WHITE PAPER
DIGITAL ETHICS IN THE METAVERSE

POSITION ON ETHICAL GUIDELINES

1. PREFACE

Dear Readers,

What exactly do we mean by "metaverse"? A clear, generally recognized definition is still lacking, while in the meantime, the underlying technologies are maturing. Shopping with friends, attending concerts, strolling through museums, or visiting the pyramids or the Amazon. Meeting colleagues and experts for presentations or discussions. Wherever we are, whether a few meters or thousands of kilometers apart, in the metaverse all this available immediately, at the touch of a button. All you need is a headset and an avatar.

Our future vision of the metaverse is simply another phase in the digital transformation. We are helping to shape this technological evolution as the basis for future generations' prosperity, and we want to be in the driving seat. We have been actively involved in developing these future technologies from the outset – for example, by ensuring that our networks offer the best connectivity for all future applications and by drawing up our own ethical guidelines.

This white paper will consider this very subject, outlining our position on ethics and values in the metaverse. Our values in the analog world should apply equally to the digital world. If human dignity is inviolable, then the same goes for digital dignity. We explore the opportunities afforded by megatrends like the metaverse – but we also consider the risks. For example, in 2018 we established guidelines on artificial intelligence.

We want to get everyone involved and help them participate in the digital world. Empathy, inclusion, and respect are of paramount importance. We are committed to giving everyone the opportunity to develop their skills in a virtual space.

You too can be a part of it. Together, we are helping to shape the metaverse as a place of inspiration, progress, and ethical conduct.

Kind regards

Timotheus Höttges

Timotheus Höttges, CEO of Deutsche Telekom AG

2. INTRODUCTION TO THE METAVERSE AND ETHICS

2.1. THE METAVERSE VISION

Because the metaverse is still at an early stage of development, a consistent, global definition is still lacking. This booklet adopts the concept proposed by Arunov and Bauer:

The metaverse should be ONE open, virtual ecosystem with a decentralized structure comprised of multiple virtual worlds. The metaverse should also be an interoperable, persistent ecosystem offering an interactive and immersive 3D space for an unlimited user capacity. The ultimate objective is to create a hyper-realistic, real-time ecosystem that converges with the (physical) world we live in.[1]

Our metaverse vision centers around the creation of an inclusive virtual ecosystem that is accessible to all. We firmly believe there will be an enduring interaction between the physical and the virtual world.

By open, we mean that everyone should be able to share in the diverse possibilities afforded by the metaverse. We distinguish between the active roles played by those who add value in the metaverse through creative processes, and the passive role played by consumers.

This open ecosystem is virtualized to deliver an immersive experience. By "immersive" we are referring to the technology that allows users to immerse themselves fully in a virtual world, with visual, auditory and haptic elements creating an interactive and realistic experience.

Interoperability enables the seamless use of different platforms by establishing uniform standards between them. Once interoperability is guaranteed, users can take all their information with them on journeys through the metaverse.

Persistence refers to a system's ability to preserve data so that it is not lost as a result of system errors or unforeseen events. In a persistent environment, users retain their data and actions even when they leave that environment.

The capability to deliver unlimited user capacity will be pivotal to the success of the metaverse ecosystem. Theoretically, the number of concurrently integrated users, experiences, and virtual worlds in the metaverse ecosystem should be limitless.

Hyperrealism is an artistic technique aimed at creating the most realistic representation possible. The idea is to create images that look deceptively real to the human eye, giving users the impression that the object is directly in front of us.

In a metaverse context, convergence refers to the seamless fusion between the physical world and the metaverse. The metaverse is seen as a fully immersive, interactive virtual ecosystem where the physical world and the metaverse interact and the boundaries between them become increasingly blurred.

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[1] Elmar Arunov & Stephan R. Bauer: Die Metaverse (R)evolution – Das Virtuelle Ökosystem, 2023

2.2. RELEVANCE OF THE METAVERSE FOR SOCIETY AND THE TELECOMMUNICATIONS INDUSTRY

The metaverse creates brand new avenues for society as a whole and the telecommunications industry specifically. We are very conscious that it offers a wealth of opportunities but also many challenges.

