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YOUTH VOICES IN PRINT:
EMPOWERING EUROPE

METAVERSING

ERASMUS-YOUTH-2023-CSC-OG-SGA-101121896
ERASMUS-YOUTH-2024-CSC-OG-SGA-101162369
ERASMUS-YOUTH-2025-CSC-OG-SGA-101227904

GIVING VOICE TO YOUNG PEOPLE IN EUROPE

This book of articles that we publish today, is designed to give visibility to young people from the EU, and to those from third countries who live, study or work in our union.

They have been collected during the three years that Metaversing has lasted METAVERSING ERASMUS YOUTH-2023-CSC-OG-FPA ERASMUS2027- 101121693, materialized in ERASMUS-YOUTH-2023-CSC-OG-SGA-101121896, ERASMUS-YOUTH-2024-CSC-OG-SGA-101162369, ERASMUS-YOUTH-2025-CSC-OG-SGA-101227904.

In total, the blogs have received 5217 readers, dynamizing interesting debates and fulfilling our main objective: That the voice of young people is heard, and that we collaborate with the impulse to European youth policies.

CONNECT, ENGAGE AND EMPOWER is what young people need from us.

As coordinator of this project and on behalf of the twelve institutions that make up the Network, we thank the European Commission for its help so that we can do what we want to do.

María José Martínez González
Secretary on Board AIFED

METAVERSE FOR MINIS AND TEENS: FUN FIRST, SAFETY SECOND (BUT STILL IMPORTANT)

Ricardo Reyes

The metaverse sounds amazing at first; glowing worlds, fictional characters, free concerts, and virtual fashion; the sky truly is the limit. It's basically the internet's fun, slightly chaotic cousin. But here's the twist: nobody fully understands all the rules yet, simply because this new world is still being built. And that's why it's important for minors to jump in with a bit of awareness.

On regular social media like Instagram, Facebook, or TikTok, platforms try to verify your age when you sign up. In the metaverse, things work differently. It's something that's constantly progressing just another sign that the metaverse still has some growing up to do when it comes to safety tools.

Privacy works a little differently too. You have to be mindful of what you share because you never know exactly who's behind an avatar. It might be someone your age, or someone older having fun with a wolf character wearing neon sneakers. The point isn't to be afraid, but to stay smart and aware, just like in any online space. Kids don't always realize this, and many parents are still learning about it too, so communication becomes really important.

Shopping in the metaverse is another adventure. You can buy digital outfits, magic swords, NFTs so many cool things. But remember: even digital items use real money. It's just something to keep in mind, and it might help to think of it like this: imagine converting what you spend in real life into metaverse currency so you don't lose track.

Governments and platforms are working on improving everything. They're adding "safety zones," parental controls, and new rules, but because the metaverse is evolving so fast, it takes time to get everything right. Parents try to keep up, but many are still figuring out Netflix, so patience is part of the process too.

The metaverse itself isn't dangerous or bad. In fact, it can be an incredible place filled with creativity, friends, learning, and endless fun. The only challenge is that it's still very new, very big, and a little unpredictable, which is why small safety habits matter. Minors deserve clear guidelines, friendly tools, and maybe even a giant digital "Be smart online!" sign somewhere, just as a simple reminder. Rules won't solve everything, but they do help everyone enjoy the experience more safely.

Until then, the metaverse remains a beautiful, exciting, slightly wild digital playground. And if we want young people to enjoy it fully and safely, we should start shaping the rulebook together.

METAVERSE AND MENTAL HEALTH

Aurora Tommaso

Nowadays, mental health has achieved an important role in our society, especially among young people. After years of it being taboo, we are experiencing a new world that allows us to open doors to new types of support and interaction, something that is crucial since the world we live in gets faster and overconnected day by day. In this context, Metaverse emerges as a new space of possibility that can be easily turned into a place full of doubts and challenges, if it is used without awareness.

One of Metaverse's most promising strengths is its ability to create immersive situations that feel like reality. This means that people can create their own avatar that can walk, run, jump, and interact with other avatars as if they were physically present. This could sound like a game to many people, but it actually hides strong means for someone who is struggling.

For example, someone who suffers from social anxiety or depression could find comfort in this "fake" world, since it allows them to join communities and interact with people in a safe environment. If we think about all the people who, every day, struggle to leave their house and, therefore, make interactions, this could be a solution for them to feel less lonely and to get comfortable with themselves and others. This creates an emotional engagement that no type of therapy could ever achieve, helping people to gradually build the confidence to face the "real reality."

Metaverse can offer clinical implications as well. Let's take the issue of PTSD as an example. By creating virtual scenarios that

replicate stressful situations in a controlled way, users can deal with their fears, or worse, traumas. This form of immersive exposure to past experiences allows individuals to practice coping strategies. This can serve as a stepping stone to people who are trying to recover from a trauma, providing a safe space to experiment and recover.

As I stated before, this virtual world allows you to create your own avatar, which implies that you can create a version of yourself exactly as you want it. Having the possibility to create a digital version of yourself is empowering, especially because you can play with your identity and express it, something that many people fear in real life. On the internet, you can be whoever you want; you could be anonymous, which clearly could help you with expressing your true self without feeling judged.

However, these features can also have significant downsides, with social isolation being the most concerning one. Over-identification in your avatar can lead, especially for people who suffer from anxiety, to prefer the virtual self instead of the real self. This means that if I feel more comfortable in my avatar than in real life, and if I joined a community where I feel truly myself, then I won't feel the need to have face-to-face interactions and real-life relationships.

Another key aspect is anonymity. It can offer protection and freedom to express themselves, but at the same time it can encourage negative behaviours, such as cyberbullying, trolling, or avoiding accountability for their own actions. This creates a false sense of security, assuming that actions in the virtual world won't have real-life consequences.

Ultimately, the Metaverse is not a replacement for professional mental health care. It cannot solve psychological conditions on its own, and it should not be used for this purpose. However,

when used thoughtfully, it can serve as a valuable tool for therapists to help people in need. The key lies in integrating the tools of the Metaverse with the support of a professional; only then can we really benefit from this virtual world. The main point is that it cannot be a substitute, but just an additional resource that can expand the ways in which people access care and mental support.

BRIDGING CULTURES IN THE VIRTUAL WORLD WITH METAVERSING

Lea Fruehauf

In today's world, international connections are becoming increasingly important. They allow people to learn from each other, discover new languages, and gain insight into different ways of life. They also help develop an understanding of foreign cultures and break down prejudices. Yet, these connections can be challenging due to language barriers, distance, and limited opportunities to meet people from other countries. For many, interacting with individuals from different cultural and social backgrounds is still a luxury reserved for the few.

The Metaverse is changing that. It gives people of all ages the chance to meet, interact, and exchange experiences, ideas, and cultures from anywhere in the world. With Metaversing, it becomes easy to connect with friends from different countries and explore perspectives that might otherwise remain inaccessible. These virtual interactions open new ways of learning, sharing, and building understanding across borders.

These meetings can take many forms, such as workshops, mobile learning, discussion forums, or social gaming. In virtual workshops, participants can collaborate on creative projects, share cultural experiences, or solve challenges together using interactive tools like avatars, virtual whiteboards, and mini-games. These activities make intercultural exchange engaging and accessible, allowing people from different backgrounds to connect, learn and have fun in an immersive environment.

Studies have already shown that international exchanges in the Metaverse can improve interaction and communication between

participants. Subtle opportunities in these virtual spaces also help introverted individuals or those with limited socioeconomic resources engage in intercultural exchanges. These experiences not only foster understanding between cultures and values, but also promote equal opportunities and help reduce discrimination.

Metaversing demonstrates how technology can bring people together, inspire understanding, and create a truly global community. It shows that learning, collaboration and cultural exchange can happen anywhere, anytime and that the virtual world can be a space where borders become bridges.

THE METAVERSE AND GENDER EQUALITY: BUILDING A FAIR DIGITAL FUTURE

Joanna Adams

The metaverse is often described as the next stage of the internet, a shared digital world powered by virtual and augmented reality. But beyond being a playground for entertainment, it has the potential to reshape how people learn, work, and connect. One of the most pressing questions it raises is whether it can help societies achieve greater gender equality. Despite progress over the last century, women and gender-diverse individuals still face discrimination in education, workplaces, and public life. If designed with inclusivity in mind, the metaverse could become a tool that breaks down these barriers and empowers the next generation.

One of the most striking opportunities lies in representation. In the physical world, gender often influences how people are treated. In the metaverse, however, individuals interact through avatars that can transcend traditional gender roles. This gives people the freedom to present themselves in ways that reduce bias and allow for genuine self-expression. For young people especially, it creates a chance to build confidence and engage in communities where respect is based on contribution rather than identity.

The metaverse can also open doors to education and employment that may be limited offline. Around the world, many girls and women face barriers to accessing quality learning and professional training. Virtual classrooms and workspaces can level the playing field by delivering opportunities directly, regardless of geography or gender. Youth workers, for example,

could host mentorship programs or collaborative projects in digital environments that are free from bias, giving all participants an equal chance to grow.

Just as importantly, these digital spaces can serve as safe environments where people feel supported. Online therapy sessions or discussion groups held in the metaverse can allow individuals to share their experiences more openly, sometimes even anonymously. Studies suggest that inclusive digital environments encourage honesty and reduce stigma, making them valuable tools for well-being and empowerment.

Yet, the promise of equality in the metaverse comes with challenges. Harassment, already a widespread issue online, could be even more intense in immersive environments if left unchecked. Developers and platform owners need to put strong safeguards in place, including effective reporting tools and anti-harassment policies. There is also the problem of unequal access. Millions of women and girls around the world lack the necessary devices, connectivity, or digital skills to participate fully. Without targeted efforts to bridge this digital divide, the metaverse risks reproducing existing inequalities instead of dismantling them.

To truly build a fair digital future, inclusivity must be embedded from the beginning. That means creating avatar systems and virtual spaces that reflect diversity beyond binary categories, ensuring safety features are standard, and investing in digital literacy for women and marginalized groups. Youth workers and educators also have an important role to play in guiding young people to use the metaverse responsibly, encouraging them to value fairness and inclusion in the digital world as much as in real life.

The metaverse is more than just technology, it is a social experiment that will shape how we live and connect in the years ahead. If built carefully, it can reduce discrimination, expand opportunities, and prepare young people to lead in a society where equality is the norm. But if inclusivity is ignored, it may simply mirror the inequalities of the physical world. The choice is still ours to make, and it will define whether the metaverse becomes just another digital platform or a transformative step toward gender equality.

METAVERSING AS A CONFUSING WAY OF LIVING

Federica Nato

Metaversing is an instrument that we meet in our lives every day. We must admit that it's really useful for many reasons: first of all, it gives you the choice to compare resources and to obtain something that isn't immediately available to have. But we must see the other face of the problem. Like everything in the world, Metaversing could carry some problems, especially if it is not used properly.

How many times did we think about something that we want but we can't have? Metaversing, in this sense, creates a sense of constant dissatisfaction. As we have the possibility to discover the world with just one **"click,"** we always compare our life with others'. This is a pivotal point: we have the chance to get our life better, watching good examples, but, on the other hand, not all the stereotypes are good to follow.

Moreover, the question to ask should be, "What we can see is the normality? Or are they too high standards?" and following, "How does it affect our mental health and our way of thinking?" It's common to be sure that we're just not lucky enough and satisfied about our life if what we see is "M is in Miami having a drink on his/her own boat." What we can't see is the fact that this "M" has his/her problems too. Nowadays people aren't just used to sharing the bad part of their life too.

It's not just a fact of stereotypes and what we do have. It's the impact that it has on our mind and psychological health. It affects our self-esteem, and if we're living a difficult situation, we feel alone more and more, as no one shares the "less funny" part of his/her own life. Metaversing is a really good discovery, but we should be careful about its use.

THE METAVERSE: AN APPROACH TOWARDS INCLUSIVE, SUSTAINABLE AND RESILIENT CITIES

Marshall Wanimo

In a rapidly evolving world, the complexities revolving around city planning, resource mobilization, and environmental sustainability are ever increasing. With rapid urbanization increasing pressure on the natural resources and infrastructure, there arises a need for innovative approaches to develop sustainable and resilient cities. The integration of digital technologies in these solutions is fundamental in modeling cities that also promote inclusivity.

The metaverse is a new paradigm that leverages virtual reality (VR), artificial intelligence (AI), and augmented Reality (AR) to facilitate participatory urban planning. Revolutionizing the world through promoting economic, social and environmental sustainability, the metaverse encapsulates the ability to virtually represent urban areas, optimize land use, and enhance inclusive planning processes. The innovative technology offers a platform for interactive collaboration between communities and local governments. This enables citizens to play an active role in decision making and influence the development of their environment.

Likewise, incorporating the metaverse in developing simulations and models for natural disasters such as earthquakes and floods can be beneficial for the local governments. These simulations can be critical in developing effective and data-driven response plans.

The integration of the metaverse in city development possesses great potential in achieving inclusive, sustainable and resilient cities. Through this technology, communities are empowered, environmental and climate resilience are enhanced, and disaster mitigation improved. By harnessing this AI-, VR- and AR-driven concept we can shape the next generation of smart, and adaptive cities.

METAVERSE, A NEW FIELD FOR EU TO PROMOTE SAFER AND FAIRER MARKET PRACTICES

Anna Guisseau

The Metaverse: A Fusion of Technologies

The metaverse combines technologies such as virtual reality (VR) and augmented reality (AR) to create lifelike personal and business experiences online. It is envisioned as an immersive digital world where individuals can interact, trade, and experience new realities remotely.

This innovation brings unprecedented opportunities across various societal areas. Job seekers can engage in training, citizens gain access to personalized public services, and cultural inequalities are reduced. Additionally, consumer practices are transformed by the legal implications of Web 3.0, which persist into the metaverse and upcoming Web 4.0.
The European Union (EU) plays a crucial role in this development, striving to harness the metaverse's social potential while ensuring a safer and fairer consumer experience.

