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Risks and opportunities of the metaverse

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Introductory memorandum

1. Introduction and scope of the report

1. Mr Olivier Français, former General Rapporteur for Science and Technology Impact Assessment, tabled a motion for a resolution on *Risk and opportunities of the metaverse*, in October 2022, along with several Assembly members. Following his departure from the Assembly in January, I was appointed rapporteur on 26 January 2023.

2. One of the challenges we face today is to keep society stable in the face of rapid technological change and to calibrate existing legal and institutional tools to help protect and promote democracy, human rights and the rule of law. To this end, I believe it is essential to have a multi-stakeholder approach that involves governments, civil society organisations, the private sector as well as international organisations. It is important to ensure that the benefits of technological advances are distributed fairly across society and that the negative impacts are mitigated, especially for the most vulnerable groups.

3. While the exact scope and impact of the immersive virtual worlds on society and on the economy is still unknown, it can already be seen that the metaverse will open up a range of opportunities but also a number of risks in a variety of policy areas. Major tech companies are scaling up their metaverse activities, with important repercussions on the world of business and issues related to data protection, cybersecurity, illegal and harmful behaviours, impact on health, especially minors, and accessibility and inclusiveness.[2]

4. The metaverse is a ground-breaking technology with immense potential to fundamentally transform the way people interact within society, as a complex adaptive system. As interaction patterns shift, society itself changes, and this transformative impact extends to the way individuals engage with one another as well as other economic, political, and social processes. If these interaction patterns undergo fundamental changes, the very fabric of society will be fundamentally reshaped, catalysing comprehensive shifts across the entire societal structure.

5. This report is not intended to cover all areas of operation and problems related to the use of virtual reality and the metaverse. Instead, I would like to pave the way for a general reflection by the Parliamentary Assembly on this emerging phenomenon, as was done in 2017 with Recommendation 2102 on Technological convergence, artificial intelligence and human rights, based on a report by this Committee, which then sparked a debate and more in-depth work by the Assembly in different policy areas.

6. Each committee may then, if it deems it appropriate, address specific aspects of the Metaverse, such as digital territoriality, jurisdiction, policing and justice, political participation and fundamental freedoms, safety concerns, sexual assault and harassment, non-discrimination, children's rights, organised crime, money laundering, fraud, data protection and cybersecurity aspects, etc.

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[1] Declassified by the Committee on Culture, Science, Education and Media during its meeting on Thursday 12 October 2023, in Strasbourg.
[2] European Parliament Briefing, Metaverse: Opportunities, risks and policy implications, June 2022.

7. On 23 March 2023, in Paris, the Committee organised a first hearing with the participation of Mr Patrick Penninckx, Head of the Information Society Department of the Council of Europe and Professor Verity Mcintosh, Researcher, Senior lecturer in virtual and extended realities at the University of the West of England, Bristol, and member of the Digital Cultures Research Centre, United Kingdom. Their contributions have greatly informed this memorandum.

8. The Committee also decided to organise a follow-up hearing on 1 June 2023, in London, with the participation of UK government representatives and experts, including an industry representative, to discuss the relevant issues outlined in this memorandum.

2. Key concepts

9. The term "metaverse" remains vague and encompasses extremely diverse environments and experiences. Its meaning, "beyond the universe", identifies the network of real-time rendered 3D virtual worlds that exist parallel to the physical one. It can be experienced synchronously by an effectively unlimited number of users interacting via avatars and with continuity of data, such as identity, history, entitlements, objects, communications and payments.[3] It allows users to meet, socialise, learn, work, play, create, entertain and create.

10. As an emerging technology, the metaverse embodies the non-deterministic nature of technology, which implies that the technology itself is neither inherently good, bad, nor even neutral. Instead, it serves as an extension and amplifier of human behaviour. This characteristic highlights the importance of understanding and guiding the development and application of the metaverse in a responsible and ethical manner. As we navigate this uncharted territory, it becomes crucial for individuals, organisations, and governments to cooperate in shaping the virtual landscape to ensure that the metaverse not only reflects our values and aspirations but also fosters positive, inclusive, and sustainable growth. By acknowledging the non-deterministic nature of the metaverse, we can strive to harness its potential in a way that genuinely benefits society and contributes to the betterment of our shared future.