The metaverse will fundamentally change the way we interact, communicate, and share information. Its countless opportunities will affect multiple facets of our everyday lives.

Above all, the metaverse will facilitate a new form of social interaction in day-to-day living. Users can meet in a virtual environment, regardless of geographical location. Distance and travel restrictions are no longer a barrier. The metaverse provides a platform for shared activities, collaboration, and social connections that go beyond traditional boundaries.

It also creates new opportunities for education and learning. It may lead to the emergence of virtual schools and universities where students from all over the world are able to interact and learn from one another. Its immersive and interactive learning experiences can promote individual growth.

Of course, there are business opportunities too. Companies can build a virtual presence (stores) in which to showcase their products and services in a digital space. Companies must participate in the metaverse if they are to survive in the market, but also to promote their own brand and attract new customers and employees. This new space may be used for marketing, for new developments and productions, and for collaboration.

A host of new working conditions and options for performing different tasks will emerge. Flexible working from any location is an obvious example, or using the features of the metaverse to plan and develop new products.

One key application area for the telecommunications industry will be the design of a highly interconnected environment. The metaverse needs reliable, fast connectivity to facilitate seamless interaction between participants. Telecommunications companies like Deutsche Telekom will therefore play a critical role in delivering high-performance networks to meet the unprecedented demands of the metaverse.

The metaverse also calls for enhanced security and privacy measures. With users operating in a digital environment, their data and privacy merit particular protection. The onus is on telecommunications companies to help develop and implement security protocols and data protection standards to ensure a secure metaverse that is trusted by their users.

Ultimately, the metaverse will continue to evolve, and telecommunications companies must be innovative and flexible to keep pace with its changing requirements. This involves collaborating with other stakeholders such as the general public, academia, politicians and other sectors and companies in researching and developing new technologies.

2.3. DIGITAL ETHICS IN THE METAVERSE

Digital ethics

"Digital ethics deals with the evaluation of the impact generated by computer-driven infrastructures and the digital media on individuals and society."[2]

Put another way, the technology itself is neutral. Digital ethics involves gauging whether a particular technology is good or bad – and taking steps to ensure that it is used in compliance with legal and ethical requirements (e.g., in a company). Ethics ranks alongside law and justice as a key part of the norms governing our day-to-day actions.

Why should digital ethics concern us at Deutsche Telekom?

We design digital, smart technologies in a responsible way. Our top priorities are to safeguard sovereignty (human dignity, freedom, and autonomy) and support users. In 2018, Deutsche Telekom set out its own ethical guidelines for handling artificial intelligence, ensuring that our values from the analog world are carried over into the digital world.

In the metaverse, Deutsche Telekom is helping to build the infrastructure for digital worlds. As always, our people-centric technology is underpinned by our understanding of values. We believe technology should support people and their sovereignty, respect fundamental and human rights, personal rights, privacy and the right to informational self-determination, as well as freedom of expression and information, while also safeguarding mental health and spiritual well-being. We want everyone who journeys through the metaverse to be able to trust this virtual space, and will continue to campaign for this. Only in this way can we ensure that the metaverse's enormous potential is sustainably exploited.

Digital ethics and the metaverse[3]

Whenever we consider the opportunities offered by the metaverse, we must also be mindful of its ethical implications. The metaverse has the potential to fundamentally transform society by creating new social structures and identities, promoting creative collaboration, and facilitating access to global communities. At the same time, it also raises many questions relating to privacy, security and social inequality, to name a few.

Below, we provide a brief (and by no means exhaustive) overview of the ethical challenges associated with the metaverse. Some of these may overlap due to the way they are structured.

Creation of monopolies/lack of interoperability

Major digital corporations function as the gatekeepers of the new digital sphere, because their capital mass allowed them to stake their strategic claims early on and dictate the terms of participation in the metaverse. This is likely to lead to multiple self-contained platforms.