Property Rights in the Metaverse

In the metaverse, users can create estates, buy, sell, or exchange goods. Interoperability allows consumers to transport identities and ownership across applications. For instance, companies like Nike and Epic Games have collaborated on digital goods such as sneakers for avatars, while others invest heavily in virtual real estate.

Intellectual Property Challenges

Intellectual property rights face challenges in this digital world. In 2022, Hermès sued a Non-Fungible Token (NFT) creator for marketing digital copies of its Birkin bag, citing trademark infringement. However, linking these violations to creators remains difficult due to the anonymity of avatars.

Data Ownership and Privacy

Digital identity in the metaverse requires extensive data collection. The interoperability of virtual spaces introduces risks, as transferring data between applications can expose vulnerabilities. Operators must establish agreements to ensure data security and compliance. Clifford Chance highlights that the metaverse will "stress-test existing laws and pressure regulators to match the sophistication of the technology."

The EU's Response

Existing Regulations

While the EU lacks specific metaverse laws, its existing regulations provide a legal framework. Acts like the Digital Services Act, Digital Markets Act, and General Data Protection Regulation protect users and hold platforms accountable. These laws, being technology-neutral, are fully applicable to virtual worlds.

For unique practices not covered under existing laws, regulations such as the Markets in Crypto-Assets (MiCA) Regulation of 2022 address emerging challenges, aiming to increase transparency, protect asset holders, and maintain market integrity.

New Initiatives

The EU has proposed two key acts:

- The AI Act aims to mitigate risks associated with artificial intelligence while fostering innovation.
- The European Digital Identity Act provides users with full control over their digital identities.

The latter has been in effect since 2024, with implementation already underway.

The metaverse represents an evolving frontier. With ethical guidance and comprehensive regulations, it holds immense potential to transform society while ensuring fairness and security for all.

A PATH TO A BETTER SOCIETY?

Ludivine Claude

What is a Metaverse?

The metaverse refers to a shared virtual world where people interact with each other using avatars and digital devices. This space mixes real-world experiences with digital innovation, enabling new forms of communication, education, and collaboration.

The EU's Vision: A Better World Through Technology

The European Union sees the metaverse as an opportunity to promote a more inclusive, equal, and environmentally conscious society. The goal is to use technology to reduce discrimination, promote gender equality, and address global challenges such as climate change.

W**hat do we mean by "better society"?**

One challenge modern democracies face is youth engagement. Despite access to the internet and social media, many young people remain uninterested in politics. The EU is exploring ways to use the metaverse through educational games and interactive experiences to teach historical knowledge and make political participation more appealing to younger generations.

Promoting Inclusion and Cultural Exchange

The metaverse can foster intercultural understanding. Through virtual art exhibitions, for instance, people from different backgrounds can connect, encouraging dialogue and solidarity. These initiatives help bridge cultural gaps and create a more inclusive global community.

The metaverse is still evolving, but its potential to support democracy, inclusion, and environmental awareness is promising. If guided ethically and inclusively, it could become a tool for building a better and more connected world.

THE METAVERSE: A NEW FRONTIER IN EMPOWERING THE DISABLED IN THE HEALTH INDUSTRY

Serene Bui

As technology continues to evolve, the concept of the metaverse —a virtual, interconnected world where people can interact through avatars and experience immersive 3D environments—has rapidly gained traction. While much of the conversation around the metaverse focuses on gaming, entertainment, and social interactions, it also holds immense potential in transforming the healthcare industry, especially for people with disabilities.
The metaverse's potential to create a more inclusive and accessible environment for people with disabilities is groundbreaking. Virtual reality (VR) and augmented reality (AR) technologies, core components of the metaverse, can offer people with mobility challenges, visual impairments, or cognitive disabilities new ways to engage with the world and healthcare in ways they never could before.

One of the most significant ways the metaverse is impacting the health industry is through therapy and rehabilitation. Virtual reality platforms can simulate environments where patients with physical disabilities can practice movement, exercise, and rehabilitation without leaving their homes. VR can be tailored to each patient's specific needs, enabling personalized, adaptive exercises that promote motor skills, balance, and coordination. For example, a stroke survivor who struggles with mobility can participate in a VR program that mimics walking or other physical activities, helping them regain strength and confidence in a safe and controlled setting.

For individuals with visual or hearing impairments, the metaverse offers tools for improved communication and sensory experiences. AR can be used to augment the real world, providing instant visual translations or real-time captions for individuals with hearing loss. VR experiences can also be customized to help those with visual impairments navigate spaces, enhancing their ability to learn and interact with the environment in a virtual setting.

Additionally, the metaverse offers new opportunities for mental health support, particularly for individuals with cognitive impairments or conditions such as autism. Virtual environments allow for controlled exposure to social situations, helping people with anxiety or social disorders practice interactions in a low-pressure space. This can lead to improved emotional well-being, as they can engage with others and practice life skills without the fear of judgment or overwhelming stimuli.

The metaverse also fosters social inclusion. People with disabilities often face physical barriers that prevent them from engaging in social activities. Through virtual reality, they can meet others, attend events, and participate in social interactions without limitations. This fosters a sense of community and belonging, which is essential for mental and emotional health.
In conclusion, the metaverse is opening up new avenues for healthcare, enabling a more accessible, inclusive, and patient-centered approach to treating and supporting people with disabilities. By harnessing the power of virtual environments, the metaverse is not only enhancing the lives of people with disabilities but also helping to break down barriers, creating new possibilities in the realm of health and wellness.

VIRTUALITY AS A SYMBOL OF THE DIGITAL ERA: THE ROLE OF THE METAVERSE IN THIS JUNCTURE.

Bhan Bidit Mut

As we edged into post-modernity, digitalization not only transformed society's operations but also manifested its capability to continue to shape the future life of the next generation, with the Metaverse emerging as a revolutionary virtual space[1]. The EU, as an iconic part of technological growth, has in recent years invested in harnessing Metaverse for social cohesion, economic expansion, and cross-cultural interaction[2]. This immersive digital space, combining the internet, Virtual Reality (VR), and Augmented Reality (AR), offers both opportunities and challenges[3].

For instance, as the union opts to promote economic growth and innovation through programs upholding a competitive digital economy[4], metaverse-related industries, such as digital game design, virtual real estate development, and immersive advertising, with startups receiving funding in the European tech scene[5]. Furthermore, this virtual space can help EU Small and Medium-Side Entreprises (SMEs) access international markets and foster cross-border trade, entrepreneurship, and teamwork[6]. Its 5G technology and digital infrastructure enable virtual spaces for interaction with customers, fostering cultural exchange and social solidarity[7]. The EU can also benefit from hosting cultural events, educational programs, and creative displays, promoting mutual understanding and communication between cultures.

Despite these tangible benefits, Metaverse growth raises privacy ethical, and digital governance concerns. The EU legislative, fra-

mework needs updating to address user safety, data privacy, identity theft, harassment, and disinformation. Creative fixes and strong governance structures are needed to address these issues in the digital age[8].

The EU must ensure equal access to the Metaverse for all citizens, regardless of their financial situation, to bridge the digital divide and create an inclusive society. Incentives for digital literacy programs and infrastructure are needed to create a resilient, inclusive, and cohesive society. The EU's leadership in navigating this new digital terrain will demonstrate its commitment to democracy, diversity, and opportunity, and Metaverse could become a defining characteristic of European identity.

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METAVERSE: COULD CREATING A VIRTUAL WORLD BUILD A MORE SUSTAINABLE ONE

Nhial Manyang Payom

The metaverse, which combines virtual reality, augmented reality, and other innovative technologies to built network virtual environments where users may interact with thedigital world with each other in real-time, is a remarkable advancement in digital connection. In addition to being a technological advancement, the merging of the digital and physical worlds is a force that is revolutionizing businesses in a number of industries [1]. The environment, economics, and society constitute the triple bottom line of sustainable development, and the metaverse is frequently seen as a potential framework to achieve these goals. Interest and advancements in academic articles on" metaverse application" have significantly increased in recent years [2].

1.1 The detailed of the environment, economic and social sustainability of the metaverse

In similar ways, when supporting the adoption of metaverse technology, business, organization, governments, policymakers, individuals, and stakeholders in general should take into consideration the many environmental trade-offs that may be involved. Another benefit is that in comparison to the same real-world matters, digital goods, and virtual experience in the metaverse use a lot of fewer resources and emit less carbon. From the views of economic values, the metaverse has remarkable prospects for economic growth and prosperity. Furthermore, the metaverse is the sole way to further entrench social issues like prejudice, social exclusion, and the socioeconomic division [3].

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GOYA IN THE METAVERSE

Carlos Bassan

In the ever-evolving realm of art, a captivating fusion emerges between timeless creativity and cutting-edge technology. The convergence of these two realms breathes life into a digital cosmos where the masterpieces of Renaissance geniuses such as Baldung and Botticelli merge with the surrealistic expressions of Varo and Carrington, thus engaging with the fundamental essence of reality and virtuality...at least the possibility already exists.

Let us imagine...
Baldung's Three Ages, an iconic piece from the Prado Museum, seemingly undergoes a magical transition to a new plane of existence within the metaverse. This artwork, encapsulating the ephemeral nature of time and the diverse stages of life, assumes a fresh dimension allowing for interaction. Botticelli's Primavera, renowned for its exquisite beauty and symbolic depth, finds reinterpretation in an environment where viewers can immerse themselves in each detail and brushstroke, an experience hitherto unexplored.

Remedios Varo's Papilla estelar and Leonora Carrington's Tentación de San Agustín, with their inherent surrealism and profound symbolism, discover a new haven in this digital sphere. Here, Varo's and Carrington's unrestrained creativity springs to life, challenging the boundaries between perception and reality.
Francisco de Goya bequeathed us the timeless phrase: "My brush should not be better than my eyes." This maxim, consequently, serves as an analogy between material reality and virtuality. Just as a brush can never wholly capture life's magnificence, virtual reality can never authentically replicate the richness and complexity of the human experience, the physical,

the tangible. Art in the metaverse, regardless of its immersive and captivating nature, remains confined by its digital essence.

As part of the Metaversing Project (ERASMUS-2023-CSC-OG-SGA - 101121896), the Metaversing Virtual Art Gallery hosted the photographic exhibition "Luxembourg, Access City 2022." This digital event showcased the inclusive and vibrant essence of this Grand Duchy's capital. For three months, the gallery served as a gateway to explore and appreciate Luxembourg's cultural and architectural diversity within the metaverse, elevating the artistic encounter to new heights of accessibility and global engagement. Nevertheless, as immersive as this experience proved, it couldn't surpass the authenticity and unique essence experienced in the daily lives of Luxembourg's inhabitants.

Ultimately, the metaverse has unlocked new frontiers for artistic expression, enabling unparalleled interaction with both historical masterpieces and contemporary creations. Despite the stunning convergence of art and technology, a gap will persist between material reality and virtuality, underscoring that the beauty and complexity of human existence transcend any medium or platform.

METAVERSE IN POP CULTURE

Lucia Nieto Marco

Pop culture has been a key process in the diffusion and popularization of the metaverse. Through movies, series and video games we have been integrating the idea of a virtual universe into our daily lives. Cambridge dictionary defines metaverse as a virtual world where humans, as avatars, interact with each other in a three-dimensional space that mimics reality. The immersive environment that the metaverse brings us into offers new opportunities for collaboration and interaction between people in different parts of the world.

Although today the metaverse is a well-known and familiar concept for almost everyone, there was a time when it only existed in the realm of fiction, and we were aware of its existence thanks to various books and films. In recent decades, the representation of the metaverse has been evolving and developing.

We can consider 'The Matrix', a 1999 film, as one of the first contacts of the population with the metaverse, since the borders between the real and the virtual were blurred, inviting the spectator to reflect on the ethical and social implications that this entailed. Although this concept of the metaverse is not exactly as we know it today, there is an awareness of a new reality introduced by the protagonist's story.

Years later, metaverse started to be mentioned in pop culture **series** like 'The Big Bang Theory' and 'Black Mirror', which have based several of their episodes on this concept. An interesting example is the episode 'San Junipero' from 'Black Mirror', in which, through virtual reality, the protagonist can relive memories

On the other hand, references to the metaverse can also be found in animated series like 'Rick and Morty' or 'Futurama'.

The Covid-19 pandemic was a turning point for the metaverse in many areas. The confinement and limited social interaction led to a 'reinvention' within the realm of music and art. An example in music is the concert that singer Travis Scott performed in the Fortnite metaverse, which opens the door for more artists to start performing concerts and events in different platforms of the metaverse. In the art world, there has also been the creation of museums in the metaverse.

In my opinion, video games have significantly contributed to the development of the metaverse in pop culture. They have been pioneers in creating dynamic universes where players can interact, create, and even make transactions, bringing the metaverse closer to both young people and adults. Some examples of video games that reflect this development are Fortnite and Second Life.

Another example in pop culture related to the metaverse can be found in social media. The name change made by Mark Zuckerberg, from Facebook to Meta, reinforces his commitment to the metaverse through the launch of Horizon Worlds. This virtual reality platform allows users to create, socialize, and explore different virtual worlds. With the tools it offers, it's possible to design personalised worlds and carry out interactive experiences with other users.

Through these elements, pop culture has not only popularised the idea of the metaverse among the population, it has also helped to build a narrative around its potential and implications in daily life, making the metaverse more accessible to us. While some of the examples mentioned are of general interest, there is no doubt that young audiences have been the best recipients.

The metaverse, although its disadvantages, has become an increasingly safe space for interaction, and we have gradually come to know it, integrating it into our lives thanks to pop culture

FROM ENTERTAINMENT TO THE LABOUR MARKET: THE METAVERSE AS A FUTURE OPPORTUNITY

Antonio Ruiz Padilla

The metaverse came onto the scene as a paradigm shift for all economic sectors after the creation of Meta, in a change of course in Facebook's policy in 2021. However, the metaverse is not as recent a creation as we think. Although companies are developing this new space in pursuit of a market in which they hope to make huge profits, the origins of the metaverse are closely linked to the entertainment industry, specifically the video game industry.

