Task Force 2
Our Common Digital Future: Affordable, Accessible and Inclusive Digital Public Infrastructure

DEVELOPING METAVERSES AND IMPLEMENTING METAVERSE-ENABLING TECHNOLOGIES: SOCIAL AND HUMANITARIAN ASPECTS AND GLOBAL CHALLENGES

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Abstract

Businesses, societies, and states can face issues in metaverses (MVs) that could become more serious and larger in scope amid the active development of MVs, which are still at the level of scattered projects. MVs and MV-enabling technologies (MV tech) are changing modes of social interaction. Through investment in MVs and the utilisation of new capabilities, businesses can enhance their operations with cryptocurrencies and non-fungible tokens. MV tech can cause market inequality as well as the underrepresentation of the Global South in the global economy. The brief aims to elaborate a balanced policy for the progressive and secure development of MVs. It proposes implementing systematic research on MVs to identify the most important risks and benefits. In the future, a model approach and general principles should be worked out to elaborate standard settings in this area.

The Challenge

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The development of multiverses (MVs) and MV- enabling technologies (MV tech) such as the Web 3.0 and Reality Labs can become a potential global trend in the years ahead. Companies around the world have already assessed the prospects of using the technological tools of MVs and have begun actively investing in the development of innovative technologies and modern software systems.

MVs are created with cutting-edge technologies such as augmented reality (AR), virtual reality (VR), cryptocurrency, artificial intelligence (AI), internet of things (IoT), and blockchain. The MV tech market is estimated to grow by 39 percent from 2022 to 2028 and make US$412 billion.[1] By 2030, MVs can potentially generate US$4 trillion to US$5 trillion across consumer and enterprise use cases.[2] Some of the big tech companies that announced investments in MV development include Disney, Microsoft, Apple, and Google. At the same time, there has been a slight decrease in business interest in MVs, such that it is tough to assess the growth prospects of investments in MV projects.

According to Statista, in 2026, 25 percent of the world's population will engage in at least one hour per day of digital activities, such as work, commerce, education, social contact, or entertainment, in MVs. Additionally, it is anticipated that by the same year, nearly a third of worldwide enterprises will have goods and services prepared for MVs.[3]

MV technologies stimulate a significant increase in the information and communications technology consumer base. According to estimates, by 2026, 25 percent of users will spend at least one hour a day in the MV, with the opportunity to deal with a range of issues, from professional and educational to public and personal.[4] At the same time, each virtual environment will be able to provide the user with specific opportunities to use various technologies and the capabilities of innovative technological tools.[5] MVs create new opportunities for work, learning, and entertainment, provide services like banking, a wide range of immersive experiences including various environments such as judicial practices[6] and law enforcement cooperation.[7]

Currently, there is no widely accepted and recognised definition of MVs (an analysis of the various sources shows about a dozen definitions, including some principal differences). Additionally, there are no universally agreed approaches to metaverse features, key elements, development, rules of design, and typology of risks.[8] Thus, there are legal issues that create uncertainties, turning MVs into a grey area of law.

This policy brief uses the following definition of MV offered by the World Economic Forum: "[the metaverse is] a massively scaled and interoperable network of real-time rendered 3D virtual worlds that can be experienced synchronously and persistently by an effectively unlimited number of users with an individual sense of presence, and with continuity of data, such as identity, history, entitlements, objects, communications and payments".[9] The MV will then have three features; a sense of immersion, real-time interactivity, and user agency.[10]

Governments, businesses, and society face a lot of MV related issues

One of the major legal challenges in the virtual space remains 'interjurisdictional' application of law where owing to involvement of multiple states or jurisdictions, it is difficult to enact and enforce the principle of law. In relation to MVs, this issue can become particularly significant due to its power and scale of impact on the people.

Elaboration on global approaches and standards concerning each new phenomena of MVs is required given that they potentially raise threats and risks, which can then be transposed to MVs in different areas including cybersecurity, public governance and regulatory policies, economy and business practices, social policy, human rights, ethical issues, and physical and mental health.

The virtual space in MVs is device-independent and collaborative, so no single provider owns the cyberspace. Crimes that are committed in MVs are difficult to be punished by law. For example, according to the Interpol,[11] the proliferation of crimes, including those against children, data theft, money laundering, financial frauds, counterfeiting, ransomware, and phishing, will only grow as MVs advance.

MVs are considered a natural evolution of digital platforms. Regulated

global digital platforms can create ecosystems, as well as MVs that will mostly exist autonomously where payments, transactions, and taxation are out of reach for national agencies.