With these single-source platforms, users will find it difficult to switch to different providers because the interoperability needed to move freely between worlds is lacking.

It all hinges on the robustness of the systems

To protect users in the metaverse against cyberattacks, fraud, and the theft of virtual currencies or assets, system operators must have adequate technical, organizational, and human resources to comply with the relevant legislation and reflect the current state of the art.

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[2] See: "Künstliche Intelligenz – Wirtschaftliche Bedeutung, gesellschaftliche Herausforderungen, menschliche Verantwortung", editors: Bitkom e.V. and DFKI, Bitkom, Berlin 2017
[3] Below, we will concentrate on the ethical issues in the metaverse as a whole, while also being aware that the use of AI, NFTs, XR/VR, etc. as well as other issues such as data privacy, data security, and general IT robustness each pose their own sets of ethical challenges which may impact use of the metaverse.

Participation: Digital will become the new social

The massive potential of the metaverse throughout all spheres of life has the capacity to create or exacerbate digital differences within society. Not everyone has access to the same resources and opportunities to take advantage of the benefits and opportunities the metaverse has to offer.

That's why it is so important to do everything in our power to make the metaverse inclusive, with the same opportunities for all. Entry barriers in terms of access, affordability, and usability must be carefully thought out.

Fairness and transparency: Equal opportunities

The metaverse uses AI systems to control virtual characters or NPCs[4] . These AI systems must be non-discriminatory and non-manipulative, and ensure fair and equitable results without prejudice or discrimination on the basis of gender, race, religion, social status, or other protected traits.

The data records used to train systems in the metaverse should be diverse and representative to ensure the fair treatment of all users. To avoid discriminatory or manipulative results, it is important that the functionality and decision-making processes are transparent. Users should be able to understand how the AI systems work and what data is used.

Location-independence: Virtual action, real impacts

Intangible commodities such as virtual clothing, digital works of art or virtual real estate can be traded in the metaverse. While these commodities may have a value within the metaverse, they may be less tangible in the real world. This can pose financial risks when people invest real resources in virtual currencies and potentially suffer losses.

With regard to location-independence, virtual reality (VR) and remote communication create new possibilities but also challenges. Technical teams might receive instructions via VR headsets; doctors are able to operate on patients in a remote location. However, this also raises issues of safety, reliability, and ethics, highlighting the importance of careful handling. Two examples: On-site technicians are given incorrect instructions and suffer an electrical shock; a complication arises during an operation due to a delay in transmission.

Privacy, data protection, and data security requirements

Users' personal data is collected, transmitted, and processed for use in the metaverse. This might include master data (real names, email addresses, account information, etc. for user identification and account management), behavioral data (on users' activities, sites visited, interactions with others or transactions), location data (to provide personalized content based on location), communication data from chat functions (e.g. metadata from chat histories and details of participants), voice and video calls, and biometric data (such as facial or voice recognition to improve user authentication or create personalized avatars). While the nature and scope of data collection varies between platforms, there is a risk of misuse or inadequate protection – potentially with a gross invasion of privacy.

Well-being: Users' mental and physical health

The metaverse can be an immersive, captivating experience, immersing users in the virtual world by using experience-enhancing tools such as VR headsets or wearables. This can affect physical and mental well-being in the form of addiction, social isolation, or disorientation between the virtual and real worlds.

Constant access to virtual activities, games, social interactions, and reward systems may lead to excessive consumption. Users can become addicted to the constant stimulation and the quest for virtual success or recognition, causing them to neglect their real world. In some cases, the intense blending of virtual and real contexts may cause psychological stress, confusion, and identity conflicts. The aim is for the operators to create a healthy and balanced environment for their users by implementing active concepts (protection of minors, age and time restrictions, community rules, education, etc.).

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[4] "Non-Player Character". A class of characters used to lead the game.

Protecting young people and vulnerable groups – more important than ever

Because the metaverse is an immersive and interactive virtual environment, it is also exposed to potential threats such as cyberbullying, harassment, identity theft, and inappropriate content. Young people and vulnerable groups may be particularly susceptible because of their inexperience and inability to handle such risks.