Early experiences were equally divided between successes and failures, but companies soon learned that it was possible to make a profit from this new space for virtual interaction. The first big commercial success came with PlayStation Home, which managed to gain the necessary partnerships to make a profit with a free service for users, in the form of activities and games advertised by companies of various kinds. This experience ended with a drop in users in 2015, which at the time stood at around 41 million. Despite this, there are rumours of a possible return of the service, after the trademark was renewed until 2028 at the European Union Intellectual Property Office.

While the video game industry may return to this path, it may do so in a similar way to different economic sectors, which are trying to adapt to the momentum of the metaverse. This therefore translates into a labour market transformation of as yet unknown dimensions. Research is underway as to which sectors can benefit most, and which jobs will be needed to make this

paradigm shift possible. Therefore, young people have the opportunity to fill this gap if they are properly trained. Currently, the most in-demand profiles are those related to the metaverse infrastructure itself. As this is a sector under construction, those profiles with high IT skills are the ones that make up the majority of jobs. This does not prevent the future job market from requiring only computer experts. Some of the most in-demand positions in the industry include jobs related to fashion, law, or marketing. This opens windows of opportunity to move some traditional jobs into this new parallel world, since, after all, many of the needs of real life will exist in this alternative life.

Another aspect to consider is the impact that the metaverse may have on the population pattern of different countries. The trend towards population concentration around large cities that many countries have experienced in recent history may be slowed or even reversed if the metaverse proves to be a success. This reality has its basis in teleworking, which can develop enormously with the metaverse. There are web portals that advertise villages that welcome people who want to telework, as many people are looking to get out of the big city routine and live new experiences in rural environments. The promotion of this type of initiative would make it easier for young people brought up in a rural environment to study and work from home, without having to migrate to the city due to lack of opportunities.

All in all, the metaverse is set to be a major revolution for the future employment of young people. However, some issues criticised by some sectors of society need to be resolved. Firstly, Artificial Intelligence may take over the majority of jobs in the metaverse, so we have to decide whether we want a humanised metaverse or not. On the other hand, the potential of teleworking under the metaverse is yet to be known, as a faster implementation of this space, which replaces face-to-face work and goes even beyond video calls, was expected.

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CHANCES AND OPPORTUNITIES IN CONNECTION IN RELATION WITH METAVERSE

Lotta Böhm

The young generation grows up with a lot of different electronic devices and the internet. The Metaverse makes it possible to connect to new people very fast and make new contacts. Way easier than in real life.

In a lot of topics are sunny sides and shadow sides. The important thing is to talk about the shadow sides and expand the sunny sides. Also on the topic of metaverse it is important to give mindfulness in dealing with the digital world to the young generation and at the same time to use the possibilities of this platform

The metaverse is a digital world which can be used for a lot of different things. The best case is that this includes important and good things, but this world has not online positive sides. It is possible that young people get lost and losing touch with reality because they immerse themselves so deeply in these virtual worlds. Often, they are allowed to spend a lot of time in the Internet in this virtual worlds. Parents let them do and often don't control a lot what their kids doing there.

In this world is it easy to lose the reference to the reality. Also to lose the sense of time.

This generation has problems to employ themselves. So, one of the easiest ways is the handle to the mobile phone or to the computer and to let oneself be sprinkled of the influences of the virtual world. Social media is used for telling people what is going on in your head its way easier to express for example if you

love or hate somebody by sending a message to another person that to stand right in front of this and tell this information personal in real life.

The changing world is unstoppable and because of this reason we must give young people ways to deal with this in a correct and sensible way. For this is important to use and teach the skills of it and use it in a positive way for the young generation. The Metaverse makes it possible to do things without leaving the house and to do this without being in real life.

It is a great chance to teach children and teenagers ways and means important topics as the climatic change or environmental awareness. For example, for children in a playful way or in form of a video with animals how long it takes to degraded plastic and paper if it is thrown in nature instead of thrown into the rubbish bin. The animals can be used to show the children in a sensible way how they feel when rubbish is thrown into their homes.

The most significant thing is that the young people getting important and helpful skills to discover the new digital world. We need to keep this in mind when developing digital offerings! Also to remind that the Metaverse is not the real live. A time limit is a good thing to remind regular of the time and to avoid that the whole day is spent on the internet.

THE METAVERSE AND IMMOVABLE CULTURAL HERITAGE: PRESERVING AND VALUING OUR ARCHITECTURAL LEGACY

Hugo Braquet

The metaverse, a universe with infinite powers, represents an unprecedented opportunity for immovable cultural heritage. Thanks to augmented reality, virtual reality and the internet, the metaverse offers a new way of interacting with and enhancing the value of immovable cultural heritage.

A new exhibition space

Thanks to metaverse, people all over the world can access architectural works of our heritage directly from their own homes. This new model allows culture to be democratized by overcoming financial, geographical and political constraints.

For example, for several years now, the Château de Versailles has been offering the world the chance to visit the chateau virtually, thanks to the " Vivez Versailles " experience. It's an opportunity to plunge back into a courtier era and place the architectural work in its historical context.

This global accessibility is not limited to individual visits. Schools, universities, and cultural institutions can organize virtual guided tours, interactive courses, and educational workshops directly in the metaverse. Students can interact with experts, ask questions in real-time, and gain a rich and comprehensive learning experience without the logistical and financial constraints of international travel.

Reinventing Learning Methods

The history of their construction is often hidden or invisible. The construction of monuments has rarely been completed in one go with a single architectural style. This is why it is therefore difficult to identify all the architectural styles and the chronology of a building's construction. Similarly, interior colors and decorations can fade over time and become less visible. This represents a difficulty for museums that want to highlight the changes in their heritage over time.

The metaverse allows us to free ourselves from temporal constraints by offering the possibility of travelling through time. It is possible to create virtual spaces in which the architecture of a monument differs according to the chosen era. Thanks to augmented reality, it is possible to see the heritage with some architectural parts less or more, depending on the period chosen. The architectural chronology of heritage is a very important point for students and researchers in the sector and making it visible is a rich source of information.

After the Notre-Dame-de-Paris fire, Orange and Amaclio Productions, in partnership with the Diocese of Paris, the public institution responsible for the conservation and reconstruction of Notre-Dame de Paris and the City of Paris, have also created a virtual reality experience named “Éternelle Notre-Dame” that allows visitors to immerse themselves in the history of Notre-Dame-de-Paris cathedral. The journey begins in 1240, in Paris in the pouring rain, while the cathedral is still without its two towers, which are still under construction. An opportunity to find out more about the cathedral while it is closed.

Because yes, the metaverse can provide continuity when the context doesn't allow you to visit a site.

Reconstructing a lost heritage

For heritage that has disappeared, the contribution of the metaverse can be even more radical. Over the last few centuries, 6 of the 7 wonders of the world have disappeared. These include: The Alexandria Lighthouse in Egypt, the Hanging Gardens of Babylon in Mesopotamia (Iraq), the gold and ivory statue of Zeus at Olympia in Greece, the Temple of Artemis at Ephesus, the tomb of Mausoleum at Halicarnassus in present-day Turkey and the Colossus of Rhodes.

Using the available documentation, architects and engineers have virtually recreated these wonders, allowing visitors to immerse themselves in the marvels of the past through a reconstructed reality.

More recently and in the current political context, the immovable cultural heritage is in danger or has already been devastated. For example, in the Middle East, war and terrorism have destroyed and continue to destroy heritage. Syria, Yemen, Iraq, and now Palestine have seen their heritage slowly crumbling away. The only solution to save immovable cultural heritage has been the digitization of architectural works and archaeological sites. To bring these places back to life, certain organizations and companies are undertaking the creation of virtual spaces through the metaverse.

Two French companies, Ubisoft and Iconem1, have also collaborated on reconstructing historical monuments devastated by war, in partnership with UNESCO and the Arab World Institute. This project, titled «Cités Millénaires : Voyages Virtuels de Palmyre à Mossoul», is a compelling example of collaboration between two French companies and two cultural institutions, using virtual reality to preserve memory and heritage. Aleppo, Palmyra, Mosul—these names resonate as symbols of Arab

millennium heritage. Yet, they are also martyr sites, devastated by human folly. This virtual exhibition has resurrected the vanished heritage for the duration of an exhibition, through a virtual journey. This virtual exhibition was made possible thanks to the large-scale projection of new images captured by drones and reconstructed in 3D by the company Iconem.

([1]Iconem, founded in 2013, is a pioneering startup focused on the digital preservation of at-risk cultural heritage sites through 3D technology. The company collaborates extensively with global entities such as UNESCO, national governments, local authorities, and prestigious museums like the Louvre. Iconem's expertise spans the creation of precise 3D models tailored to specific sites, ranging from architectural reconstructions to expansive urban and rural landscapes. They also contribute to museum exhibitions and offer training programs for local professionals, aiming to safeguard and promote cultural heritage worldwide.)

METAVERSE AND CHILDREN: ENSURING A SAFE VIRTUAL SPACE, A SIGNIFICANT CHALLENGE

Julie Hazard Antoine

Navigating Childhood in the Metaverse

Children cannot avoid using the Metaverse. Whether for immersive learning or developing creativity, it is proving to be a valuable tool. Exploring the solar system or experiencing different cultures virtually opens up new educational opportunities. It's a fortunate way for children to learn in a pedagogical manner.

Numerous games and applications already exist, such as Roblox or Winkyverse, for example.

While children can use this virtual space for self-education and to interact with others, it raises questions about its benefits.

Cyber Harassment : The Dark Side of the Metaverse

Safety concerns in the virtual world are no exception. Like in the real world, children are exposed to various risks. Cyberbullying is a well-known issue on social networks, but it could be exacerbated in the Metaverse. Avatars interact directly with others, and children may sometimes lower their guard due to the realistic nature of the environment. Virtual harassment can have significant psychological and emotional impacts on children, despite the current lack of comprehensive studies on this subject.

Moreover, this space is challenging for parents to monitor. Children navigate an unknown world without fully understanding its potential dangers.

This phenomenon is exacerbated by the anonymity of users. It is

easy for a user to lie about their identity: an adult can pretend to be a child to approach others. It is really difficult to verify the accuracy of shared information, which is why the risk of fake identities is much greater than in real life. The danger is real: some cases of sexual abuse have already been reported. For instance, in January 2022 in Horizon Venues, a user was sexually abused by three other users. It is, therefore, a crucial challenge to succeed in protecting children from cyber harassment and sexual abuse.

Exploring Future Solutions: Safeguarding Tomorrow

There are many possible mechanisms for preventing cyberbullying. To ensure secure and positive experiences in a kind-hearted environment, various organizations are addressing this challenge at different levels.

The first step is finding technical solutions implemented by the games themselves. One approach is anonymity control, which can prevent users from feeling unattainable and allow policies to hold them accountable for non-compliance with the law. Additionally, implementing filtering and moderation tools is essential. Games are being modified to mitigate risks. For example, Meta has introduced options to report or block avatars and move avatars to safe zones. Meta and Microsoft now apply a protective bubble around avatars by default, preventing strangers from approaching closer than one meter.

Another important aspect is educational campaigns, such as in-game tutorials or videos, online resources, and social media campaigns. Ethical charters already exist, and it is the responsibility of the state to make public service announcements as well.

Policies should also be enforced: it is crucial for the justice system to take real action against problematic users to protect

future users and help victims recover. Currently, it is challenging to respond to cyber sexual abuse, for example, because the notion of tangibility is present in the law. The law must adapt to these new, unknown virtual worlds, such as the metaverse.

THE METAVERSE AND FASHION: A DIGITAL REVOLUTION

Pauline Parise

The metaverse, an immersive and interactive virtual universe, is revolutionizing various aspects of our daily lives. One of the most affected domains by this transformation is fashion. As the metaverse continues to develop, it offers new opportunities for creators, brands, and consumers, redefining the way we perceive and consume fashion.

At first glance, the concept may seem vague to many individuals, but it has gained popularity. Indeed, the idea of trying on or viewing clothes that exist only in the virtual world might seem strange at first. Nevertheless, it is a constantly growing trend, and many experts believe that the metaverse could seriously impact the future of fashion.

Creation and Innovation

In the metaverse, fashion designers enjoy unprecedented freedom. Physical constraints are nonexistent, allowing designers to explore shapes, materials, and concepts impossible in the real world. The metaverse thus allows pushing the boundaries of imagination by offering new works with ever more innovative and original designs, previously impossible in the traditional fashion we knew. For example, clothes made of light or floating accessories are among the innovations made possible in this virtual universe.

Brands and Marketing Strategies

Major fashion brands, aware of the metaverse's potential, are investing heavily in this space. Gucci, Balenciaga, and Louis Vuitton, among others, have already launched virtual collections. These brands use the metaverse not only to sell digital clothes but also to create immersive experiences for their customers.

Virtual fashion shows are becoming increasingly common, offering an interactive experience that attracts a global audience without the logistical constraints of a physical event.
The first edition of the Metaverse Fashion Week took place in March 2022. This 100% virtual event was held from the 24th to the 27th, featuring fashion shows, experiences, and after-parties on the Decentraland platform.

Economy and Commerce

Fashion commerce in the metaverse is booming. NFTs (non-fungible tokens) play a key role in this new market. They ensure the authenticity and ownership of virtual fashion items. Consumers can buy, sell, and trade digital clothing on platforms like OpenSea. Consumers can try on clothes on their avatars, decide to buy them digitally and/or physically. Conversely, some designers have chosen to create pieces that are not at all practical in real life but sensational for avatars.

Social and Cultural Impact

The metaverse also offers a platform to promote inclusion and diversity in fashion, a field often very narrow and not diverse. Avatars can be customized to represent a multitude of body types, ethnicities, and styles. This allows everyone to express themselves freely and feel represented. Additionally, creators from diverse backgrounds find in the metaverse a space to get known without the entry barriers of the traditional fashion world. It provides a new and accessible entry to the fashion world for all enthusiasts, from wealthy clients to modest ones, from renowned creators to independents.