11. The metaverse is a concept of social reality, more specifically computer-mediated reality, made possible by advancements in information technology and computational capabilities, paving the way for a new dimension of interconnected experiences, and embodies the characteristics of an emergent process intrinsic to complex adaptive systems. It presents challenges in terms of conceptual and legal definitions, making it difficult to establish clear boundaries. Consequently, any predictions concerning its subsequent developments can only be made on a speculative basis, as the metaverse continues to evolve within the fluid and dynamic landscape of interconnected systems.

12. Presence, immersion and embodiment create the illusion of being in a real environment, , which makes it far closer to the real world than the traditional internet, social networks and videogames. It is also known as "Web3", a decentralised, more interactive and horizontal iteration of the web, in which individuals are also actively involved in the creation of virtual worlds

13. The advent of the metaverse has the potential to exacerbate the dissolution of post-industrial identity classifications, further complicating the interplay between technology, society, and individual identities. As users engage in the metaverse, they adopt digital personas that might not align with their real-world identities, which challenges the traditional, centralised frameworks of identity categorisation established by nation-states and institutions.

14. This new technology contributes to the fragmentation of identity constructs by enabling users to experiment with multiple, seemingly unrelated identities across various virtual environments. This multiplicity of digital personas has the potential to lead to a deconstruction of conventional identity classifications, pushing the boundaries of established social, cultural, and political norms.

15. Moreover, the metaverse fosters the formation of decentralised, self-governing communities[4] that operate beyond the control of centralised authorities or tech platforms. This dynamic has the potential to weaken the grip of state-imposed identity systems and disrupt the existing societal

[3] M. Ball, The Metaverse and how it will revolutionize everything, 2022.
[4] Sahil Handa, Technology and the Creation of Identity, Discoursemagazine.com, 21 June 2022.

structures, necessitating the re-evaluation of traditional identity management models. As the metaverse gains prominence, it is crucial for researchers and policymakers to examine its potential impact on the dissolution of post-industrial identity classifications and the subsequent ramifications on social organisation, politics, and technology. A comprehensive understanding of these dynamics will be essential in devising adaptive strategies and frameworks that can accommodate the rapidly evolving landscape of human interaction and identity in the digital age.

16. Web3 and the metaverse are directly linked to virtual reality (VR), which is accessed through a headset that transports the users into a simulated environment, and augmented reality (AR), which just enriches the physical one with virtual objects. Both technologies are shaped by artificial intelligence (AI) helping the system make decisions for itself and improve language processing, facial recognition and the overall efficiency of the system. Moreover, the quick development of generative AI opens up new perspectives concerning the possible interactions between users and the system itself.

17. Of fundamental importance for the existence of the metaverse is the blockchain, a digital and decentralised dataset that works as a ledger (enforced by a network of computers) where all the purchases are recorded, cannot be deleted or altered and are carried out through the use of cryptocurrencies, digital money outside the control of Central Banks. As highlighted in the 2022 Council of Europe report on the impact of Blockchains for human rights, democracy, and the rule of law,[5] this technology presents an opportunity for governments, international organisations, NGOs, industry and the general public to engage in respect for human rights and promote a global democratic agenda.

18. Furthermore, two crucial characteristics of the real world which the metaverse tries to emulate are persistence (any action should impact the virtual world and other users and persist when the user is logged off) and interoperability (users must retain their virtual identity and persona in whichever area of the Metaverse they explore). The only way to achieve this is for developers to cooperate and establish common standards.[6]

19. While it is still at the early stages of development, it is possible to envision what it could become, its opportunities and the dangers it may bring with it, which this report intends to further analyse, also with a view to discussing possible preventative measures and safeguards by design.

3. Brief overview of the opportunities in major arenas

20. The uses and opportunities of the metaverse are almost limitless, ranging from work, education, science, health, politics, business and entertainment, and its development is incredibly fast. It also has the potential to overcome some of the limits and problems of the material reality.

3.1 Education

21. Starting with the younger generations, the metaverse and the use of augmented reality classrooms has the potential to open a world of opportunities to improve education for students, teachers and the learning process itself, including innovative approaches such as blended learning, customised digital content and personalised education.[7]

22. Studies have shown that the most effective ways of teaching are those that combine resources of different kinds, such as textual, visual and auditory, that stimulate the senses, make online learning more engaging and effective, and provide opportunities for socialisation and skill development.