Effective safeguards (such as age restrictions, content moderation, chaperones, clear distinction between the analog and virtual worlds, etc.), and public education on how the metaverse works are therefore crucial. to ensure that these groups are adequately protected in the metaverse and receive positive support.

Digital legacy: What happens when the analog person dies?

What should be done with an avatar when the person it belonged to dies? Should it be deleted according to the wishes of their relatives? Or should we create spaces where the avatars of the deceased live on forever – for example, if those avatars were trained using data from deceased individuals? If the avatar had assets, there is also the issue of digital ownership for their heirs.

Law enforcement in the metaverse: Digital usually means global

Interactions between platform and content operators, the virtual economy, devices, etc. create process chains and partnerships that are designed to provide users with optimal experiences. These services are usually delivered by different providers on a decentralized basis and across national borders. This leads to questions regarding the competent legal system and the assertion of claims.

In a decentralized metaverse, who decides? Do we need a metaverse police to prosecute offenders in the virtual world? How should users react to deviant virtual behavior? To whom can they report it? Who is responsible for what and where in the process chain?

We urgently need to address the global nature of the metaverse and the lack of uniform regulatory frameworks based on existing legislation.

Outlook: The desirable metaverse[5]

The metaverse requires all participants to act responsibly to ensure the autonomy of its users, e.g., in the event of critical decisions, liability for technical failure, or human error.

There is a pressing need to develop ethical and legal frameworks to ensure that the various metaverse technologies benefit all users.

The existing and planned EU regulations (the General Data Protection Regulation GDPR, the Digital Services Act, the Digital Markets Act, the AI Act, the Data Act, etc.) provide a good basis for this.

As with any new technology, a positive and desirable vision is essential for shaping a people-centric, user-friendly metaverse.

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[5] See also: Dr. Isabella Herrmann, Stiftung Zukunft Berlin: Demokratische Werte nach Europäischem Verständnis im Metaverse, Nov. 2022

3. THE DEVELOPMENT PROCESS OF THE METAVERSE GUIDELINES

3.1. INTERDISCIPLINARY APPROACH

This white paper was developed to have an inspiration how an ethical framework for a human-centric metaverse could look like.

Having formulated its vision of the metaverse, T-Labs (the Group's R&D unit) developed a concept to serve as a basic framework and provide guidance. The team also clustered these key guidelines into ethical categories to ensure that all relevant areas are covered. Three main categories were defined in order to organize information and ideas as well as to facilitate understanding and comparability and they are "Protection", "Security", and "Responsibility" (more on this in the next chapter).

In a subsequent step, the team conducted extensive research culminating in a long list of potential key guidelines for the metaverse that served as the starting point for further activities. This was followed by several rounds of discussions and evaluations on the topic of metaverse with internal experts.

On this basis, the team identified additional internal stakeholders in relevant disciplines: Experts in law and data privacy, group public regulatory affairs, corporate social responsibility, brand, corporate communications, T-Systems, compliance, and digital ethics, and metaverse enthusiasts from across the Group. The aim was to address as many subject areas as possible and gather extensive input.

At a follow-up community workshop, these experts discussed over 20 proposed ethical key guidelines for the metaverse and cut the long list down to 12.

External metaverse experts from the private sector, academia, and industry associations were invited to a follow-on workshop, where they shared valuable insights and recommendations. Attendees included Dr. Annette Doms (founding partner at xcircle & NFTory and lecturer at LMU Munich), Philipp A. Rauschnabel (Professor at the University of the Bundeswehr Munich), Andy Räder (media scientist at the University of Rostock), Sebastian Klöß (Head of Consumer Technology, AR/VR & Metaverse at the Bitkom digital association) and Carsten Rossi (Head of the Metaverse Society Lab at Bundesverband Digitale Wirtschaft (German Association for the Digital Economy, BVDW) and Managing Partner at Kammann Rossi GmbH).

Drawing on the results from these community and expert workshops, the team then adopted a final shortlist of nine key guidelines.