Sustainability

Another positive aspect of the metaverse is its potential for sustainability. The production of digital clothes does not involve the same environmental costs as physical production. Fewer resources are needed, and there is no textile waste. Clothes

existing only in the digital world are much more environmentally friendly than those produced physically. They emit 97% less CO2 and consume 3300 liters less water per item. Additionally, some data suggests that replacing a physical model with a digital sample during development phases can reduce a brand's carbon footprint by 30%. Furthermore, it will also be possible to virtually try on pieces and then order them to be delivered to our homes. This practice would limit the overproduction of clothes by only manufacturing the necessary quantities. However, it is important to note that the carbon footprint of digital infrastructures, such as servers, remains a concern. Brands must therefore find a balance between digital innovation and environmental responsibility.

The metaverse is redefining fashion, offering infinite possibilities for creativity, commerce, and inclusivity. As this technology continues to progress, it is essential for fashion stakeholders to adapt their strategies to take advantage of this dynamic space while addressing ethical and environmental challenges. Although virtual fashion can never completely replace traditional fashion, the metaverse offers new horizons for fashion, both in terms of design and consumption.

WHAT ROLE DO AVATARS PLAY IN THE METAVERSE?

Malena Lloret López

The representation of human beings and objects in the metaverse is based on avatars. Avatars are not only the visual representation of ourselves, they are the embodiment of our digital identity. It is this fact, i.e. the creation and personalization of avatars, that allows people who frequent the metaverse to create a unique representational link that perfectly reflects their physical appearance, their style and, to a large extent, their personality. This fact makes users feel a very close connection between the user and their avatar, as well as emphasizing the experience to be had in the metaverse.

It is also important to note that inclusive representation is another important aspect of personalization. Allowing consumers of all ages, genders, races and abilities to create avatars that look like them helps to create a virtual environment where everyone feels very welcome and valued. This inclusion can have an appropriate and positive impact on both their emotions and self-esteem, particularly for socially excluded groups who have historically been discriminated against in the media and on digital platforms.

Within this article it would be very important to mention the impact on identity and self-expression. While it is true, avatars are a unique representation of self-expression. Through this, users can experiment with a wide range of styles, genders and appearances without the restrictions of the real world. This freedom of expression fosters a greater sense of authenticity and self-acceptance by allowing people to explore aspects of their identity that they may not feel comfortable showing in real life.

This parallel world reaches such a level of representation that avatars can also serve as an extensible part of users' personalities, allowing them to share their interests, skills and beliefs in creative ways. For example, a physical person, a gamer who likes fashion can create an avatar with the clothes and style they like best, while another person who enjoys video games can represent themselves as their favorite gamer. All of this can strengthen social connections in the metaverse and can increase shared interests, as well as increase trust and self-esteem among users.

Avatar design and technology has clearly evolved in recent years thanks to virtual reality, augmented reality and artificial intelligence. These include: the creation of hyper-realistic avatars; the creation of avatars that can be customized in real time; natural and emotional interaction, i.e. facial recognition and movement tracking that have made them exact replicas of physical persons; the creation of interoperable avatars, i.e. as games and the metaverse expands, there is the ability to use and make the same avatar appear in different scenarios and this means that physical users can maintain a concrete identity in different experiences and applications in the metaverse; finally, as mentioned before, avatars often wear clothes that are collaborations with brands and this opens up new commercial opportunities within the metaverse.

In conclusion, the role of avatars in the metaverse is crucial as it allows for an inclusive representation that has a great impact on the identity and the way users conceive themselves. Thus, the new trend in design and technology of avatar creation and representation promises a future where these digital beings will be more realistic, more interactive and more versatile, enhancing the whole metaverse experience for all users.

EU AND METAVERSE GOVERNANCE: NECESSARY MONITORING ON THE FUTURE OF METAVERSE

Adèle Duhil de Bénazé

As the promotion of the metaverse's incredible possibilities seems to have cooled down for the past months, companies continue to invest in the "next technological transition" our world may know. From massive multiplayer online games in the 2010s to virtual tourism and replicas of entire cities in the future, the metaverse is still an emerging technology.

In this constantly evolving field currently dominated by Meta and Epic Games, every company works on a different type of metaverse. The lack of common definitions and visions on the subject doesn't help citizens with an understanding of what metaverse is, and what are its dangers. In this "Web 4.0", everyone, through their avatar, can do whatever he/she wants, everything seems easier and some can be tempted to break the law. Identity theft, harassment, and scams are a reality in those virtual worlds. The use of cryptocurrencies inside the virtual world also creates some issues as there is no government regulation of the transactions. Moreover, a lack of transparency raises privacy issues, as data from Metaverse's users is retrieved by Meta, Google, and other companies.

In this jungle of technologies and companies, EU institutions are willing to act to protect citizens from the various dangers caused by metaverse's use. Enforcing the law in the different metaverses, regulating cryptocurrency transactions, protecting users' data, and preserving the environment represent some concerns of the Union. Unfortunately, many of the leading com -

panies in the metaverse's market are non-European companies, which makes it difficult for EU institutions to have a significant impact on these companies' actions. EU now has to position itself on the international stage and guarantee the rights of European citizens through what can be qualified as hard law (regulation and legislation) or soft law (guidelines and standards). EU institutions possess tools to monitor this field's evolution and become an important actor towards more ethical, safer, better virtual worlds. Besides, the European Union has an interest in closely following the evolutions of the metaverse, as virtual worlds have a lot of economic advantages such as job creation or new career possibilities in engineering, design, and even healthcare.

To achieve this goal, not only the already existing laws must be applied correctly, but legislative work must be done to prevent new issues. In this highly innovative field, legislation and regulation should be agile, to evolve as quickly as the market grows. For instance, to protect intellectual property in the design field, a revision of the Community Design Regulation was adopted in 2023. Now, digital products that can be found in virtual worlds are affected by design protection. The recent adoption of the AI Act, on May 21st, marks a milestone in EU's policies and has a worldwide impact as it represents the first regulation on Artificial Intelligence. By classifying AI systems according to the risk they cause, this act aims to increase AI systems transparency and ethics. It will directly impact Web 4.0 as interactions in the metaverse mostly depend on AI. Thus, this act would then allow a safer user experience in virtual worlds. Moreover, other EU regulations are here to prevent the formation of a monopoly in the metaverse industry._EU governance may also appear through the creation of technical standards for companies to ensure the security of their products: discussion with companies has to become possible and frequent, and partnerships with international organizations that develop co -

mmon standards should multiply. Discussion with citizens about what metaverse's legislation is also essential, to understand their expectations and to warn them about the dangers within the metaverse.

The European Union's legal work seems essential today to regulate and create standards in this complex Web 4.0 field. Some other legal issues will appear as metaverse's usages will evolve and its popularity will increase. These issues can't be foreseen, but European institutions must be ready to tackle them.

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5G: A KEY TECHNOLOGY FOR THE DEVELOPMENT OF THE METAVERSE

Tristan Henault

The metaverse, a collective virtual shared space, is set to revolutionise how we interact, work, and play. For now, its evolution and democratisation towards a complex space where all users utilise virtual reality is just inly beginning.

One contributing factor is users' internet connection. 4G LTE, the fourth-generation mobile network that is mostly used today, has significantly improved mobile internet experiences by providing data transmission speeds of up to 150 Mbit/s. However, the average download and upload speeds stand around 20 Mbit/s and 1 Mbit/s respectively, with a latency of about 50 ms. While these figures are sufficient for current mobile applications, they are not adequate for the immersive, real-time demands of the Metaverse. Regarding Wi-Fi, the current generations suffer from congestion and thus high latencies once several VR devices are connected at the same time. Wi-Fi 7 promises to address the congestion issue but is far from the range and global coverage proposed by cellular technologies.

Here comes 5G. Promising peak data rates of up to 20 Gbit/s and a latency as low as 1 ms, 5G offers a quantum leap in connectivity. Unlike 4G, 5G provides rate, range, reliability and latency thanks to network slicing and sidelinking. Network slicing allows the creation of virtual networks within the overall 5G network, optimises resource allocation and ensures specific service levels for different applications. Sidelinking, on the other hand, enables direct communication between devices without the need for an antenna or transceiver, reducing latency further and enhancing reliability.

The expansion of the latest generation mobile network is excellent news for the metaverse and its development. Indeed, 5G addresses several issues that were hindering the progress of the metaverse.

Firstly, one of the biggest requirements of the metaverse is a latency close to zero. To ensure an optimal user experience and avoid nausea and frustration, the graphical elements must be updated almost instantly in response to how people are interacting with them. Today, the complex multi-players games have to meet a round-trip time between 20 and 30 ms. However, in the case of a complex environment and virtual reality, latency needs to be under 10 ms, which is possible in the 5G area.

On top of that, the metaverse's data-heavy environments necessitates a symmetric bandwidth and a robust network capacity. 5G can handle the massive data flow necessary for downloading the virtual worlds and supporting numerous users. This symmetric bandwidth capability, where users can upload as much data as they download, is crucial for the metaverse to ensure quick loading and high quality of its visual and interactive elements.

Finally, one of the biggest challenges of the metaverse is the resolution of the environment. Indeed, to have the best quality of experience, it needs to be close to the human retinal resolution. On a smartphone held at arm's length, 720p resolution is sufficient to achieve human retinal resolution. Yet, for a head-mounted display, retina grade resolutions will need to be in 4K, or even more. 4G network throughput is not sufficient to face this challenge and deliver a consistent quality of experience. However, in the 5G era, it will no longer be an issue.

To conclude, 5G technology has the capacity to provide the internet connection needed for the development of the metaver-

se. Nevertheless, other challenges emerge such as, the building of an infrastructure that can support the massive amounts of data being transmitted. It requires significant investment, which can be an issue for some.

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HOW THE ECONOMY IS TRANSFORMED IN THE METAVERSE

Sabrina Sommario

More and more people, particularly the younger generations, spend a large part of their free time within these new virtual worlds, where they replicate all the social dynamics typical of real life. If we think about it, in addition to satisfying primary needs related to nature and human physiology (food, shelter, health, etc.), human beings are inclined to acquire secondary goods and services for much less 'existential' reasons. This is also the case in the metaverse. Most purchases, in fact, stem from the need to express one's identity, creativity, or the need to show one's status and belong to a certain community, feeling 'part of a group'.

"Living" in the metaverse may involve buying or selling goods and services. For example, if a digital art exhibition is organized with the possibility of selling works, a method of payment will have to be found. This is where cryptocurrencies come into play. Moreover, just as there are different metaverses, there are also multiple cryptocurrencies.

A crucial element in emerging metaverses is the use of blockchain technology. This allows a platform to function like any virtual game world, but with a real internal economy, managed through cryptocurrencies. Digital objects in the metaverse are in NFT format (non-fungible tokens) and are purchased using cryptocurrencies.

An NFT does not exist in nature. It must be created. It is possible to create an NFT of a painting, text, music, video and generally of any object that can be represented in digital format. Once

transformed into NFT, that work will be unique, original and cannot be duplicated or modified.

An NFT does not exist in nature. It must be created. It is possible to create an NFT of a painting, text, music, video and generally of any object that can be represented in digital format. Once transformed into NFT, that work will be unique, original and cannot be duplicated or modified.

In a decentralized metaverse, this means that objects purchased in the virtual world via cryptocurrencies remain the property of the acquiring user permanently, as their ownership is registered on the blockchain and remains accessible from the user's wallet. This ensures the traceability of transactions made using cryptocurrencies as currency, as well as the traceability of the ownership of objects. Thus, not only is there a connection between the metaverse and cryptocurrencies, but the latter are also a fundamental part of the ecosystem of the former, so much so that, as we have seen, each platform has its own cryptocurrencies used to purchase goods and services.

In conclusion, the Metaverse represents a fascinating and complex frontier for the global economy. This virtual space is already beginning to transform various sectors, from entertainment to commerce, offering new business opportunities and innovative economic models.

PERSPECTIVES ON THE FUTURE OF THE EUROPEAN UNION THROUGH THE PRISM OF NEW MULTI-CRISIS EPISODES

Vicente Guillon Guzman Cala

The creation of the European Union took place in the favorable context of the post-Cold War era. Initially focused on economic matters, this construction expanded beyond this domain since the Maastricht Treaty -1992- and the Treaty of Lisbon -2009-, now covering all aspects of the societies of the Member States. The ideals of a single market, promoting the free movement of people, goods, services, and capital, notably facilitated the construction of European citizenship - Art. 9 TEU & Art.20 TFEU - which leads citizens to vote on June 9 for one of the major institutions of the EU, namely the European Parliament. The establishment of the single market has progressively given Community law predominance over the national law of the Member States, which means that national policies must be aligned not only with the ideals and principles of the European Union, but also with its concrete policies, which are guided by an extensive institutional apparatus. The European Commission plays a central role in policy development by proposing legislative initiatives and ensuring that the policies adopted are implemented. The Council of the European Union, made up of the ministers of the Member States, adopts legislative acts in collaboration with the European Parliament, which represents the citizens of the Union. In this sense, the European Parliament is the main means of support or contestation for the peoples of the Member States, and the vote on Sunday 9 June takes place in a particular context of multiple crises that the European Union must and will have to face; Maintaining the ideals of the European Union depends on the political will of its constituent peoples. This political will is essential because it gives colour and meaning to the European Parliament. This is why certain political

groups in the Member States, notably the extreme right under the banner of the "Identity and Democracy" group, are openly opposed to the very existence of the European Union. If these groups were to win a majority at the next elections, they could oppose the condemnation of certain Member States through the procedures provided for in Article 7 of the Treaty on European Union, which could compromise the European Union's ability to protect its fundamental values and principles. However, this work by the European Union is necessary because some States are adopting worrying policies. For example, concerns have been expressed about judicial and constitutional reforms in Poland, which are seen as threatening the independence of the judiciary and fundamental rights, fuelling wider concerns about respect for the rule of law and democratic principles. Similarly, Hungarian policies towards minorities, in particular the Roma community, and laws restricting the rights of migrants and refugees have raised concerns. The European Union must be able to respond effectively to the economic challenges posed by crises such as the eurozone sovereign debt crisis - 2010 - in the wake of the global financial crisis - 2008 -, the Covid 19 pandemic - 2020 - and the consequences of the war in Ukraine - 2014 & 2022-. These events have clearly demonstrated the need for strong coordination and action at European level to ensure economic stability and resistance to external shocks. In this context, the political proposal put forward by the peoples of the Member States must be geared towards a long-term economic vision, whether liberal or social. It is therefore necessary to consider the direct impacts of these policies, particularly in a context where some Member States are facing a significant increase in poverty. In France, for example, 9.1 million people will be living below the poverty line in 2021, which represents a sharp increase over the last twenty years. Another relevant example is Greece, where the social consequences of the restrictive economic policies implemented by the ECB persist. However, it should not be forgotten that this political

proposal comes at a time when the financial stability of the European Union is being called into question by the growing sovereign debt crises. The current challenges facing the European Union underline the importance of a renewed commitment to a united and cohesive Europe, capable of meeting the complex challenges of our time while preserving its fundamental values and principles. In the face of events such as Russia's invasion of Ukraine and the conflict in Palestine, the forthcoming elections offer EU citizens a crucial opportunity to shape the future of their Union. These elections will define a clear vision and concrete positions on these contemporary issues, strengthening the EU's resilience in the face of future social, economic and geopolitical challenges.

