse through media outlets is increasingly reflective of space race-era global competitiveness, with the illusion of one state (either China or the United States) reaping all of the political, economic and military benefits of rapid technological development while the other state gains nothing (Ulnicane 2022). Such emphasis on this binary representation of technological development and state relations is unhelpful in creating sustainable and effective regulation for upcoming technologies. Inga Ulnicane (2022) asserts that the use of competitive language is unhelpful for three notable reasons: first, it perceives global technological development as a zero-sum game; second, it advocates for reduced governmental regulation of technology; and third, it prioritizes advanced technologies over socio-economic concerns.

This paper contributes to Ulnicane’s arguments and acknowledges that using competitive language regarding technological development, specifically AI, also reinforces capitalist hype cycles. Such language fosters a culture of fast-paced technological innovation at the expense of prioritizing functionality. Essentially, space race-era competitive language leads to the premature advertisement of incomplete technologies in mainstream discourse, serving to enhance the reputation of states and generate profits for corporations rather than focusing on innovation with the intent of benefiting society. In capitalism, hype has become systemic rather than sporadic, amplifying the perceived revolutionary potential of emerging technologies (Di Liberto 2022). When reviewing the hype cycles of previous technological breakthroughs such as Web3, it becomes clear that the driving force

behind its hype was its financialization: more specifically, the influence of venture capitalists (VCs) investing in fictitious capital (Sadowski and Beegle 2023). The hype cycle of Web3 is reflective of the underlying model of Silicon Valley innovation cycles, where technology is developed and invested in rapidly but simultaneously steered along specific paths by VC entities to generate hype, which is essential for enhancing its value — whether speculative, perceived or real (ibid.).

After the explosive release of ChatGPT in early 2023, Web3 investment decreased by 73 percent from the previous year (Blum 2024). Although AI has been in development for decades, it has only recently entered the Gartner hype cycle for emerging technologies. The Gartner hype cycle is a model that illustrates the maturity and adoption of emerging technologies through five phases: the innovation trigger, in which a breakthrough generates interest; the peak of inflated expectations, marked by high enthusiasm and some success stories; the trough of disillusionment, where interest decreases due to unmet expectations; the slope of enlightenment, in which practical benefits begin to be recognized and the technologies start to be produced by tech providers; and the plateau of productivity, where the technology achieves mainstream adoption and sustainable growth.¹

The beginning of 2023 saw a tremendous rise in ChatGPT users: in January 2023 alone, ChatGPT had around 100 million monthly users (DeVon 2023). This rapid adoption served as the catalyst for the AI hype train in all facets of media and expertise, leading to a deep and widespread fascination with the capabilities of AI. Much of the discourse, especially in the social sciences, relies on speculation regarding AI's capabilities in the future. This discourse reflects the trajectory of Web3 in its peak hype period of inflated expectations, a discourse which similarly surrounded Web3's potential to make big tech corporations obsolete.

Thus, it is essential to consider the motives of political and economic stakeholders in developing new technologies. These stakeholders are responsible for hyping the imagined capabilities of these technologies in order to bring in investment and profit (Richter, Katzenbach and Schäfer 2023). Socio-technical imaginaries play a significant role in garnering hype for emerging technologies. Sheila Jasanoff describes them as “collectively held and performed visions of desirable futures...animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology” (quoted in Tutton 2021). These socio-technical imaginaries can mischaracterize the capabilities of emerging technologies, which can also impact their implementation (Cools, Van Gorp and Opgenhaffen 2024). Once the illusion of the new technology's capabilities has dissipated, users, investors and corporations will be left to face the reality of what such tech is truly capable of. With Web3, VCs have been frustrated with the lack of immediate returns on their investments; while these investments in Web3 were drastically declining, the competition to lead in generative AI resulted in approximately one-third of available funding being allocated to AI investment (Wintermeyer 2024).

The use of space race language in the media, and increasingly in academia, reinforces the techno-utopian hype around emerging technologies. This process results in language that glorifies certain technologies, as seen with AI in light of the rapid release

¹ See www.gartner.ca/en/methodologies/gartner-hype-cycle.

of ChatGPT, and emphasizes technology's capacity to drastically alter our way of life. Such discourse often situates these technologies within the capitalist hype cycle, neglecting to comprehend their contextual nuances and history. Thus, acknowledging the implications of socio-technical imaginaries allows for an understanding of how capitalism and its need to generate profits will shape the trajectory of such technology. Shoshana Zuboff (2019), in *The Age of Surveillance Capitalism*, highlights the importance of policy makers focusing their attention not solely on technology itself but also on its political foundations. Understanding tech's political and economic underpinnings is crucial for crafting effective regulatory frameworks for emerging and disruptive technology. This paper argues that big tech corporations are reconfiguring emerging technology to uphold their monopoly positions. Thus, policy makers cannot allow hype to distract their understanding of technology from the political and economic environment in which it exists. Contrary to their position in the hype cycle, forgotten technologies such as Web3 and metaversal tech are still essential and will become increasingly significant for the future of big tech regulation.