3.2. CATEGORIZATION

To enable an in-depth analysis of the ethical issues surrounding the metaverse, we began by identifying a number of superordinate categories and incorporated these into the key guidelines. This helped to create a clear structure and clarify the areas for specialization.
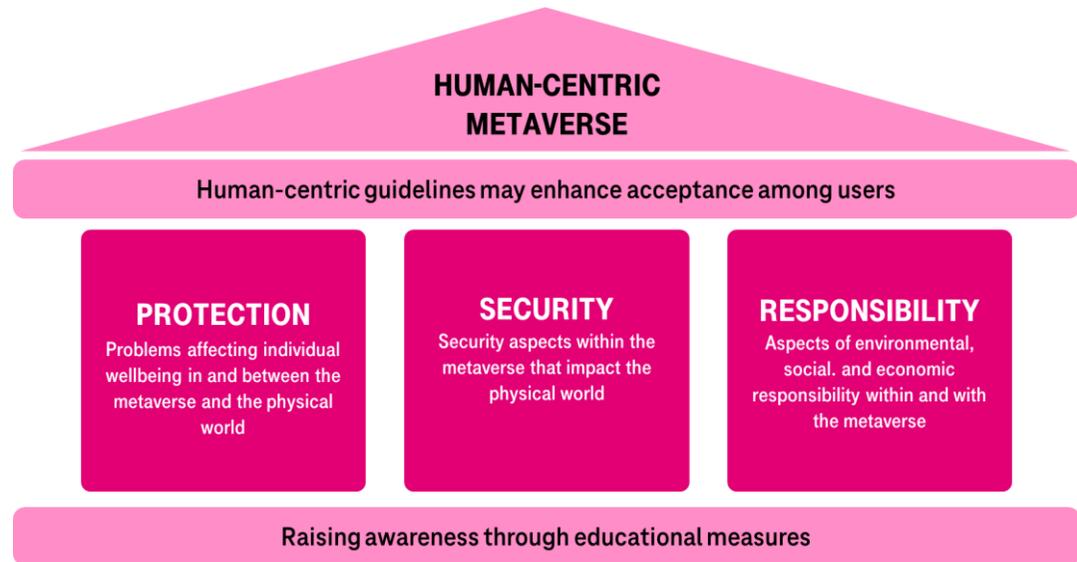
Brainstorming and in-depth analysis identified numerous different aspects. Ethical problems in the metaverse were ascertained using targeted questions and scenarios and then grouped into themes. This produced three main categories for our ethical key guidelines on the metaverse: Protection, Security and Responsibility.
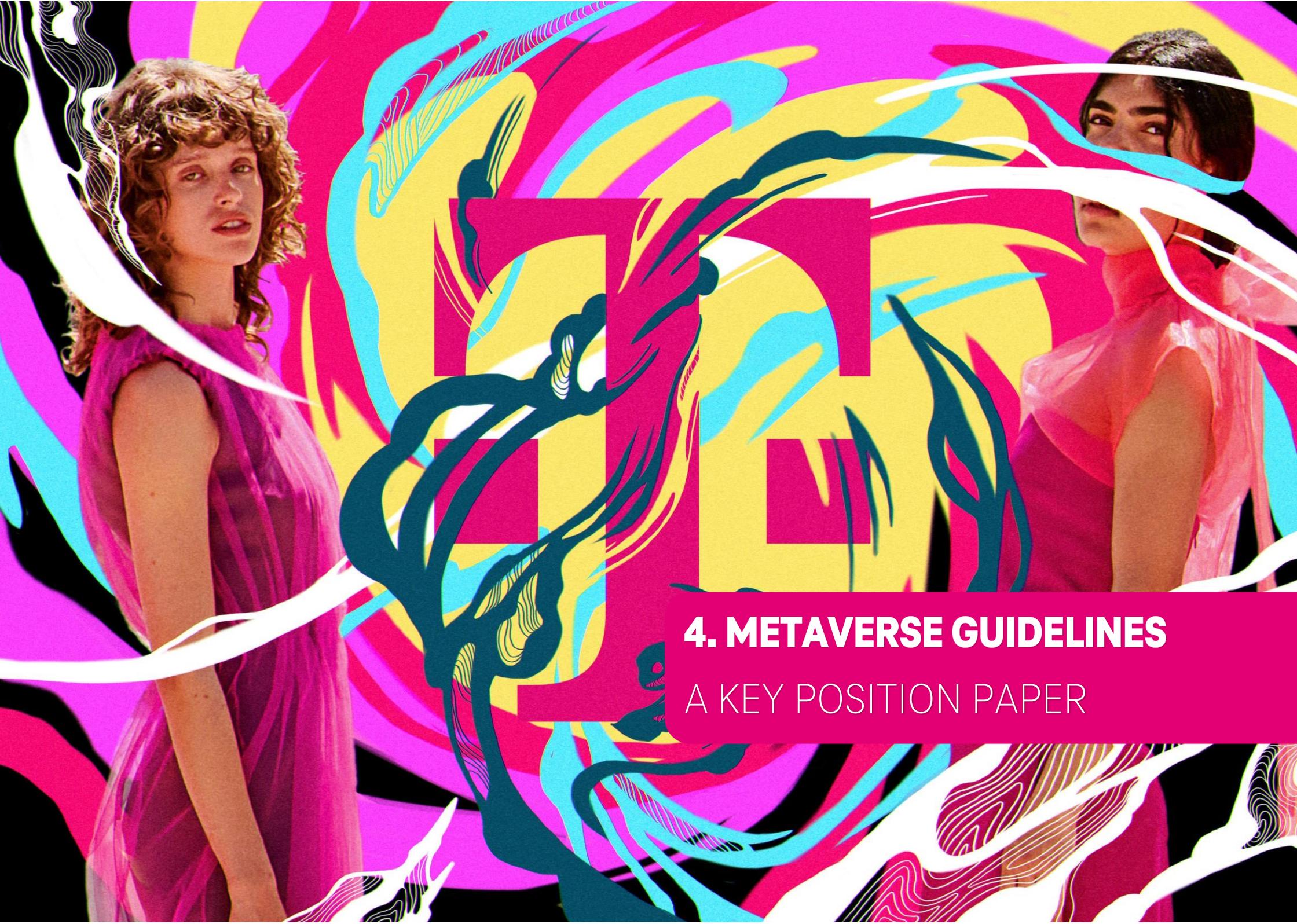
The Protection category concerns issues affecting individual well-being both within the metaverse and between the metaverse and the physical world. The focus here is on individual physical and mental health as well as social interactions and transparency.