A model global approach to regulation and standard setting to key areas, which are currently legally unclear is required. Areas of law that are in priority for regulatory scrutiny are the following:

Table 1: Areas of law in priority for regulatory scrutiny

Policy areas	Sensitive issues
Taxation	Transactions are carried out without intermediaries and using non-fungible tokens (NFTs)[12] and digital currencies.[13] Taxation on capital, income, and products and services in MVs are uncertainties to be addressed by regulators.[14]
Intellectual property (IP) rights	IP contributes to building the virtual world and driving economic growth and activities. Issues of determination of the legal status of virtual objects created by AI, patenting platforms, patenting IP for digital twins, and computer simulations are challenges to be addressed.[15]
Ownership	Virtual worlds and their virtual property are under threat of lack of legal protection. There is no standard on how you can move from one MV to another and carry digital values, such as avatars and objects, with yourself.
Insurance issues	Users face risks of financial loss, liability, and loss of use in MVs. Insurance coverage of digital assets is inadequate and expensive.[16]
Antitrust and competition	MVs will need specific protections for ensuring a healthy competition.
Data protection and privacy	Great amounts of personal data, including biometric information will be stored in MVs. Companies can exploit the full potential of the data collected, which potentially become a gold mine for selling personal information in the dark net.
Content exploitation	VR users have long reported issues such as sexual harassment, verbal abuse, racial slurs, and invasion of personal space on a myriad of apps.
NFTs	NFTs as a new digital asset are a challenge when differentiated from the connected underlying asset.[17]
Deepfakes	Individuals that are represented by life-like avatars through the use of deepfake-technology. This could lead to a rise in libel threats, and abuse misinformation campaigns.[18]
Cultural, social, and humanitarian aspects	In different geographic areas, cultures, social systems, and religious traditions people's activities in the MVs can lead to certain concerns and contradictions. It is therefore advisable, given the diversity of the world, to seek regulatory practices that do not infringe on the interests of particular countries, nationalities, ethnicities, diasporas, and religious communities.

Therefore, legal issues create uncertainties that turn MVs into a gray area of law. It also raises concerns regarding exchange of confidential information for national security, and what might national censorship in the metaverse look like. MVs in some key sectors such as e-commerce, education, and the health industry, need regulatory scrutiny. Numerous countries, including China, UK, Japan, South Korea, US, and states of the EU have been taking measures to address the opportunities and challenges created by MVs.

Social and humanitarian aspects

Development of MVs and implementation of MV tech is fundamentally changing society and the way people interact with each other. This could cause multiple social and humanitarian consequences and effects. Currently, 400 million monthly active users dwell on the MV. The largest chunk comes from Roblox (230 million), followed by Minecraft (165 million), and Fortnite (85 million).[19] The MVs impact on the individual personality of users is a key danger. Users can become immersed in a false sense of "happiness in ignorance," leading to declining productivity, increasing anxiety, and physical discomfort.[20] It is worth considering the issues of further development of the MVs from the point of view of the humanities, such as philosophy, culturology, pedagogy, psychology, and ethics. Additional issues of education and parenting of young people must also be considered given that social and humanitarian factors relate to human rights issues.

It is important to anticipate and minimise the negative socio-humanitarian consequences of MVs, including:

- loss of socialisation and living communication skills;
- incapacitation and unwillingness to be part of the real physical world;
- intellectual, cultural, and general human degradation;
- declining levels of individual and social morality and ethics;
- mental illness;
- intentional and unintentional manipulation of individual consciousness and public opinion; and
- loss of human autonomy, self-identity, and indeterminacy of the individual.

MV tech enable the creation of quasi-realistic environments and spaces that feel close to reality. This can amplify both positive and negative impacts on the individual, which can exacerbate social and humanitarian crises. All the problems inherent in the digital environment can be amplified in MVs.

The need for a framework and basic principles

There is need for universal approaches and overarching basic policy principles which should be taken into account and elaborated upon. These have been outlined below:

Pillar 1. Legal aspects in the MV are similar to those in the real physical world

The MV environment of freedom, imagination, and creativity should not become a space for already known and new forms of crime and abuse. It is important that criminals do not take advantage of the freedom, uncontrollability, and impunity in the MVs.

Pillar 2. All actors, and not only big tech companies, should be influential in shaping MVs, an appropriate ideology, and basic guidelines of operating in the virtual space

MVs should not become a territory of undivided influence of technology giants who have provided the technical infrastructure and software. Users, civil society representatives, and academics should have a voice and the tools to influence policy in shaping MVs. It is also important to ensure that all actors, not just tech giants, could participate in the formation of the architecture and the agreed rules of the game in MVs. Public authorities must be involved in the necessary task of developing international standards and guidelines that can be applied across different jurisdictions with respect to national sovereignty.