23. For instance, a history student could go back in time and visit virtual reconstructions of ancient civilisations; a student of mechanics could interact with existing vehicles, manipulating their parts, learning how to use tools; emergency services or surgeon trainees could practice their skills in the virtual world, simulating surgery or critical procedures in a safe environment. Students can learn in real time from teachers and experts from all over the world without the need to travel or move, making learning more accessible, democratic and flexible for those living in remote places and lower socio-

[5] https://rm.coe.int/report-on-blockchains-en/1680a8ffc0.
[6] "Metaverse Standards Forum; What Is it & Why Is it Needed?", 2022.
[7] AI in Education 4.0 & Blended Learning - SwissCognitive.

economic backgrounds. Innovative projects are being created with schools without walls but divided into learning spaces, where one can learn by project and with mixed age groups.[8]

24. "*Metaversities*", digital twin campuses, are also expanding.[9] In March 2023 the European University Institute launched its first "Law and Technology" course on the metaverse "*RegLab*", giving researchers the opportunity to explore this virtual reality and its regulatory challenges, with a focus on intellectual property, content moderation and free speech, and competition law.[10]

25. Some of the main risks identified are as follows: discrimination based on race, gender or age; digital divide and costs; accessibility issues for people with disability; cyberbullying and harassment; biases and discrimination in algorithms when designing the virtual world; lack of diversity and inclusion alienating under-represented groups. Clearly, diversity and inclusions must be promoted by designing virtual realities that include all individuals and communities.

3.2 Political rights and fundamental freedoms

26. The metaverse has also the potential to expand civil and social rights around the world and the decentralised nature of Web3 can have massive implications for the future of democracy and governance. According to the European Court of Human Rights, the European Convention on Human Rights applies even online, the metaverse included. Especially where freedom of expression is restricted, the metaverse could play a major role, offering a platform to organise protests and political gatherings in a world that is completely decentralised. Democracies may become more efficient and increase participation, also thanks to e-voting, virtual democracy and other innovations within the metaverse.[11]

27. However, this is happening fast, and it will not take everyone on board. Its very nature requires active participation, as opposed to representative democracy, in which citizens delegate decision-making power to their representatives. Factors such as access, resources, culture and language can be limiting factors creating deep divides and discrimination for marginalised groups. Misinformation, fake news, censorship or limits to the freedom of expression as well as surreptitious influence on voters via deep fakes are issues of concern, which may be amplified in virtual realities.

3.3 Healthcare

28. The metaverse has the potential to transform the way healthcare is delivered and accessed, not only to train doctors in immersive learning environments but also to facilitate telemedicine and virtual therapy. Psychiatrists, for instance, have already started using it, to make their patients face their fears and overcome traumas, with strongly positive results for people with agoraphobia or eating and anxiety disorders.[12] It can also provide a platform for research and development, allowing scientists and clinicians to collaborate on new treatments and technologies. It can allow people with disabilities to freely move in a virtual reality and overcome their obstacles and limitations.

29. However, privacy concerns, safety and security and the accuracy of the information provided are serious issues that need to be considered and require careful planning and regulation to ensure that the metaverse is used safely and effectively in healthcare.

3.4. Workplace

30. The metaverse can provide virtual office space, allowing workers to collaborate and interact, and can also be used to interview and recruit candidates from anywhere in the world, train employees, promote more effective teamwork. It can also create new job opportunities inside the metaverse itself.

[8] IT Week 2022, Ohswald (GoStudent): "La scuola del futuro è nel metaverso, accessibile a tutti e personalizzata", La Repubblica, 30 September 2022.
[9] What is a Metaversity & Should You Create One on Campus? | EdTech Magazine, 12 January 2023.
[10] EUI Department of Law launches first course in the Metaverse • European University Institute, 13 March 2023.
[11] Rodriguez et al., The Metaverse Impact on Human Rights, Democracy and Rule of Law, 2022.
[12] Car et al.; The Metaverse Impact on Human Rights, Democracy and Rule of Law, 2022.