The Security category addresses security aspects within the metaverse that might impact the physical world. including data sovereignty, data security and data protection (including information protection and IT security). This category also covers privacy and identity protection.

The Responsibility category includes aspects of environmental, social, and economic sustainability in the metaverse. It includes environmental concerns and social issues such as inclusion, diversity, and education from a business perspective.

In order to present our vision of a human-centric metaverse, we have illustrated it metaphorically as a house, the roof of which represents the overarching goal. Our aim is to contribute to a metaverse that focuses on the individual needs of users and consequently drives widespread acceptance. Our primary mission is to raise awareness for the metaverse through measures such as specific educational campaigns. We want to offer everyone the chance to develop a solid understanding of the metaverse. By implementing appropriate measures, we want to help ensure that the metaverse is not only seen as a technological platform, but as a living and accessible reality.

HUMAN-CENTRIC METAVERSE

Human-centric guidelines may enhance acceptance among users

PROTECTION
Problems affecting individual wellbeing in and between the metaverse and the physical world

SECURITY
Security aspects within the metaverse that impact the physical world

RESPONSIBILITY
Aspects of environmental, social. and economic responsibility within and with the metaverse

Raising awareness through educational measures

4. METAVERSE GUIDELINES

A KEY POSITION PAPER

4.1. KEY GUIDELINE #1: INDIVIDUAL WELLBEING
SUPPORT AND PROTECT PHYSICAL AND MENTAL WELLBEING

Guideline description

Because the metaverse is an intensive immersive experience, participants may be at risk of overexertion and fatigue. Wearing a VR headset for hours can lead to problems such as eye strain, dizziness, nausea, and headaches. Limited freedom of movement in the virtual world can also cause muscle tension and lack of exercise, which in turn can have long-term impacts on physical health. That's why it's important to take breaks, stretch regularly and look after your body to minimize potential health problems.