Pillar 3. MVs should not increase the digital and overall civilisational divide in society

The development of MV tech has the potential to spur economic growth and

innovation. For instance, deployment of MV tech in the areas adjacent to education, telemedicine, and e-commerce can potentially bridge the digital divide, allowing for more effective learning. A 2022 exploratory study on MV for the United Nations (UN) Sustainable Development Goals (SDGs) has highlighted that MV tech in conjunction with SDGs can ensure quality education and promotion of lifelong learning for all.[21] To prevent digital and technological inequality, due to the structural advantage of big tech, developing countries need to take steps to improve their digital infrastructure and education. This includes ensuring that individuals from diverse backgrounds have access to MV-enabled training and education opportunities.

Expansion of the MV tech requires a legal framework that can address conflicts of interest and ensure that all parties in virtual reality are treated fairly.

Pillar 4. The development of MVs should respect human rights and freedoms and ensure privacy and security of personal data, while excluding various types of harm and manipulation of individuals and social groups

The MV is an emerging environment where people can interact with each other in new and innovative ways. As this space grows, it is important to consider how human rights will be protected. Discrimination, harassment, and other forms of abuse can be endemic to MVs. It is essential that individuals are protected from negative influences in a virtual environment just as they are in the physical world. It is therefore crucial to educate individuals about their rights and responsibilities within the MVs.

Additionally, the potential impact of the MV on mental health and well-being must be considered. This requires a focus on creating a safe immersive environment that promotes healthy interactions and discourages harmful behaviour. In addition, privacy of the individual should be protected in the MVs. For instance, the overreliance on MV tech in telemedicine and educational projects can pose risks of leakage of personal data, and sensitive and private information.

The G20's Role

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The digital future is amongst the priorities of India's G20 presidency. The issue of MVs is very relevant and important in the overall context of building a common digital future. Given this priority, the theme proposed could contribute to a futuristic, prosperous, inclusive, and developed society.[22]

Policy issues connected to MVs will require international efforts to address these phenomena. the core issues of MVs – such as governance, economic and social value creation, and data privacy – is already part of the agendas of the World Economic Forum[23], Organisation for Economic Co-operation and Development[24], the G20[25], Interpol, the Internet Governance Forum, and the World Intellectual Property Organization.

The unregulated development of MV tech can also spur the growth of market inequality, which will contribute to the underrepresentation of the Global South in the global market economy, as the upfront cost of implementing MV tech is considerably high. Hence, it is necessary to avoid scenarios in which exclusively western tech giants get the opportunity to invest in MV tech.

Recommendations to the G20

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Taking into consideration numerous manifestations and the ever-changing nature of MV tech, attempts to implement universal policies are most probably futile. Especially given the absence of a general agreement over the universal approach to internet governance and emerging technologies such as AI, it is recommended to design specific instruments and policies in relation to the areas of the highest risk. Based on the current level of development of MVs, policy recommendations in three main directions are proposed:

Further research and horizon scanning

It is essential to apply a scientific approach and build an appropriate evidence base for the scientific understanding of MVs phenomena, and develop an accepted definition and appropriate terminology (glossary) for the significant aspects of MVs. The G20 can also invest in a study of the genesis, dynamics, and main trends (foresight review) of MVs development.

MVs can therefore be integrated into the agendas of the G20 working groups. Further, research papers (surveys, analyses, research articles, and publications) can be developed to enhance a credible (objective) knowledge base on MVs.

Risk mapping, impact assessment, monitoring and oversight

In cooperation with the international expert community and partner organisations, the G20 can map the key risks to the development of MVs and identify areas where the positive and negative impacts of MVs in the economic, socio-humanitarian, and environmental spheres are most evident.

G20 resources can therefore be allocated in cooperation with partner organisations (grants and other funding) for independent research and preparation of relevant G20 documents on key risks and area- or zone-wise impact assessments. A dedicated scientific conference on MVs, under the auspices of the G20, van be established where relevant papers, research, and exchanges between different stakeholders can be presented.

Establishing and launching a G20's Working Group (or Task Force) on principles and approaches to the development of MVs

Based on a risk-based approach and identifying the most sensitive areas of the human/society - metaverse relationship, it is important to elaborate and coordinate a basic G20 framework to include the following considerations:

- encouraging the development of selected progressive areas of MVs;
- the difficulties and concerns in using particular practices, methods or cases; and
- constraints and basic regulatory approaches to negative, harmful or unsafe practices associated with MVs.

Such a framework could become a blueprint and a background for the future development of binding regulatory tools. By the next G20 Summit in 2024, a draft framework on "Approaches to MV-regulation: encourages, concerns, and constraints" should be drafted and presented. For this purpose, an Ad Hoc Working Group (editors' group or focus Group) could be established.

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