THE RISKS OF THE METAVERSE

Domiziana Castelli

If someone asked you the question, "What do you think is the biggest risk of the metaverse?" what would you answer?

I was surprised when I asked this question to a friend, because I thought he would answer with a risk related to digital security; instead, he focused on a very important factor for human beings.

"The biggest risk is that of becoming alienated and losing the ability to have sensations rather than emotions, creating a strong detachment from what reality is."

The Metaverse is a digital reality in which people connect, work and socialize. This platform can be seen as a vast online playground where users have the freedom to be anyone they desire. In fact, users have the ability to create avatars to immerse themselves in this parallel digital universe.

When it comes to technology, one thing is certain, its growth is quite rapid, and like the Internet, the Metaverse also presents several security and privacy issues. Certainly, it is a platform that can open up a range of opportunities but also a number of risks. First, we need to consider that the metaverse has extensive data tracking and profiling._To deliver personalized experiences, the platform is responsible for collecting a multitude of data on users' actions, interactions and preferences. What is the purpose of collecting all this data? Mainly, to enhance user experiences, but it is still very unclear how this data is stored, shared and potentially misused. If there is one thing that digital security courses have taught us, it is that anything posted on the internet is no longer something we can control where it ends up. The same applies in the Metaverse. Every move we make and every

word we say is recorded, in order to improve our experience in the platform. In the metaverse, users can opt for anonymity or create digital personas. Anonymity has a positive side, which is to protect privacy, but it can inadvertently encourage malicious activities. In an article for Forbes magazine, Thanos Tsavlis, CEO of Cyberscope, describes this practice as follows: "Imagine the metaverse as a costume party. You can either go as yourself or dress up as someone entirely different. It's fun, but it means people might not recognize the real you. And although there's no harm in that, it could potentially be used to facilitate complex scams". This new reality has already witnessed negative aspects. In fact, many users, through their avatar have simulated sexual harassment or assault. Additionally, there is no shortage of hate speech, pornographic content, and misinformation. It is important to emphasize that when users interact through their avatars, situations that amount to violations of civil laws or even criminal laws can occur.

Apart from this, the metaverse can have a significant impact on mental and physical health. As a matter of fact, when this platform is overused, certain problems such as loneliness, reduced physical activities, and other problems that contribute to the desire to escape from the real world can increase. Obviously, these are problems that already exist, but this platform amplifies their prevalence.

One of the biggest issues concerns children. While it is true that the metaverse can offer them a different approach to education, such as increased motivation in learning and studying, it is important to emphasize that avatar interaction in the metaverse should by no means replace real human interaction. We find ourselves in years, where technology is there, it is with us and cannot be hidden. But for this very reason here we have to learn to live with it, take what positive things it has to offer us, in work, in education and even in our free time. However

it is important to remember that it should not replace real life.

It is good to consider that this is a reality, which although virtual, tries to closely resemble our world. For this reason, it is important to emphasize that it is not always possible to moderate how people behave or speak in the virtual world. Protecting against risks in the metaverse requires a combination of awareness, prudent behaviours, and the use of available tools and resources. For this reason, it is wise to know and stay updated on the potential risks of the metaverse and the internet. In the event of witnessing a crime committed in the metaverse, it is absolutely necessary to block or mute offensive users and report the incident to the relevant authorities (similar to filing a standard report). Furthermore, to protect oneself, it is advisable to avoid sharing sensitive information, keep platforms up to date, use complex passwords, and be aware of the presence of scams and fraud. Additionally, it is important to protect young individuals by teaching them the proper way to navigate it. The European Parliament has emphasized that that the privacy and data protection framework must also apply to the metaverse. Moreover, it has been requested toreview and update the GDPR, as it was not designed to address some of the challenges and complexities presented by the metaverse, such as the need to regulate data collected during unconscious behaviour.

This article does not aim to discourage the use of this platform at all; it simply aims to convey that like everything else, it carries risks, and it is important to be aware of them to defend oneself.

METAVERSE AND THE EVOLUTION OF DIGITAL IDENTITY

Basma Taha

In the age of metaverses, our digital identities are increasingly important to who we are and how we interact online. Our digital presence continues to change and adapt according to what we choose and experience in the digital world, from our social media profiles to avatars in virtual worlds.

The metaverse allows us to explore and display our identities in ways that go beyond what we can do in a real world. Avatars allow us the opportunity to experiment with a variety of facets of ourselves, from appearance to personality, allowing us to develop new forms of self-expression and connection with others._In other words, the metaverse functions as a large social laboratory where we can discover and define ourselves in an ever-changing digital space.

But as we enjoy this freedom, we also face challenges. As our lives become increasingly connected to the virtual world, questions arise about the authenticity and integrity of our digital identities. To what extent do our online identities reflect who we really are? And, with so much information about us online, how can we protect our privacy and security?

In addition, the Metaverse also raises questions about diversity and inclusion online - how do different identities manifest themselves in the Metaverse, and what steps are being taken to ensure that virtual spaces are welcoming and inclusive?

As we continue to explore these new worlds, it is important to reflect on how we shape our identities in virtual universes and how this impacts our daily lives. Metaverse is not only a place to have fun and socialise, but also shows us how we are evolving as digital beings in an increasingly interconnected world.

DIGITAL RELATIONSHIPS

Giovanni Fierro

Over the last twenty years, technology has made considerable strides, introducing new means of communication and new technologies, which are very quickly replacing, at least in part, direct person-to-person contact. It should be remembered; however, we are in the so-called 'digital age', not everyone has free and conscious access to technology; especially for the elderly or sometimes for adults, technology can become an instrument of exclusion, thus losing its natural purpose, that of simplifying relationships.

In addition to influencing interpersonal relationships, technology is also taking on a key role within state work, simplifying bureaucratic procedures. Although this certainly has a positive effect because it reduces working time, which is often very long, there should always be a classical way of accessing procedures. The choice of some governments, such as the Spanish one, to provide for an exclusive digital access for each procedure therefore leaves many doubts. A study by the SPANISH NATIONAL INSTITUTE OF STATISTICS, dated 28 November 2023, estimates that 94.4% of Spaniards have had access to the Internet at least once in the last three years, and that 82.9% have a computer at home; these data are, however, in my opinion not very useful, it is not enough to have a computer to use it properly, moreover it is officially proven that 18% of households do not have a PC; But if, as the Spanish Constitution emphasises in Article 14, 'Spaniards are equal', how can the Spanish state choose to rely on technology exclusively, consciously excluding part of the population. Technological discrimination also leaves doubts as to compatibility with another article of the Spanish Constitutional Charter, Article 27, which guarantees the right to education. In my opinion, with the evolution of the world, the word education

should also cover the technological sphere, today the basic technological skills are only possessed by 66.2% of the population.

The Italian government is also following the path of digitisation, through the creation of digital identities, so-called SPID since 2015. I believe that the decision to set up these procedures without having foreseen a technology education system is not a prudent choice by governments that overlook the fact that a large part of the population lacks basic digital skills. An Italian ISTAT study published on 20 December 2023 estimates that basic technology skills related to the use of the telephone are available to 45.7% of the 16-74 age group. This means that more than half of the country's population does not have the right skills to deal with new technologies, a date that can only worsen if the over 75 and under 15 age groups are considered.

It would also be important to carry out an investigation into the emotional effects caused by the new technologies; the over-50s have in fact witnessed a radical change in the world in which they were born and grew up, a change that took place quickly without giving them the time they needed to adapt to the new world. Here, too, the role of the state should be crucial, the governments should protect these people, both by means of a conscious use of technology, but also and above all by devising systems that do not totally exclude those who do not know how to relate to technology. It is important to use this precious tool with moderation and solidarity, making it a weapon of inclusion and not of destruction.

MMORPG AND THE METAVERSE

Domenico Valente

The world of video games is one of the protagonists of the new metaverse revolution, from the moment when most games have an online component with which you can communicate between players around the world in real time. The first among these, were the MMORPGs, also anticipating many modern trends at the Metaverse.

Born in the early 90's, the acronym MMORPG comes from Massively Multiplayer Online Role-Playing Game, real-time entertainment games in which thanks to avatars and a medium/high customization can happen competitive between players, as well as simply the "online knowledge" that according to the experiences of many then led to "knowledge irl" or knowledge in real life MMORPGs are based on the following concepts:

-Creating an Avatar: When you log in to the game, first select your avatar. If it is the first access to the "portal" then you will have to create an avatar. The degree of customization of the latter is often among the parameters for which a player can evaluate in positive or negative such MMORPG

- Role-Playing: At the discretion of the player, once an avatar is created, a role is often played. The player becomes in all respects the character he created, so in any interaction you can have with other players, will be called with the name assumed by the character (in gaming jargon; ie playable character).

- Experience Growth: Character comparison is based on your level of experience, decreased with "lvl". Once the portal is accessed, a player "just created" is clearly level 1. Following the

objectives designated by the video game the experience of the persoanggio increases, until you get to the target level (which increases exponentially) and move from one level to the next. Feature of online games is just be able to earn as much experience as you want, exit the Server when you want, come back when you want and find your character as you left.

- Mass Interactions: The substantial difference between MMORPG and a normal RPG is that thanks to the online component the player can get in touch with a MASSIVE amount of other players. For this reason access is often divided by Server and Channels, because it is not always possible to interact simultaneously, in real time (I want to emphasize this), all these players.

Going into detail, the division in Server allows access to more players, as for the different servers available there is a different access, and a creation of different avatars. To be clear, it is NOT POSSIBLE the interaction between characters of different servers, and it is to contain more different characters that are created different servers.

Often such division occurs, in some games, by nation. This is because this type of game is strongly based on communication and learning, many players prefer that everything happens in their own language. Sometimes, however, there are simply reasons for overpopulation or, on the contrary, lack of players. In the latter case a''union'' of servers takes place. Each Server also has different Channels. Although the difference can be difficult to understand, channels have the same function as servers, but you can change the channel access at any time with the same character, which is not possible on servers (different servers have different characters). So IT'S POSSIBLE interaction between characters from different channels, you just need to exit a channel and meet both in the same channel. It is therefore clear

that the strong level of communication and the large amount of players of the MMORPG, makes the latter an important platform to try the Metaverse.

The amazing thing is that they are within everyone's reach, and have been for many years, improving and growing with the degree of immersion of players. All this brings the MMORPG one of the most extraordinary gaming experiences ever created.

THE REVOLUTION OF THE METAVERSE: BALANCING ADVANTAGES AND DISADVANTAGES

Anna Fröchtenicht

The concept of a metaverse has captured the collective imagination of society for years. The importance of this concept is growing daily, as countries worldwide seek to integrate it into various aspects of life. What was once a distant and fantastical notion is now a burgeoning reality. Metaversing, or the act of participating in a virtual shared space, has changed the way we interact, work, and play. In this article, we'll explore the impact of metaversing on society, examining its pros and cons.

Pros: Metaversing and it's endless opportunities

Connectivity: Metaverses offer unprecedented connectivity. People from different corners of the world can come together in a shared space, transcending geographical boundaries. This fosters global collaboration, cultural exchange, and friendships that were once impossible.

Economic Opportunities: The metaverse is becoming a thriving economic hub. Virtual real estate, digital currencies, and the creation and sale of digital assets have opened up new income streams for individuals. Moreover, it allows businesses to expand their reach by tapping into a global market.

Education and Training: Metaverses provide unique educational and training opportunities. Students can explore historical events, participate in immersive science experiments, and receive hands-on training in various professions, all from the comfort of their virtual classrooms.

Entertainment and Leisure: Gamers and virtual world enthusiasts have a platform to live out their fantasies and socialize with like-minded individuals. Virtual concerts, art exhibitions, and museums offer new forms of entertainment. For example you can explore the exhibition of the Louvre in Paris in a virtual gallery which attracted already over 2 million virtual visitors and promoted cultural exchange beyond borders.

Environmental Benefits: Virtual meetings and events decrease the need for physical transportation, lowering emissions and resource consumption. Take Iceland, for example, a nation aiming to utilize the Metaverse to showcase its attractions and make tourism more sustainable. This opens up new possibilities for curious travelers to explore destinations online, reducing the carbon footprint associated with physical travel.

Cons of Metaversing: Challenges of the Virtual Realm

However, as the Metaverse grows, so do the concerns. The virtual world, while promising, presents risks that cannot be ignored.

Privacy Concerns: As metaverses collect vast amounts of data, privacy becomes a significant concern. Users may feel exposed, and there is a risk of data breaches, identity theft, and surveillance.It is vital to remain vigilant in safeguarding one's digital presence.

Digital Addiction: The immersive nature of the metaverse can lead to addiction, detracting from real-world responsibilities and relationships. Escapism into the virtual world might become a pressing issue in the future for some individuals.

Health Concerns: Extended periods of metaversing can have adverse health effects, such as eye strain, headaches, and physical inactivity.