31. Some of the main risks are as follows: discrimination based on race, gender or age; digital divide and costs; accessibility issues for people with disability; cyberbullying and harassment; biases and discrimination in algorithms when designing the virtual world; lack of diversity and inclusion alienating underrepresented groups. Diversity and inclusions must be promoted by designing virtual realities for the world of work that include all individuals and communities.

3.5 Judiciary and law enforcement

32. In October 2022, INTERPOL, the global police organisation unveiled the first ever Metaverse specifically designed for law enforcement worldwide, with immersive training courses in forensic investigation and other policing capabilities. They also announced the creation of an expert group on the metaverse to represent the concerns of law enforcement on the global stage, to ensure that this new virtual world is secure by design. Not all acts that are criminalised in the physical world are considered crimes when committed in the virtual world and risks must be identified from the outset to shape the necessary governance frameworks and cut off future criminal markets.[13]

33. The metaverse could also become another tool for mass surveillance, which is why it is necessary to uphold human rights when sponsoring technological development.

34. Experiments of legal proceedings in the virtual world are also taking place, gathering people in the same virtual space, with the necessary procedural guarantees and principles of digital justice. It is deemed to be useful for legal cases where people want to avoid confrontation, for instance in conciliation proceedings, or proceedings where children are involved as witnesses, defendants, and victims, to create a friendly environment.[14]

3.6 Art, entertainment and sport

35. The metaverse can also represent a revolution also in the arts, entertainment, and the sporting world. Not only does it enable the development of new forms of expressions, experimenting with multimedia and immersive 3D environments, but it also empowers artists and the general public, providing for increased accessibility without physical or geographical limitations.

36. NFTs (Non-Fungible Tokens, representing proof of ownership for digital objects) are now exposed in virtual galleries and are exchanged in the metaverse through cryptocurrencies, providing artists with better exposure, global collaboration and promotion opportunities.[15] At the same time, the risks of loss of ownership and control over intellectual property are significant and deserve proper consideration.

37. Sports experiences, as players and spectators, can be enhanced in the metaverse, along with 3D broadcasting of sports events. However, accessibility depends on the use of expensive devices and violence, riots, gambling and virtual doping can also occur in virtual reality.

38. Dominant players in the market could control access and distribution of content, which would negatively impact on diversity and creativity. The immersive nature of this technology could also lead to addiction and isolation in the real world, especially for children and young people, eroding their social skills and mental health. Privacy violations and cybersecurity threats as well as the digital divide, including the cost of entry, are also a matter of concern.

[13] INTERPOL launches first global police Metaverse.
[14] Future of justice: Colombia makes history by hosting its first-ever court hearing in the metaverse | Euronews.
[15] Heller, The Metaverse Impact on Human Rights, Democracy and Rule of Law, 2022.

4. A brief overview of the impact on human rights, democracy and the rule of law

39. Some of the major threats to human rights, health and safety related to the use of the metaverse are as follows and I plan to elaborate further in my final report.

4.1 Democracy, stability of democratic institutions and power relations

40. As our faculties migrate into the metaverse, we are presented with unprecedented conveniences that can make us dependent on the digital universe, causing a potential loss of freedom and independence. This migration has already contributed to the formation of a hybrid reality, where digital natives - individuals who have grown up with the Internet - are increasingly withdrawing from the physical world, into the digital world, due to its demanding nature compared to the instant rewards offered in the digital realm. This shift has led to phenomena such as delayed adulthood, with younger generations engaging less in traditional physical and social activities, such as starting families or learning to drive. Marshall McLuhan, a media theorist, posited that every medium constitutes an extension of our physical or mental faculties. With the advent of the Internet, humans have gained the ability to augment their knowledge and social connections exponentially. However, this comes at a cost, as these amplified abilities may lead to the "numbing" and "amputation" of organs and skills previously responsible for certain tasks[16].

41. Moreover, the metaverse and the digital world, in general, are altering not only our physical skills but also our brain's physiology. The human brain, a self-adjusting neural network, rewires itself to adapt to new experiences and stimuli. As the Internet offers instant gratification for little effort, the brain is rewiring to seek more of these easily attainable rewards, forming habits that make us invest more time in digital activities. This development affects society across generations, contributing to the intensification of self-identification, extreme opinions, and political polarisation in a world that rewards presence more readily than effort. As digital natives continue to adapt to this new environment, it is crucial to consider the implications of the metaverse on their physical skills and sensory capacities, as well as the potential consequences for society as a whole.