Immersion in the metaverse may lead to a blurring of the lines between virtual and real reality, triggering a sense of disconnection from the real world. Immersive VR experiences can also lead to an increased desensitization to violence or other disturbing content.

We should consciously set aside time for social interactions in the real world to maintain a healthy balance and minimize potential adverse effects on our mental health.

Potential approach

As Deutsche Telekom, we see the launch of the Metaverse as a transformative experience, but also believe it could be something that could potentially impact the physical and mental well-being of users, including employees. To ensure that using our future metaverse products and services is beneficial, it is important to focus on approaches that protect and support the physical and mental health of our users.

For instance, measures including the launch of voluntary self-regulation in terms of how long users stay on the metaverse, accompanied by training programs, as well as regular advice on breaks and basic needs could hypothetically be taken. The aim should be to address the user's extensive needs in the metaverse. Of course, this includes the needs of our employees. To achieve this, users need comprehensive support and protection for the entire duration of their stay on the metaverse.

4.2. KEY GUIDELINE #2: ACCESS FOR ALL
CREATE THE FOUNDATIONS TO ENSURE METAVERSE ACCESS FOR ALL

Guideline description

The metaverse offers a wealth of opportunities, from virtual worlds and social interactions to education, business opportunities, and cultural exchange. Equality is paramount; everyone has an equal right to enjoy the benefits. No individual should be excluded from accessing the metaverse by virtue of certain characteristics. In an inclusive society where everyone has the opportunity to immerse themselves in the metaverse, it is important to educate and prepare people for this new technology. The transition into the metaverse calls for certain knowledge and skills to understand, navigate, and shape the virtual reality. All users should have access to educational resources and training to equip them with the skills needed to utilize the full potential of the metaverse.

Supporting measures are crucial when it comes to providing inclusive access to the metaverse for all. Providing specific support to the users ensures that everyone has a fair and equal opportunity to benefit from the advantages this innovative technology has to offer.

Potential approach

The starting point here should be a risk analysis to determine which factors could restrict access to the metaverse. In such a scenario, Deutsche Telekom would not just focus on the technological aspects, but also on cultural and educational factors.

A key focus would be to provide a robust network infrastructure with sufficient capacity to ensure that every user can seamlessly participate in metaverse-centric activities. Among other things, this infrastructure would allow users to take part in cultural events.

Promoting culture and education in the metaverse should also be proactively pursued to provide users with the necessary skills to actively take part. Promoting diversity and inclusion would be a key principle here to ensure that everyone, regardless of who they are, has access to the metaverse.

4.3. KEY GUIDELINE #3: DATA SOVEREIGNTY
ENSURE RELIABLE DATA SOVEREIGNTY AND TRACEABLE DATA HANDLING

Guideline description

New and diverse data is being collated in the metaverse. This includes biometric data such as a person's physical characteristics, heart rate, body movements, or even brain activity. This type of data collection opens up new opportunities for immersive experiences and personalized metaverse adjustments,

but also raises important questions about data protection and privacy. Companies operating in the metaverse face the challenging task of developing appropriate regulations and technologies to protect collated biometric data and ensure it is used responsibly. The debate over how such data may be collected, stored, and used is pivotal if we are to protect user privacy while maximizing the full potential of the metaverse.

Potential approach

At Deutsche Telekom, we are addressing the question of how user identity can be protected in the future in view of these innovative developments. The handling of data considered to be a "commodity" would be a further focus. This future challenge requires particular attention in order to give the users a sense of security. In this context, the various approaches should be pursued to ensure data protection and privacy.