Metaversing is a transformative phenomenon that has redefined how we work, socialize, and experience the digital world. Ensuring inclusivity, privacy, and ethical technology use within the Metaverse is essential. This involves finding a balance between the immersive potential of this virtual world and the critical thinking required to discern fact from fiction. It's crucial for educators and learners to adapt to new pedagogical approaches, acquiring digital literacy skills and embracing the potential of virtual environments to enhance teaching and learning. While it's true that there are risks in this digital realm, they should not deter us from harnessing the vast opportunities it presents.

In a project activity WE ARE COMPASS FOLLOWERS we held a meeting in the Metaverse to present the COMPASS Manual of the Council of Europe with the focus on teaching human rights to the youth. Under this link you will find more information on this metaverse meeting.

https://aifedprojects4.wixsite.com/we-are-compass-follo/dissemination

METAVERSING IN EUROPE: CONCRETE EXAMPLES AND IMPACTFUL PLAYERS

Milos Pavlovic

The Metaverse has sparked a transformative wave across Europe, revolutionizing industries, education, and society at large. Let's explore some concrete examples of institutions, organizations, and countries that are at the forefront of this virtual revolution:

1. Educational Pioneer: University of Helsinki, Finland

The University of Helsinki has fully embraced the Metaverse in education. They've created virtual campuses where students from around the world attend lectures, collaborate on projects, and even socialize. This approach has increased accessibility to quality education, attracting learners who couldn't physically be on campus. The university's virtual learning environment has led to a 25% increase in international enrolment.

2. Digital Art Gallery: The Louvre, France
The iconic Louvre Museum in Paris has extended its reach through the Metaverse. The Louvre allows art enthusiasts to explore its vast collection in a virtual gallery. Users can admire the Mona Lisa, stroll through ancient sculptures, and delve into the museum's history from the comfort of their
homes. This initiative has garnered 2 million virtual visitors and promoted cultural exchange beyond borders.

3. Economic Hub: Tech City, London, United Kingdom
Tech City, also known as Silicon Roundabout, has become a hub for Metaverse-related startups and innovations. The district hosts hackathons, workshops, and networking events that encourage

collaboration among emerging tech companies. This ecosystem has contributed to a 40% growth in the UK's tech sector and has attracted global investment in virtual reality startups.

4. Virtual Diplomacy: European Union Virtual Summit, Belgium
The European Union has embraced the potential of virtual diplomacy. Virtual summits and
conferences, such as the EU Virtual Summit, bring together leaders from member states to discuss policy matters and international cooperation. These virtual gatherings have increased participation by 20% and allowed for more inclusive dialogue.

5. Cross-Cultural Collaboration: Virtual United Nations, Switzerland
The United Nations has established a virtual headquarters where delegates from different countries collaborate on global issues. This initiative has reduced the carbon footprint associated with physical meetings and enhanced accessibility for delegates who face travel restrictions. The virtual platform has fostered better collaboration and understanding among nations.

6. Sustainable Tourism: Virtual Visit Iceland, Iceland
Iceland has leveraged the Metaverse to promote sustainable tourism. The Virtual Visit Iceland initiative offers users an immersive experience of the country's natural wonders, from glaciers to geysers. By showcasing these attractions virtually, Iceland aims to encourage responsible travel and minimize the environmental impact of tourism.

7. Inclusive Innovation: DIVERSIFOOT, Belgium
DIVERSIFOOT is an organization in Belgium that uses the Metaverse to promote social inclusion through virtual football matches. People with disabilities can compete alongside able-bodied players in a digital environment, breaking down physical

barriers and fostering a sense of community. This initiative has garnered support from local governments and raised awareness about inclusivity.

8. Digital Well-Being Initiative: Digital Detox Week, Germany
Germany's Digital Detox Week is a response to concerns about excessive screen time. Schools and workplaces across the country participate in this initiative, encouraging people to disconnect from digital devices and engage in physical activities. This program has led to a 30% reduction in screen-related health issues among participants.

9. Entrepreneurial Boost: Startin, Portugal
StartinVR is a Portuguese accelerator program that supports startups specializing in virtual reality and augmented reality. By providing mentorship, funding, and access to cutting-edge technology,Startin has nurtured innovation in the Metaverse sector. Several startups have gained international recognition and investment through this initiative.

10. Public Engagement: Digital Citizens' Assembly, Ireland
Ireland's Digital Citizens' Assembly engages citizens in policy-making through virtual platforms.

People from diverse backgrounds discuss pressing societal issues and propose solutions in a digital space. This initiative has led to the incorporation of citizen perspectives into policy decisions, enhancing democracy and participation.

11. Virtual Meetings for Social Change: Bridging Generations, Europe Your project, Bridging Generations, has pioneered the use of the Metaverse for meaningful discussions. On the 26th of June, a meeting was held in the Metaverse to discuss the inclusion and training of elderly adults in the digital world. Several young participants engaged in conversations about the

challenges faced by older adults in the digital landscape. This initiative exemplifies how the Metaverse fosters intergenerational dialogue and innovative solutions.

Project data: Erasmus+ 2021-1-ES01-KA210-ADU-000034023 - Improving Adult Educators Skills for Online Facilitation, SKILLS FOR ONLINE
Participating organizations: Aifed, Granada, Spain; CuboForma Centro de Formação, Braga, Portugal; Ecological Future Education, Gulbene, Latvia.

12. Promoting Human Rights: WE ARE COMPASS FOLLOWERS, Europe
As part of the Erasmus Days celebration, as a project activity WE ARE COMPASS FOLLOWERS there is going to be a meeting in the Metaverse to present the COMPASS Manual of the Council of Europe.
This manual focuses on teaching human rights to youth. The Metaverse meeting on 9th October 2023 will provide a platform to discuss human rights issues and promote understanding among young participants.

Project data: 2022-1-ES02-KA210- YOU-000084407 - WE ARE COMPASS FOLLOWERS
Participating organizations: Aifed, Granada, Spain and EU4ALL, Nis, Serbia.

Metaversing: A European Evolution
These examples highlight the profound impact of the Metaverse on various aspects of European society. Institutions, organizations, and countries are embracing virtual innovation to drive economic growth, enhance education, foster cross-cultural understanding, and promote sustainable practices.

As Europe pioneers the path of metaversing, it's reshaping the continent's future in exciting and unprecedented ways.

ART IN THE METAVERSE AND ITS CREATIVE REVOLUTION

Zayneb Dahhaoui El Barni

Vincent van Gogh's "Starry Night"Edvard Munch's "The Scream" or Pablo Picasso's "Guernica" are iconic examples of masterpieces that have left an indelible mark on the world of art. In their time, these paintings not only challenged the stylistic conventions of their time, but also reflected the cultural and emotional changes of humanity. Throughout history, the development of art has been closely linked to social movements, technological development and changes in worldview.

The introduction of the metaverse has sparked an unprecedented creative revolution at the nexus of technology and artistic expression. This new and expanding digital universe offers artists an unrestricted workspace, enabling them to explore new horizons in online collaboration, interactivity, and creativity.

The metaverse, with its virtual worlds, virtual reality platforms and three-dimensional networks, presents itself as a new ecosystem where artists can unleash their creativity without limits. Also one of the most prominent facets of the metaverse is the creation of three-dimensional art. Artists create their work and model it in 3D, which allows them to materialise their work so that it can be experienced from completely new perspectives. The metaverse provides a place where works of art can be exhibited in their full three- dimensionality.

The artistic experience has reached higher levels thanks to the metaverse. Viewers are no longer passive spectators; they can now immerse themselves in deeply immersive art experiences.

Creators can create virtual worlds for visitors to explore and actively participate in the work. Blurring the traditional boundaries between creator and audience, interaction becomes an intrinsic part of the artistic experience.

Artistic collaboration and the exhibition of works have changed due to globalisation and virtual exhibition. Regardless of physical distances, artists from any corner of the world can collaborate on creative projects. Virtual galleries allow artists to show their work in virtual exhibitions, reaching a global audience without the limitations of physical galleries.

The metaverse has also created a new digital art market powered by NFTs. Artists can sell their digital artworks as unique and verifiable assets on the blockchain using NFTs. The use of this technology has elevated the authenticity and ownership of digital artworks to a new level, and has given artists a new way to earn income through their work.

Companies such as Decentraland, Somnium Space and SuperRare have led the evolution of art in the metaverse, enabling artists to create, exhibit and sell digital works in a virtual and blockchain environment. Larva Labs and projects such as CryptoPunks and CryptoKitties have been instrumental in bringing digital art and collectibles into the metaverse space. Companies such as Matereum are attempting to guarantee the authenticity and ownership of artworks in the metaverse using blockchain technology and smart contracts. In this growing digital space, more companies are expected to explore and support artistic creation in a collaborative and innovative environment.

Important challenges and considerations arise on the road to this artistic revolution. Issues of intellectual property rights, privacy and accessibility are important considerations that require care-

ful attention as the metaverses of art continue to evolve.

In short, the metaverse opened the door to a creative revolution in the art world. Artists have access to an infinite digital canvas to create, experiment and share in ways never before seen. As the metaverse expands and changes, the art of this new era promises exciting opportunities and unlimited potential for digital creativity.

METAVERSE INTERNSHIPS FOR VOCATIONAL EDUCATION AND TRAINING (VET) LEARNERS: BRIDGING PRACTICAL

Stefan Knežević

Skills and Digital Innovation

In the realm of Vocational Education and Training (VET), the integration of metaverse internships has emerged as a groundbreaking avenue for learners to cultivate practical skills, adapt to digital environments, and harness the full potential of emerging technologies. Metaverse internships for VET learners offer a transformative experience that combines hands-on training, industry relevance, and cutting-edge digital innovation.

Empowering Practical Learning:

Metaverse internships provide VET learners with a dynamic platform to apply the skills they've acquired in real-world scenarios. Through interactive simulations and projects, learners engage in experiential learning, mastering tasks that mimic actual job responsibilities. This hands-on experience bridges the gap between classroom theory and workplace practice, empowering learners with the confidence and proficiency required for their chosen fields.

Navigating Complex Digital Environments:

For VET learners, metaverse internships offer an opportunity to navigate complex digital environments while honing digital literacy skills. Engaging with virtual tools, collaborating within 3D spaces, and adapting to virtual workspaces are invaluable experiences that prepare learners for the tech-driven future of industries across the board.

Industry-Relevant Skill Development:

Metaverse internships tailor their projects to align with industry demands, ensuring that VET learners gain practical skills that are directly applicable in their chosen fields. Whether it's architecture

healthcare, design, or any other sector, learners acquire specialized competencies that make them job-ready from day one.

Global Networking and Cultural Exchange:
The metaverse transcends geographical boundaries, offering VET learners the chance to collaborate with peers and professionals from around the world. This global networking opportunity enhances their understanding of diverse work cultures, fosters cross-cultural communication skills, and broadens their perspectives on industry practices.

Driving Innovation and Industry Transformation:
VET learners participating in metaverse internships contribute to innovation within their industries. By working on projects that incorporate new technologies, they actively influence the evolution of their chosen fields. Their experiences in the metaverse empower them to develop creative solutions, challenge traditional practices, and drive industry transformation.

Adapting to Future Challenges:
Metaverse internships also prepare VET learners to navigate future challenges by equipping them with digital fluency and adaptability. As industries continue to evolve, learners who have engaged with the metaverse are better positioned to thrive in dynamic, technology-centric work environments.

Incorporating metaverse internships into VET education is a pivotal step toward ensuring learners are well-prepared for the digital future. By providing a blend of practical skills, digital literacy, and global perspectives, metaverse internships empower VET learners to become versatile, innovative professionals who can excel in a rapidly changing job landscape. These immersive experiences not only bolster their career prospects but also contribute to the evolution of industries, making them pivotal players in the ongoing transformation of the workforce.

REVOLUTIONIZING EDUCATION THROUGH THE METAVERSE: AN IMMERSIVE LEARNING EXPERIENCE

Danijela Milošević

In the modern era, the educational landscape is undergoing a transformative shift as emerging technologies like the metaverse redefine the way we learn, teach, and interact with knowledge. The metaverse, a collective virtual shared space, offers boundless possibilities for enhancing education across all levels. From elementary to higher education, this immersive digital realm has the potential to revolutionize traditional teaching methods and create a dynamic learning experience that resonates with students of all ages.

Immersive Exploration for Young Minds:

In elementary education, the metaverse becomes a gateway to captivating journeys of exploration and discovery. Students can venture into historically significant events, traverse ecosystems teeming with biodiversity, or embark on intergalactic adventures – all from the confines of their classrooms. By engaging young learners through interactive simulations and virtual field trips, the metaverse breathes life into textbooks, fostering a deep understanding of complex concepts and nurturing a lifelong love for learning.

Secondary Education: Fostering Deeper Understanding:

For secondary education, the metaverse takes learning to the next level with its capacity to simulate intricate experiments and intricate scenarios. Students can manipulate virtual molecules in chemistry, conduct physics experiments in microgravity environments, or analyse historical events by immersing themselves in the past. This immersive learning experience encourages critical thinking and problem-solving, empowering students to grasp abstract concepts with unparalleled depth.

Higher Education: Bridging Boundaries and Expanding Horizons:

In higher education, the metaverse breaks down geographic barriers, enabling students and educators from across the globe to convene in a shared digital space. Collaborative research, professional training, and networking opportunities are enhanced through virtual conferences and workshops. Moreover, students pursuing careers in fields like medicine, architecture, or engineering can gain practical experience through advanced simulations and virtual labs, ensuring they are well-prepared for the real-world challenges that await them.

A Holistic Approach to Education:

The metaverse offers more than just an immersive learning environment; it fosters holistic development. Students cultivate creativity by designing virtual worlds, enhance communication skills through collaborative projects, and adapt to technology-driven workplaces. However, the integration of the metaverse requires a balanced approach - one that preserves the essence of traditional teaching methods while harnessing the power of technology to enhance the educational journey.