42. The growing influence of the metaverse presents a significant challenge to traditional institutions, as they grapple with adapting to the rapidly evolving virtual landscape. This struggle could result in a decline in public trust and the effectiveness of these institutions, affecting crucial sectors such as education, governance, and the media. To remain relevant and maintain their societal value, institutions must embrace change and find innovative ways to engage with the virtual world, while preserving their core principles and missions. Failing to do so could lead to further erosion of their authority and impact on society, emphasising the need for a proactive and collaborative approach in navigating the complex dynamics between the physical and virtual realms.

43. The potential risks associated with this technology include privacy concerns, cybersecurity and threats to security of users' personal information, addiction and mental health problems, accessibility limited by cost or location, increased inequalities, negative impact on human interactions and social dynamics in unexpected ways, including new arenas for the expansion of organised crime, negative influences on formation of public opinion though manipulation of information flows, and interferences with policy-making and decision-making processes.

44. The metaverse can be fertile ground for the spread of misinformation and conspiracy theories used as a pretext to justify violence against minorities, attack democratic institutions and foster the rise of dangerous political figures. It could be used by terrorist organisations to prepare and simulate attacks.

45. The increased involvement in the virtual reality space of public institutions, national and international organisations, civil society representatives, human rights defenders and social workers, as well as the development of rules for governance and other measures to stem online radicalisation, is a positive sign that can limit risks of democracy disruption, the rise of extremism and terrorist recruitment.

46. Power relations in society also indicate that current trends in the concentration of power among big tech companies, that are accountable to no one, could expand even more if the metaverse

[16] Andrey Mir, https://human-as-media.com/2022/06/25/the-medium-is-the-menace/.

becomes mainstream. The very concept of "State sovereignty" may be challenged. "Killer acquisitions" of innovative small businesses with the sole objective of taking out possible future competitors is already a matter of concern.

47. Furthermore, the metaverse may also have an impact on the geopolitical balance worldwide, in view of the power struggle between those countries willing to uphold democratic values and the "superpowers" imposing domination, including on the Internet.

4.2 Privacy and threats to users' personal data

48. The metaverse also represents a potential danger for privacy. As discussed at the Paris hearing on 23 March, biometric psychography is a range of bodily-centred information (such as facial scans, eye tracking and electromyography) that are as unique to an individual as a fingerprint. This technology is linked with virtual reality and can be used not only to identify a person but also to understand his or her emotions and state of mind, by detecting and analysing micro and involuntary expressions and brain waves. This deeply personal information can be used to draw sophisticated consumer profiles but can also set the stage for an almost ubiquitous mass surveillance. Existing legal definitions of biometric information may not be adapted to the metaverse. It is also unclear how users can express informed consent when data is constantly gathered, even when they are not conscious of it. Machine-generated content and the complexity of immersive environments could challenge the framework of the Council of Europe Convention 108+ on data protection, which deserves an attentive analysis.

49. Immersive technology has a stronger influence on the brain than social networks, with the highest potential for human rights abuses, if misused. State surveillance, subliminal advertising and voter manipulation are already present in the social media "Web2" era and could exacerbate with virtual reality and "Web3". Hackers could access users' thoughts, take possession of their virtual body and commit any sort of crime.[17]

4.3 Menaces to public safety and new forms of harassment and hate

50. Research has shown that in the virtual world, actions and behaviours such as felonies are extremely common and, yet, very hard to track and counter because of the real-time nature of the metaverse. Sexual assault is a particularly serious issue, together with bullying and hate speech. These crimes principally target minorities and marginalised groups.

51. Sexual harassment in the metaverse can be felt as if it was physically happening; racism and homophobia can be accompanied by actual violence; threats can feel more real than written words on social media ever could. For these reasons, this environment is not a safe place for children as it is easy to misrepresent the avatar's age. Reporting bad behaviour remains opaque. The Centre for Countering Digital Hate documented hundreds of complaints with no follow-up by the platforms. Professor Mcintosh stressed in Paris that companies must be held accountable and uphold their own terms of service.