Locating “Forgotten” Technologies within the Cloud: Why Tech in the Trough of Disillusionment Needs to Be Monitored

Technology develops incrementally: previously popular technologies, such as blockchain, cryptocurrency and augmented reality (AR), have not simply disappeared in the wake of AI's hype. They are still actively being developed despite no longer being in the spotlight. For example, while the metaverse and AR were disregarded once ChatGPT gained popularity, Apple released its Apple Vision Pro, an AR headset, on February 2, 2024; this technology implements AI and deep learning to teach the AR system to recognize objects, understand context and anticipate user needs (Unleashed AI 2024). Although the first concept of an AR headset was developed in the late 1960s (van Krevelen and Poelman 2010), it has taken many decades for the technology to come to fruition. Developing technologies do not and will not operate individually; while projects such as Meta's metaverse and Web3 might have been paused, the underlying technologies they encompass are actively evolving and will synergize with emerging technologies such as AI.

The hype around Web3 and metaversal technologies may have dissipated, but these technologies are currently being developed and maintained on big tech's cloud infrastructure. For example, Google expanded its cloud startups program to blockchain companies, explicitly targeting newly developing Web3 companies (Linares 2023). Google's head of Web3 engineering, James Tromans, stated, “Google Cloud views the evolution of blockchain technology and decentralized networks today as analogous to the rise of open source and the internet 10 to 15 years ago” (quoted in Linares 2023). Amazon's Web Services expanded its Amazon Managed

Blockchain by adding new features that will allow developers to interact with digital assets and applications on various blockchains that do not require them to set up specialized infrastructure themselves, initially supporting the bitcoin network (Betz 2023). Essentially, Amazon is making Web3 development more user-friendly and convenient for developers. In August 2023, Microsoft partnered with Aptos blockchain to enable the training of Microsoft's AI models by using Aptos's verified blockchain data (Melinek 2023). Cloud services are essential to understanding how big tech retains oversight and control over technological development; its infrastructures demonstrate how big tech has solidified itself in the creation of technological development, as well as how these corporations can financially benefit from developers via rents. Big tech platforms have a monopoly that is not restricted to social media platforms; their monopoly extends to the technological ecosystem as a whole.

There is a lack of focus on technology as an ecosystem embedded within a rentier structure. Rentier capitalism is an economic system where rents and rentiers play a dominant role, supported by assets that generate profits and sustain those who benefit from them; it is a system in which success is measured by what an entity controls rather than by what that entity does (Christophers 2022, xviii). The cloud services that big tech corporations offer are applications and infrastructure resources accessible via the internet. Subscribers engage with third-party providers to access these services, enabling users to access significant computing capabilities without the need to produce or purchase hardware and software: they are renting these services from big tech cloud infrastructure.² Big tech can harness developing technologies via rents from their cloud services, allowing them to profit from the rents alone and presenting them with the opportunity to partner with successful developers. Essentially, Amazon's Web Services is a start-up factory that has all of the resources ready to provide for its customers: it has referenced a study that claims partners can earn \$6.40 for every \$1 spent on Amazon's Web Services (Rao 2023). A recent example of this is Amazon's Web Services' partnership with Immutable — a Web3, blockchain-based gaming firm — in which Immutable joined Amazon's Independent Software Vendors Accelerate Program (Nagarajan 2023). The program will allow the firm to access networking and monetary resources to simplify the process for Web3 developers to launch and scale their blockchain gaming projects (Irwin 2023).