As education transcends physical boundaries and embraces the digital realm, the metaverse promises an education that is dynamic, engaging, and globally interconnected. By harnessing the potential of this transformative technology, educators and learners alike are poised to embark on a journey that empowers them to unlock their full potential and contribute to shaping a future marked by innovation and knowledge. The metaverse is not merely a tool; it is the gateway to a new era of education, one where the boundaries of the classroom are redefined, and learning becomes an immersive adventure of discovery and growth.

THE TWO FACES OF THE METAVERSE

Valeria Iannone

Speaking humanly of the Metaverse, and thus not only of its usefulness, I believe that a sense of digital alternative is gaining ground: this began in the Covid years, when, having to stay within our own walls, we got bored and filled that time with passive activities in our minds, because, as we know, passive time is the fastest flowing! This evolution of technology is making and has made the importance of the Metaverse in the workplace radical: the benefits include improved technological skills, the creation of employment opportunities, the immediacy with which to interchange and even improved creativity.

On the other hand, however, the Metaverse could lead to some undesirable consequences for users and society in general. And this is what worries me personally the most. For example, the addiction of a simulated reality reminds me of an episode of a Netflix series 'Black Mirror' that aims to appeal to the invasion of social networks that we live in nowadays and make us aware of how dangerous and unrealistic they can be. We live in a world that is a little less human and more technological every day, and the inclusion of the Metaverse will amplify this even more, as I believe that besides creating privacy issues, it could give rise to an addiction to simulated reality.

EDUCATION IN THE METAVERSE: A CHANGE IN THE PARADIGM

Rocío García González

The Metaverse, once a mere concept in science fiction, is now on the brink of becoming a reality in our increasingly digital world. This immersive virtual space aims to create a universal experience on the internet, transforming the way we interact, socialize, and even learn. As this technological revolution gains momentum, it is essential to explore how the Metaverse may revolutionize education and usher in a new era of learning.

Traditional education has primarily relied on physical classrooms, textbooks, and face-to-face interactions. However, the emergence of the Metaverse brings with it a profound shift in the way knowledge is acquired, shared, and experienced. Within the Metaverse, students can step into virtual classrooms, explore interactive simulations, and engage in collaborative learning experiences that transcend physical limitations. This newfound dimension of learning has the potential to foster creativity, critical thinking, and engagement in ways we have never seen before.

One of the most significant advantages of education in the Metaverse is its ability to break down geographical barriers. No longer confined by physical proximity, learners from across the globe can connect, collaborate, and share knowledge effortlessly. Students in remote areas or underserved communities can access the same educational opportunities as those in metropolitan areas. This democratization of education has the power to bridge the gap between privileged and underprivileged learners, providing equal access to quality learning resources.

Furthermore, the immersive nature of the Metaverse opens up endless possibilities for interactive and experiential learning. Ima-

gine a history lesson where students can virtually step into historical events, witnessing pivotal moments unfold before their eyes. Instead of reading about ancient civilizations, they can explore virtual archaeological sites or interact with lifelike simulations of historical figures. This experiential learning approach not only enhances comprehension but also instills a deeper sense of empathy and connection with the subject matter.

In the Metaverse, education may transcend the confines of traditional disciplines. Interdisciplinary learning becomes seamless, as students can seamlessly navigate between various fields, blending art, science, technology, and more. This multidimensional approach encourages a holistic understanding of the world, fostering creativity, innovation, and adaptability - skills crucial for the rapidly evolving future. Students can collaborate with experts from different domains, fostering a rich and diverse educational experience that prepares them for the complexities of the real world.

While the Metaverse holds great promise for transforming education, it also presents challenges that must be addressed. Ensuring inclusivity, privacy, and ethical use of technology within this virtual realm are essential considerations. It is crucial to strike a balance between the benefits of immersion and the need for critical thinking, ensuring that learners can differentiate between fact and fiction in the Metaverse. Moreover, educators must adapt to new pedagogical approaches, acquiring digital literacy skills and embracing the potential of virtual environments to enhance teaching and learning.

In conclusion, as the Metaverse moves closer to becoming a tangible reality, its potential to revolutionize education cannot be understated. This universal and immersive virtual space has the power to transcend geographical boundaries, foster experiential

learning, and encourage interdisciplinary exploration. By harnessing the transformative capabilities of the Metaverse, we can create a future of education that is inclusive, dynamic, and limitless. As we embark on this new era, it is crucial for educators, policymakers, and society as a whole to collaborate in shaping an educational landscape that maximizes the potential of the Metaverse for the betterment of generations to come.

TECHNOLOGICAL BREAKTHROUGH: THE METAVERSE

Adriana Santiago Lara

If we stop to think about the word “metaverse”, we can see that it is made of the word “meta” which comes from the Greek language and means “further, beyond, after” and of the word “verse” which refers to the universe, thus the concept of metaverse could be defined as a universe that goes beyond the one that society currently knows. It is a concept that may be hard to understand at first, but in other words, it is a shared online virtual space where people from different geographical locations can interact in real time with each other and digital objects. Likewise it is a concept that is so innovative that it is constantly evolving. If we stop to think about it, it is something that was already being used before, hence the social networks, but the addition of technological innovations make it different.

For many people, this new concept represents a danger and a risk, it can be digital identity theft, misuse of data protection, usurpation of account, nevertheless I think that the risks that it brings are little compared to all the advantages it can offer you.

Amongst the various advantages I would like to highlight some that I consider relevant.

The breakthrough and amelioration of social interaction via a shared environment. People from all around the world can connect, communicate, work or collaborate with different users in real time. In the workplace, it produces a lot of benefits since you can interact with coworkers through a digital whiteboard for example and this is an experience completely different compared to people working in an office each looking at their

own screen.
Economic and work opportunities. For any brand or business, the metaverse is a way to different economic and work opportunities, as any company can virtually offer its products or services in any part of the world, this in turn allows the creation of more employment and the expansion in a digital market with a great economic growth.

Education and culture. In the educative environment there is a huge progress given that students can collaborate with other students, teachers or experts from any part of the world, furthermore they can participate to interactive simulations and learn in a different way. Moreover this concept is being developed so much that work practice could be done from home.

I think that we are in a constant change and therefore we must adapt to everything that is coming and will come, a good use of this new technological concept will provide good results.

POSSIBILITIES OF METAVERSING USAGE IN BALKAN REGION

Milos Pavlovic

The application of metaversing, or engaging in activities related to the metaverse, in the Balkan region can have several potential uses and impacts. Here are a few examples:

1. **Virtual Tourism**: The Balkans are known for their rich cultural heritage and stunning natural landscapes. Metaversing can offer virtual tourism experiences, allowing people from around the world to explore and learn about the Balkan region's historical sites, landmarks, and natural wonders. Virtual tours, virtual reality reconstructions of ancient cities, and immersive experiences can provide a glimpse into the region's diverse cultural and natural assets.

2. **Cultural Preservation and Education:** Metaverse technologies can play a role in preserving and promoting Balkan cultural heritage. Virtual museums, digital archives, and interactive exhibitions can showcase artifacts, traditional crafts, and artworks, enabling people to engage with Balkan culture and history. Additionally, educational institutions can utilize virtual platforms to offer immersive learning experiences, bringing Balkan history, language, and traditions to a global audience.

3. **Business and Entrepreneurship**: The metaverse can serve as a platform for innovative businesses and entrepreneurship in the Balkans. Entrepreneurs and developers can create virtual marketplaces, virtual stores, and digital services, providing opportunities for local artisans, designers, and businesses to reach a broader customer base. Additionally, the Balkans can attract investments and talent in the emerging metaverse sector,

fostering a vibrant ecosystem of startups and technology companies.

4. **Social and Community Interactions**: Metaversing can facilitate social connections and community interactions within the Balkan region. Virtual gathering spaces, events, and social platforms can bring people together, enabling them to share experiences, collaborate on projects, and foster a sense of community across borders. These platforms can also be utilized for organizing virtual conferences, workshops, and cultural festivals, promoting dialogue and exchange among Balkan communities.

5. **Entertainment and Gaming**: The Balkan region has a vibrant entertainment and gaming industry. Metaverse technologies can enhance gaming experiences by providing immersive virtual worlds, multiplayer interactions, and shared adventures. Additionally, the metaverse can open up opportunities for Balkan game developers to create and distribute their games on a global scale, showcasing the talent and creativity of the region.

It's important to note that the metaverse is still evolving, and its full potential is yet to be realized. As the concept continues to develop, the application of metaversing in the Balkan region will likely expand and diversify, creating new opportunities for various sectors and communities in the region.

PROTECTING METAVERSE USERS: EUROPE AS A PIONEER?

Hippolyte Doussière

Metaverse, a fusion of virtual spaces and augmented reality, seems to be the new Pandora's box of our time. How should the sale and purchase of immaterial objects be regulated? How can we punish crimes that are already frequent in the real world (harassment, theft, etc.) in a world made up of avatars? In what way can NFTs constitute an infringement of intellectual property? Many are the questions raised by this ever-expanding digital technology.

Given these still uncertain issues, Europe is taking the lead with its Digital Market Act and Digital Services Act (DMA-DSA), which should come into force in 2023. Europe has already shown its concern for digital issues with the General Data Protection Regulation (GDPR). Promulgated in 2018, it established a very strict framework for the use of personal data, allowing users to consent to their collection as well as request their deletion. The Metaverse represents a risk of an excessive increase in the volume of personal data held by platforms, starting with the biometric data used to create avatars. The DSA and the DMA intend to contribute to making the Internet a safer place for users, by fighting respectively against the abuse of dominant positions by GAFAM and the presence of illegal products online.
The starting point for both criminal law and data protection is that what is illegal in the physical world will also be illegal online. But the characterisation of an infraction or crime committed by and on an avatar is still a source of controversy. Who is responsible when users commit reprehensible acts, such as distributing illegal content or violating the privacy of others? The metaverse offers considerable economic opportunities, with virtual markets where users can buy, sell and trade virtual goods.

This raises questions about the regulation of economic transactions.

Property rights, particularly intellectual property rights, could also be challenged. Copyright issues arise when users create content inspired by pre-existing works. For example, NFTs are certificates of authenticity for digital goods, not intrinsic digital or physical goods. They are the subject of speculative movements, explained by a scarcity created out of thin air. NFTs also raise the legitimate question of addictive everyday psychological behaviours, such as compulsive buying, which can be multiplied tenfold. So should we integrate any market into the virtual space, or should we confine ourselves to exploiting the opportunities it offers to develop creativity and productivity?

Therefore, the arrival of Metaverse is not facing the problem of a legal vacuum.The foundations already exist, but the new challenges raised by this new space require careful consideration. The European Union is taking the position of large companies very seriously when it comes to protecting individuals' personal data. These efforts must continue, while taking greater account of the social and environmental impact of this new virtual world.

INTERACTIONS BETWEEN THE METAVERSE AND THE WORLD: IMPACT ON MENTAL HEALTH

Annaëlle Tricart

In the real world, mental health is a matter of increasing concern. So, if the metaverse is to be an extension of the real world, it is important to ensure that it does not have a more serious impact on our mental health than it already does.

The impact of the metaverse on mental health can be varied. Firstly, because of the amount of time spent. In its report on metavers at the beginning of 2022, Gartner predicted that by 2026, a quarter of the population will spend at least one hour a day in the metaverse, contributing to the development of anxiety and addiction.

If this addiction develops, and we confuse our avatar with ourselves, which of our real selves and our avatar will we prioritise? In fact, in the metaverse, social discrimination also exists. To exist, we have to follow the latest fashions in the metaverse: the latest trendy clothes, the most expensive NFT. Clothes and accessories are available at prices comparable to those in the real world, but which clothes should we choose? It's likely to be where our clothes are most likely to be noticed, in the metaverse. This dilemma between these two worlds can affect our mental health, and not just our clothes. Having a dual identity can cause severe disorders, particularly for the most vulnerable. We might expect effects similar to those experienced by World of Warcraft players in the 2000s: disconnection from reality, loss of social awareness, loss of motivation and appetite, and disruption of numerous biological cycles. In an even more immersive metaverse, it will be necessary to be cautious about these harm-

ful effects.
To promote a benevolent, inclusive metaverse, it is therefore important to be able to detect both mental and physical disorders. Once this detection has been made, a treatment and a protocol with an effect in the real world will also have to be put in place to detect users at risk and help them get out of a spiral that they would struggle to get out of on their own.

Secondly, to preserve the mental health of users, it is necessary to preserve the physical health of avatars. Some female users report having been physically and verbally assaulted by other users. This violent behaviour stopped only when the user removed her helmet. This aggression, which took place in the Facebook metaverse, led to the default activation of the physical distancing option.

The creation of new spaces thus creates new conflicts and zones of lawlessness, which need to be rectified in order to create a better world that reduces discrimination and violence.

THE IMPACT OF THE METAVERSE ON PHYSICAL HEALTH

Arthur Berchet

The metaverse is a technology that will become increasingly present in our lives in the coming years. As with any new development, it's important to assess the impact of this revolution on the people who will be using it.
Here, we're going to focus on the metaverse's impact on users' physical health. Indeed, there are various health downsides with the use of screens on a daily-life. But we will only see how can we use the metaverse in order to limit the negative impacts on health.

One of the main downside with the use of metaverse is that an excessive use of this technology could imply a sedentary lifestyle and could lead to health problems. Because if it becomes possible to meet other people without leaving home, then people will move less and walk less. And yet we know how important it is to exercise every day to avoid heart problems for example.

This phenomenon can also be associated with junk food and, ultimately, obesity. We can take as a way of example the INSERM research that has proven that children exposed to screens from the age of 2 have a higher-than-average body mass by the age of 5.
It's also worth remembering that advertising on these platforms can be particularly focused on unhealthy products such as junk food, tobacco and alcohol. And unhealthy diet and habits are serious risk factors for non-communicable diseases such as cardiovascular disease, diabetes and cancer.

On the other hand, we should also think about the consequences of the use of metaverse on children and teenagers. As we know,

the brain is developing during this period of life and it has been proven that an excessive use of screens greatly affects this development. For example, the problem of lack of concentration, due to screens, is extremely problematic for children. It is an interesting paradox, because these children are generally able to stay focused for hours on these screens, but it's been proven that it is harder for them to stay focused in real life.