4.4 Physical and mental health, especially for children

52. Like with the Internet and social media, an excessive and potentially addictive use of the metaverse can lead to less physical activity and a greater risk of obesity and related health issues. On a psychological level, users can end up identifying with their avatar and mistaking the virtual world for the real one. Existential alienation and digital addiction could become common diseases in the future.[18] There are unresolved issues around the way that virtual reality impacts on developing optical, vestibular and neurological systems, and growing concerns about the way that child sexual offenders are gravitating towards these platforms for the purposes of grooming and abuse. It is particularly important to protect children's physical and emotional wellbeing, keeping in mind that children are also agents, actors, citizens, not just victims in need of protection.[19]

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[17] ibidem.

[18] L. Drew, The ethics of brain–computer interfaces, Nature, 2022.

[19] S. Livingstone, Reflecting on Youth Mental Health and Tech Regulation in Anticipation of the Metaverse, *The Children's Media Yearbook 2022.*

53. The real effects of the metaverse, as for other forms of social networking, are under-researched and under-regulated. Scientific inquiries are needed in social science and psychology to explore virtual reality's effects on health and to understand whether its use may bring people closer together or divide them even more.[20]

4.5 Anti-discrimination, equality and inclusion

54. As discussed in the previous chapter, access to education, work opportunities, political life and services may be negatively impacted for some groups in the metaverse, based on their sex, age, ethnicity, religious beliefs, sexual orientation, etc. The metaverse may also promote further commercialisation and monetisation of basic human activities, widening the socio-economic and digital divides.[21]

55. Furthermore, as happens with filter bubbles in which news and information are tailored to suit the beliefs and expectations of the users, the metaverse can present a curated reality, based on the ideal world as we want to see it, in which there may be no diversity. How would people react when they then encounter diversity in the real world, be it in the form of disability, poverty or simply different ethnicities, beliefs and opinions?

5. Recent developments at national, European and international level

56. Private companies, governments and research institutes are slowly coming together to find solutions to problems such as fair competition, safety, interoperability (users retaining their virtual identity always and everywhere) and other challenges in the metaverse.

57. The Metaverse Standards Forum (MSF) brings together key companies to cooperate in the identification and the definition of common standards and guidelines that will serve as the foundation for the evolution of Web3. An avatar designed for use in one company's virtual world should work without trouble in another's (Apple is a notable exception).[22] Companies see standardisation as a catalyst for creativity and innovation.[23]

58. In 2022, the World Economic Forum launched "Defining and Building the Metaverse", a multi-stakeholder initiative (focusing on governance and economic and social value creation) to drive the development of a secure, inclusive and "human-first" metaverse that is equitable, interoperable and economically sustainable.[24]

59. However, content moderation is in the hands of companies themselves which can impose sanctions for breaching their terms of use but tend to ignore pressing issues such as crime prevention, terrorism financing or money laundering. Offenders who are temporary or permanently banned from the metaverse may easily create another account and re-join the platform. Issues related to legal personality, jurisdiction, policing and other checks and balances remain unclear.[25]

60. In 2022, Epic Games, the maker of Fortnite, launched a partnership with Lego to design a metaverse community to protect children by focusing on privacy and well-being in the metaverse, and providing children and their parents with the tools to control their experiences.[26] In April 2022, corporate activism group *SumOfUs* released "Risky business, an investor briefing on Meta", a report compelling Meta to hire an independent group to study the potential psychological and human rights harms of the metaverse.[27]

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[20] L. Bojic, Metaverse through the prism of power and addiction: what will happen when the virtual world becomes more attractive than reality ?, European Journal of Futures Research, 2022.
[21] Pew Research Center, The Metaverse in 2040, 2022.
[22] A reality check for the metaverse is coming | The Economist, 14 November 2022.
[23] Lewis, Metaverse Standards Forum; What Is it & Why Is it Needed?, 2022.
[24] Defining and Building the Metaverse (weforum.org).
[25] Council of Europe, The Metaverse Impact on Human Rights, Democracy and Rule of Law, 2022.
[26] Big Tech's battle for the metaverse will come down to ethics (qz.com).
[27] https://s3.amazonaws.com/s3.sumofus.org/images/Risky_Business-_An_investor_briefing_on_Meta.pdf.