The use of rent facilitated by big tech to encourage technological development demonstrates that technologies labelled as disruptive or decentralized are unable to separate themselves from Web2 hierarchies. Web2 is the version of the internet that exists today, in which users are reliant on big tech platforms to have the ability to read and write content but they cannot own their data (Cao 2022). The idea of Web3 is to make big tech corporations obsolete and negate external governance from big tech companies and governments. However, the Web3 community's reliance on Amazon's Web Services and other big tech cloud services is at variance with its original aspirations. Web3's ideological underpinnings do not adequately account for the immense influence that big tech has over technology; Web3 is very critical of neoliberalism, yet the community cannot provide viable solutions to curtailing big tech's influence. The Web3 community simply does not know how to create infrastructure, as the institutional and technical models that Web3 infrastructure is comprised of are still being conceptualized (Nabben 2023). This is more prominent now with Web3's dependency on big tech cloud services to

² See www.hpe.com/ca/en/what-is/cloud-services.html.

develop and market their products. AI development is similarly reliant on big tech-administrated cloud services: it cannot exist without big tech corporations, as AI models rely on the data sets of cloud services to train their systems and scale and promote their products (Kak, Myers West and Whittaker 2023).

Recommendations

Technological development cannot exist in a hype-induced vacuum: a heightened sense of hype surrounding AI distracts policy makers from looking at technology as an ecosystem. Disruptive technologies will one day work in tandem with each other. This is already clear with the metaversal Apple Vision Pro, which relies on sensor and AI capabilities in order for it to operate (Unleashed AI 2024). Looking at technology as an ecosystem highlights the progression of AI and how it is intimately tied to cloud infrastructure dominance (van der Vlist, Helmond and Ferrari 2024). AI exists within a broader, codependent ecosystem, relying on other disruptive technologies, such as Web3 and metaversal technologies, to operate and reach its full potential. All three of these technologies are also being developed on big tech-dominated cloud services, so it is not only technology that needs to be regulated. Policy makers must be at the forefront of big tech oversight and regulation. Big tech platforms already increasingly rely on self-regulation, which raises concern since Web3 ideology relies heavily on self-structuring and self-governance (Nabben 2023). Web3's self-structuring aims to create its own information infrastructures and novel economic models of organization (ibid.). The concern is that once decentralized technology becomes more developed and user-friendly, big tech-led "decentralized" technologies will surpass external regulation.

Policy makers must also work to expedite antitrust regulations in the age of AI and disruptive technology. Antitrust regulation is essential because big tech corporations leverage their market power to secure exclusive benefits from emerging technology, creating economic rents that favour them at the expense of consumers and fair competition. Big tech corporations such as Microsoft are taking action in order to avoid antitrust regulation. For example, Microsoft's relationship with OpenAI, the creators of ChatGPT, demonstrates how Microsoft is actively working to avoid antitrust regulation. The European Commission is reviewing Microsoft's multi-billion-dollar investment in OpenAI (Foy, Murgia and Bradshaw 2024), although Microsoft claims its relationship with OpenAI is not a merger or acquisition; as per the company, it is a partnership in which Microsoft has a non-voting observer seat on OpenAI's board.

The Federal Trade Commission has followed the European Commission by similarly opening an inquiry regarding OpenAI's deals with big tech corporations (Ward and Hu 2024). What is crucial here is the significant amount of funding provided by big tech to AI start-ups in the form of cloud credits (ibid.). Policy makers must bridge the knowledge gap between regulation and technological comprehension by gaining a more thorough understanding of how cloud services could be used as an intermediary between big tech influence and disruptive tech, with Web3 technological development showcasing the urgency of this. It is clear that big tech has a monopoly over cloud services, but how these corporations use rent to divert antitrust regulation needs significant attention. Two policy recommendations would speak to these concerns:

- **Recommendation 1:** Foster partnerships with experts in emerging technologies, civil society groups, academia, policy makers and independent technologists. These

partnerships should aim to ensure that information used in research and policy making is accurate and unbiased, avoiding reliance on technological hype found in sensationalized media sources.

- **Recommendation 2:** Establish an independent regulatory body to oversee compliance with antitrust regulation by big tech corporations. The committee should specifically focus on analyzing rents as a means to evade current antitrust regulations, maintain monopoly positions and reduce competition in the development of new technologies. The committee would then report its findings to the Competition Bureau Canada.

Conclusion

This paper emphasizes that despite the hype surrounding AI, Web3 and metaversal technologies are still relevant and require regulation to counter big tech monopolies. The space race framing of AI overlooks the broader technological ecosystem and the political motives behind its development. Big tech's dominance extends to infrastructure, shaping a culture of rentier capitalism through its cloud platforms. Most emerging technologies such as Web3, metaversal and AI development rely on cloud infrastructure to operate and grow. Regulation must prioritize antitrust policies to address the influence of big tech corporations on emerging technologies.

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