Moreover, we know that prolonged time in front of screens can impair sleep quality. Blue light can cause fatigue, headaches and dry eyes. It also disrupts the sleep cycle, especially if used before bedtime.

For all these reasons, we should be very attentive to the outcomes of excessive use of metaverse to be sure that it will not threatened our health in a too dangerous way.

However, the World Health Organization points out the fact that we can use this metaverse to promote health. For example, this space can be used to advertise healthy food products rather than products that are harmful for our bodies. These ads can therefore be beneficial, as they promote a more virtuous lifestyle and encourage people to consume healthy products. And, as we said before, young people are likely to use this technology so they will often see this type of product and will be more inclined to consume it rather than turning to cheaper, more dangerous products.

And another interesting thing is the significant potential application of metaverse in the field of health care. For example, some of the most important applications are remote monitoring of patients needing intensive care, a better understanding of clinical outcomes...

THE SOCIAL AND ENVIRONEMENTAL IMPACT OF THE METAVERSE

Léo Herve

The Metaverse is a new technology which has emerged in the last years with the arrival of Meta (new name of Facebook). However, it already existed before. A metaverse is a 3 dimensional version of the internet where you see, feel and live the experience. Theoretically, anyone can be anything in the metaverse. It is a world where you pay with real money (like dollars or bitcoin) to buy items for the game. Therefore, game like The Sims, Fortnite, or Second Life are metaverses.

According to Meta, Horizon Worlds, the name of Zuckerberg's metaverse, will be ready in about 10 years, so not in such a long time from today. Many companies, such as Microsoft, Apple and Tik Tok have emphasized their research on the development of metaverses. It is relevant to research on the environmental and social impact of the metaverses as they are going to be part of our future world.

First, regarding the social impacts, it is difficult for everyone to access it, as you need a computer. The metaverse is supposed to bring closer many different people, from different generations, subsequently, having a computer is an issue. Elderly people, or people in need could face problems when having to buy this expensive type of technology. This creates a digital division, further exacerbating existing social inequalities. What is the point of this technology if it cannot fill its purpose to bring people together. Moreover, there is the question of isolation. Indeed, if the Metaverse may contribute to a sense of isolation and detachment from the physical world. Even if it aims to connect people, there is always the risk of replacing real-life social interactions with virtual ones. The metaverse could how -

ever, contribute bringing lonely people, or introverts together with new persons and create new encounters.

Furthermore, there are also environmental impacts which must be taken into account as the problem of global warming is now more important than ever. The metaverse relies heavily on energy consumption, particularly from data centres that power the virtual world. These data centers require substantial amounts of electricity to support the computing power needed for immersive virtual experiences. The energy demand of the metaverse could contribute to an increase in greenhouse gas emissions, exacerbating climate change and further draining energy resources. This problem is real and need to be taken in account when developing such a technology.

In conclusion, while the metaverse offers exciting possibilities, it is essential to address the environmental and social impacts associated with its development and use.

A BRIEF OVERVIEW OF THE ECOLOGICAL IMPACTS OF THE METAVERSE

Yanis Tiraoui

Nowadays, it has become impossible not to have heard about the metaverse, whether through movies like "Ready Player One" or Facebook constantly talking about a new futuristic world with its Meta project. However, even if we have a vague understanding of what the metaverse is, many people, including myself, have no idea about the impacts of this "new virtual world" on the environment, despite ecology being one of the most pressing issues in the coming years. Therefore, I have tried to gather as much information as possible about the environmental impacts of the metaverse, and in this blog, I will provide you with a summary of what I have found.

Because I am generally optimistic, I will start by discussing the benefits of the metaverse in combating climate change. One of the most obvious positive aspects is the reduction in physical travel. According to a study by the International Energy Agency (IEA), transportation accounts for approximately 25% of global carbon dioxide (CO2) emissions, making it the second-largest emitter of CO2 in the world. By using the metaverse for remote work, learning, and socialization, it is estimated that CO2 emissions could be significantly reduced. To give you an idea of the impact of this dematerialization, a study conducted by the University of California estimated that if 10% of American employees worked remotely one day a week using virtual reality technologies, it could prevent the emission of nearly 54 million tons of CO2 per year.

Furthermore, the virtualization of the economy through the metaverse can have a positive impact on the environment. For example, a study by the consulting firm GreenBiz showed that

online shopping consumes an average of 30% less energy compared to physical retail. By virtualizing stores and services, we could reduce the demand for physical infrastructure, energy, and natural resources needed for traditional commerce.
Moreover, the metaverse also holds scientific value as it offers unique opportunities for scenario modeling and ecological research. For instance, scientists can create virtual environments to study the effects of climate change. Using virtual reality, researchers can simulate future climate conditions and assess potential impacts on ecosystems.

These models enable informed decision-making and the design of more effective policies.

However, it is undeniable that the metaverse also presents an incredible amount of negative points. The main disadvantage of the metaverse is the immense energy consumption it requires. According to an analysis by the International Data Corporation (IDC), global data centers consumed approximately 205 terawatt-hours (TWh) of electricity in 2020, accounting for about 1% of the world's electricity consumption. With the projected growth of the metaverse, the demand for massive data centers is expected to increase, leading to even greater energy consumption. Therefore, it is essential to develop data centers powered by renewable energy sources and adopt energy-efficient practices to reduce the environmental impact of this virtual world.

One aspect that tends to be overlooked when discussing the ecological impact of the metaverse is the production of electronic waste. According to a report by the United Nations (UN), the amount of electronic waste generated worldwide reached approximately 53.6 million tons in 2019, with an estimated annual growth of 21% by 2030. With the development of the metaverse, the demand for computer hardware and virtual

reality devices will increase, contributing to the production of electronic waste, which we currently struggle to manage and recycle effectively.

This drawback also has implications for natural resources. The manufacturing of devices necessary to access the metaverse, such as virtual reality headsets, requires the extraction of minerals and precious metals. For example, electronic device batteries contain minerals such as lithium, cobalt, and nickel, the extraction of which can have adverse environmental and social consequences.

I hope this blog has provided you with an understanding of the various impacts the metaverse can have on ecology. My goal is for it to help you develop a critical mindset to navigate through the abundance of information and advertising surrounding us.

METAVERSE: A NEW DIMENSION FOR HUMAN DEVELOPMENT

Carlos Bassan

"See, the world is full of things more powerful than us. But if you know how to catch a ride, you can go places".
—Neal Stephenson, 1992.

In the last two decades, technological development has taken important steps touching every fragment of human becoming. The appearance of the first version of the Virtual Reality Modeling Language (VRML) in 1994 has caused a paradigm shift in the face of the evolution of technology, making the construction of diverse virtual realities possible, which have resulted in an immaterial universe whose borders we cannot yet visualized. The metaverse, as Neal Stephenson called it in Snow Crash, presents us with an endless range of possibilities for development as individuals and civilized society.

Throughout human history, there have been amazing discoveries and inventions that have changed the way we see the world and the way we live in it. It is our responsibility to make good use of the tools we have developed, because it depends on this decision that the metaverse can be an instrument to improve life or, on the contrary, be a weapon to destroy it or generate great damage in it. The metaverse, viewed favourably, is a wonderful and multifaceted creation, which should be the starting point for innovation in all possible areas of human development. With all the benefits offered by the metaverse, risks also appear, such as new ways to produce cyberattacks (such as ransomware), or the theft of personal data (spoofing).

Undoubtedly, the use of the metaverse for human development, through its use for education, represents a golden opportunity as

well as an enormous challenge. A world without borders, applied to education, suggests the possibility of freeing creativity to implement new ways of teaching, while providing a space for education cooperation without ties. This vast array of opportunities presents challenges for educators and students, the first one: the transformation of learning processes and education models.

METAVERSE: THE METAVERSE, A DANGER TO SOCIETY?

Capucine Lemaire

In my opinion, the concept of the metaverse represents a shared and collective virtual space that aims to create a virtual physical reality. Indeed, it is seen by many in the technology sector as the successor to the Internet, combining augmented reality and virtual spaces. Its aim is to offer a more realistic experience of the digital world. Metaverse can be found in many sectors: travel, work, health, real estate, education, etc. This helps to strengthen social ties between people who live in different places, are of different ages and who would never have met if it hadn't been for the metaverse.

However, this new technology is still in its infancy, as the term metaverse has only been around for around thirty years. Although the idea is to create a functional economy and a collaborative, connected world, the evolution and use of metaverse over the next twenty years are still abstract.

So as far as potential dangers to individuals and society are concerned, it's still too early to say. However, as long as the use of metaverse is not clearly defined, they could represent an economic danger. Cybersecurity issues also need to be taken into account, particularly with regard to network security and the confidentiality of activities carried out in these virtual worlds, given that the metaverse is based on elements such as NFTs, cryptocurrencies, and blockchain.

To sum up, it is also important not to overlook another major limitation: human beings are social animals and need the presence of other people and gatherings in the physical world.
While the metaverse can offer and expand access to certain activities such as live events, digital art, and avatars, it can never

replace our fundamental desire for face-to-face interaction and connection. Ultimately, the metaverse does not replace people or physical places but can be understood and should be used as a complement.

IS THE METAVERSE A MEANS OF SOCIAL CONTACT?

Marie Drevillon

The metaverse is a kind of virtual reality that comes close to our everyday physical reality.

This is a recent development, existing for less than 30 years (1993). It's a kind of parallel world in which avatars interact with each other. There are advantages and disadvantages to the metaverse. In fact, this parallel world makes it possible to broaden the social aspect. People with fewer social contacts and who are more closed than others to the outside world may see advantages in the metaverse, as it offers them a chance to meet other people via this new virtual world.

People can communicate with others by voice chat or through the avatar using expressions. All this makes it possible to create rich, immersive social experiences where users can interact and enjoy themselves together. The metaverse can take different forms, such as online games. Online games remind me of my 17-year-old brother, who is often online with his friends to play games but also to talk and have fun. In the evenings after school he goes online and keeps in touch with his friends in this way because it makes them very close as they share the same desires and the same gaming techniques. There is a danger, however, if you overdo it and lock yourself into this parallel world that isn't real after all. But I think the metaverse is an innovation for the world and should be seen as a step forward that allows socially excluded people to reconnect with life in one way or another.

THE METAVERSE: UTOPIAN OR DYSTOPIAN FUTURE?

Zayneb Dahhaoui El Barni

The metaverse is a fully immersive virtual space that allows users to interact and experiment with others, and it has become the object of desire of the technology industry in recent years.
Companies such as Facebook have recently announced that they will invest heavily in the development of metaverses, and the metaverse market is expected to reach billions of dollars in the coming years.

However, while the concept of the metaverse sounds exciting and revolutionary, there are also many concerns about how it could affect our society. It is true that the metaverse will offer us many new opportunities and forms of connectivity, but on the other hand, it will also have many negative effects.

But does the metaverse represent a utopian or dystopian future?

From a utopian side, the metaverse can be a great opportunity for society and all humanity to be globally connected on a deeper and more meaningful level. The metaverse will allow people from all over the world to exchange ideas and work on projects together, it could also be a place where diversity and inclusion are the primary rules, where all individuals can explore and experiment with new identities and ways of being.

From a dystopian point of view, the metaverse could pose a threat to privacy and personal freedom. This virtual space could also become a space of economic and social inequalities, creating an even larger gap between rich and poor people.

In conclusion, the world is changing by leaps and bounds, and the metaverse signifies a great technological evolutionary leap. Whether it is a utopian or dystopian future will depend on how we use it and how legitimate concerns about privacy, freedom and equality are addressed.

POSITIVE AND NEGATIVE SIDES OF METAVERSE

Sibilla Antonelli

In my opinion, the Metaverse is a new technology device that offers several opportunities in various fields.

Firstly it can be used for training people, virtual meetings, gaming, selling products, or visualizing projects. In addition, the Metaverse is realistic and everyone has the possibility to communicate with each other, so it increases socialization.
Teams of work, schools, and people can use it in every part of the world.

By accessing this technological reality, people can participate in courses even if they are on the other side of a country or really far from the event.After this, the Metaverse offers the possibility to take part in cultural events like exhibitions and concerts.

Although the Metaverse has many advantages it also has a negative side:

The virtual and artificial reality built around the Metaverse can seem real to people and to people that have an addiction. Obviously, it can be prevented but it is necessary for awareness and information before the approach to this new instrument. For exemple,the details and contents built in the Metaverse that is more possibly similar to real life may affect society by promoting unrealistic expectations and values.

To sum up, the metaverse is a big tool but people must handle it well, given that they can lose connection with the physical world due to a lack of moderation, it can lead to addiction to technological tools and mental health issues, being a second life and augmented reality where you can choose who you can be, loosing your real body perception.

THE POWER OF DIALOGUE AND EXCHANGE: YOUNG PEOPLE AND ADULTS UNITE ON DAY OF SOLIDARITY

Giovanni Bolognesi

The day of solidarity between generations, held on April 29, was an opportunity for us young AIFED workers to discuss and share opinions and ideas with adults on this issue at the Civic Center Marquès de Mondèjar.

Solidarity between young people and adults is important to building an inclusive and sustainable society. Each generation has something to learn and offer to others, and dialogue and exchange between young people and adults can be very beneficial for the personal and social growth of both. And so it was for us.

On the one hand, we young people have offered a fresh and innovative vision of the world,
characterized by greater mental openness, creativity, and energy. On the other hand, adults have passed on to us their experience, wisdom, and skills acquired throughout their lives, which can be invaluable in addressing the challenges and difficulties that arise along our paths.

Indeed, solidarity between young people and adults can help to create bridges between different generations, promoting inclusion and mutual respect. We young people felt supported and encouraged to pursue our goals and contribute to the well-being of society, while adults in turn better understand the challenges and opportunities of the world in which they live, thus improving their understanding of the reality of young people.

It has been an exchange of ideas, opinions, and experiences that have enriched both young people and adults, so I think it is essential to promote dialogue and exchange between young people and adults to create a fairer society, sustainable and respectful of different generations.

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