61. In the meantime, the opportunities offered by the metaverse are also being seized by some governments, cities and institutions in a variety of fields. For example, in 2021, the US Food and Drug Administration approved a virtual reality-based treatment for children with neuro-visual disorders; South Korea launched a "Metaverse alliance" between the public and the private sector, while Seoul is planning to start offering public services to citizens inside the virtual world; Barbados opened the first ever virtual embassy; the US army is using the metaverse for the virtual training of soldiers; in July 2022 a student of the University of Turin was the first ever to graduate inside the Metaverse.[28] The consequences for citizens, especially the most marginalised groups, who cannot access these services should be carefully considered.

62. The United Nations Development Programme (UNDP) also argues that the metaverse could accelerate the advancement of the UN Sustainable Development Goals (SDGs) and economic development, but also reaffirms the necessity to have a human rights-based approach when confronting it.[29]

63. At European Union level, the European Digital Rights and Principles promote a sustainable, human-centric vision for the digital transformation, reflecting EU values and fundamental rights. The EU launched the Virtual and Augmented Reality Industrial coalition bringing together the industry and policymakers to promote a competitive ecosystem with European companies.[30] EU Commissioner, Margrethe Vestager, asked for more scrutiny into the metaverse operation, saying that plans to create an all-encompassing virtual reality environment pose new challenges for antitrust regulators.[31]

64. The European Commission also hosted a Citizens' Panel (from the 27 Member States plus Ukraine) between February and April 2023 and its recommendations will feed into an upcoming non-legislative initiative, planned before the summer of 2023.[32] A study on 'Extended reality: opportunities, success stories and challenges' assessing the strengths and weaknesses of the use of extended reality technologies in the healthcare and education sectors, will also feed into the initiative.[33]

65. The Council of Europe has already produced important internationally recognised legal standards on cybercrime and the protection of individuals in the digital era.[34] With its precise mandate to protect and uphold democracy, human rights and the rule of law, the Organisation can and should influence a human rights-centred evolution of the metaverse and pioneer new standards, in a multi-stakeholder approach.

66. The Council of Europe Information Society Department has started a reflection on the metaverse's impact on human rights, democracy and the rule of law, in cooperation with digital partners in the private sector. On the basis of an internal background paper, which was presented at the Paris hearing by Mr Penninckx, a more in-depth study is being prepared on the impact of the metaverse on human rights, democracy and the rule of law and will be published at the end of 2023. This report will explore the relevance of the existing instruments and the possible need for developing new ones to cover virtual realities. It will discuss issues related to privacy, freedom of expression, identity, inclusion, diversity and discrimination, access and accessibility, labour and working conditions, political participation, social interaction and community building, and impact on health. It will also cover rule of law issues (digital territoriality and jurisdiction, policing and justice) as well as the governance of the metaverse.

6. Concluding remarks and timetable for a report

[28] La Repubblica, Edoardo Di Pietro, primo laureato nel metaverso: "Vorrei un mondo virtuale che sia bello da vivere", 19 September 2022.
[29] Traversing the metaverse whilst managing risks with opportunities | United Nations Development Programme (undp.org).
[30] Virtual Worlds fit for people | Shaping Europe's digital future (europa.eu).
[31] EU's Vestager says analysing metaverse ahead of possible regulatory action | Reuters.
[32] Commission hosts a European citizens' panel on virtual worlds | Shaping Europe's digital future (europa.eu).
[33] Extended reality: opportunities, success stories and challenges in health and education | Shaping Europe's digital future (europa.eu).
[34] The work of the Council of Europe on Artificial Intelligence is well advanced. The Committee on Artificial Intelligence (CAI) was mandated by the Committee of Ministers to elaborate a framework Convention on the development, design and application of artificial intelligence. This is complemented by sector-specific work throughout our Organisation.

67. While the metaverse has a great potential to improve people's lives, a slightly toxic culture seems to be evolving around metaverse spaces, including harassment and abuse, racist language, homophobic language, transphobic language, simulated violence (sex, non-consensual touch). Age limitations appear ineffective, as reporting processes and consequences of breaching terms of references are very opaque.

68. Addressing the challenge of the so called "availability cascades"[35] presents a significant difficulty for lawmakers as they confront emerging technologies, such as the metaverse, that may not be fully understood. This refers to the rapid dissemination of specific ideas or beliefs through various channels, often leading to public opinions that are based on limited or incomplete information. This phenomenon can create a distorted perception of the actual risks, benefits, and implications of new technologies, potentially influencing the formation of policies and regulations that may not adequately address the complexities involved.

69. In the case of the metaverse, policymakers need to strike a delicate balance between fostering innovation and ensuring the protection of users and society at large. The challenge lies in crafting legislation that is informed by a comprehensive understanding of the technology, rather than succumbing to the influence of availability cascades that may either overhype the potential benefits or exaggerate the potential dangers.

70. The use of data seems to follow data capitalism models. However, the way data is being collected, interpreted and used (biometric psychography, i.e. data captured by eye trackers and body motions as diagnostic of personal identity, medical conditions and mental states) is indeed problematic; the right to mental privacy should be considered.

71. The lessons learnt from the social media era can help shape up Web3 and a virtual reality world which promotes the same values which are defended and promoted in democratic societies, possibly even further thanks to the potential outreach of this new technology which can foster participation and the efficiency of public services. Policymakers need to update their skills to make sure that public safety, security, accessibility and inclusion requirements drive technologies that benefit as many people as possible from the outset.[36]

72. Parliamentarians, for their part, can put forward a strong message that human rights must be well embedded in the metaverse, from the start. Its full potential as an inclusive digital infrastructure can be unlocked when everyone can access it, with the inclusion of diverse perspectives and the removal of existing and potential barriers, including costs. Self-regulation might not be enough and dialogue and cooperation among governments, researchers and the private sector is of the essence.

73. To navigate this challenge, it is crucial for lawmakers to engage in ongoing dialogues with experts, stakeholders, and users who possess a deep understanding of the metaverse and its implications. Building a multidisciplinary approach that incorporates insights from fields such as computer science, sociology, psychology, and ethics will help create a more nuanced and accurate perspective on the metaverse. Additionally, fostering a culture of transparency, public engagement, and collaboration will ensure that the regulatory process is grounded in the best available knowledge, ultimately leading to policies that are better equipped to address the complexities and uncertainties surrounding emerging technologies like the metaverse.

74. As stressed at the Paris hearing, responsible governance can create an environment that is emancipatory, encourage creativity and entrepreneurialism, but also uphold human rights through the metaverse. The idea that regulation would prevent innovation is a false dichotomy, and it is important to know what type of society we all want. The challenge is to understand harassment, corruption, fraud, violence and other human rights abuses and threats to democracy in the metaverse and to update legislation to protect against abuses and exploitation, as well as to rethink privacy and data rights in the virtual world.

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[35] Availability Cascades and Risk Regulation, Timur Kuran and Cass R. Sunstein, Stanford Law Review Vol. 51, No. 4 (Apr., 1999), pp. 683-768.

[36] Metaverse for UN SDGs – An Exploratory Study, *Science-Policy Brief for the Multistakeholder Forum on Science, Technology and Innovation for the SDGs,* May 2022.

75. Many questions remain open: how human rights and fundamental freedoms can be protected in the virtual world? Who has those rights or responsibilities (individuals or avatars)? Who would exercise authority and how to limit that power to avoid new forms of autocracy? Are the existing instruments and safeguards sufficient? How the democratic debate is shaping up in the virtual world, including various political arenas at local, national and international level? What role should the Council of Europe play in setting standards but also as an actor inside the metaverse? My goal is to expand this inquiry with the help of Committee members and invited experts. Against these many questions and others which could be added, what we know for sure is that we cannot find the right answers and proper solutions if we do not work together.

76. The forthcoming hearing on 1 June, in London, with the participation of UK government representatives and experts in the field, aims at discussing challenges and opportunities of this emerging and potentially revolutionary technology and identify key recommendations.

77. The Latvian presidency of the Committee of Ministers will organise an informal exchange on the metaverse on 14 September 2023 with the participation of experts. I was also invited to attend as Assembly representative and I will report back to the committee, during the October part-session.

78. For the next phase of the report, I propose benefiting from the expertise of Professor Verity Mcintosh, who could provide a more in-depth analysis of the existing challenges and put forward relevant recommendations, which the committee can discuss at its meeting of 4-5 December 2023, in Paris.