First of all, the focus should be on transparent and comprehensible presentations in order to make the collected data and the use of this data visually appealing to users. This approach would also ensure users are clearly informed of how the data is stored and for how long. We would ensure that the data is handled competently by observing future legal conditions and implementing effective security measures.

To improve control over their data, we would utilize tools that allow users to access their information stored in the metaverse at any time. This not only promotes trust; it also gives users the chance to actively manage their data. At the same time, we would use identity management methods that are both reliable and secure in order to create a trustworthy environment for the future.

4.4. KEY GUIDELINE #4: TRANSPARENCY OF INTERACTIONS
PRACTISE TRANSPARENCY IN DEALING WITH USERS

Guideline description

The improving eloquence and response time of chatbots and AI systems (made possible by elements such as generative AI) and their potential integration into a virtual world can sometimes make it difficult to distinguish between a real human being and an automated 3D avatar. Because virtual environments are not always clearly linked to a specific individual or a support instance, it is often unclear who to contact, leading to confusion and frustration when fast, effective support is needed.

Potential approach

Deutsche Telekom's transparency towards its users will be decisive on all levels for the Group in the future. Therefore, the following measures could be taken.

For instance, entering and leaving an area in the metaverse could be clearly displayed. A further option would be to ensure our employees can be clearly defined as such in these areas during their working hours.

We would also provide appropriate information about the technologies used. We would aspire to inform users about situations where automated 3D avatars may be used for certain activities. Where an avatar represents a specific person, we would also be transparent as to whether the user is dealing with the real person behind the avatar in a particular situation.

4.5. KEY GUIDELINE #5: SOCIAL INTERACTIONS
ADOPT A CODE OF CONDUCT THAT PROMOTES RESPECTFUL BEHAVIOR

Guideline description

Cyberbullying and other inappropriate infringements are becoming more frequent in today's virtual environments. Anonymity and the ability to hide behind virtual avatars encourages unethical conduct by certain individuals.

It is vital that measures are taken to combat such behavior and to ensure a safe and respectful environment. Users should not only follow the rules and guidelines, but should also be empathetic and aware that their actions can impact the emotional health and well-being of others. The goal should be to promote positive interactions between users, both in terms of conduct and how they engage with one another.

Potential approach

In a hypothetical future, we at Deutsche Telekom would set clear expectations for the behavior of our users, including our employees, in the metaverse. We would strive for a respectful and value-based environment that preserves the basic values of interpersonal interaction in the digital society.

Our objective would be to create a comprehensive code of conduct to create a respectful and value-based environment that preserves the basic values of interpersonal interaction. This code would emphasize the principles of human rights in both the physical and virtual world. Users who want to take part in Deutsche Telekom's virtual activities in the metaverse would have to accept this code of conduct before being given access to virtual areas.

Such a code of conduct could help in promoting friendly and diverse interaction, and would be based on consideration, mutual respect, and integrity. No type of discrimination would be tolerated in this environment and appropriate action could be taken in the event of violations.

4.6. KEY GUIDELINE #6: PRIVACY
PROTECT THE PRIVATE ENVIRONMENT OF THE USERS

Guideline description

In the metaverse, users represent themselves with avatars. Unlike other platforms, where accounts can be switched to private mode, for example, or there is the option of replacing your profile picture with a neutral landscape image, the metaverse is rather more challenging. Avatars are essential for active participation, so it is a matter of striking the right balance between expressing your individual personality and protecting your privacy.

We assume that many people are reluctant to disclose too much of themselves publicly. Platforms and providers have a duty to respect users' privacy and offer suitable options for safeguarding their identity and personal information.

Potential approach

We at Deutsche Telekom believe it is essential to provide lasting protection and respect for our users' privacy in the metaverse. Our main focus here would be on the individual right to privacy.

To meet the different needs of our users in the metaverse, we would give them the opportunity to independently decide on the extent to which they wish to disclose personal information. We believe it's hugely important to offer you comprehensive protection against possible attacks by other users.

We would also endeavor to develop a transparent and trusting relationship with our users. Here, we would respect their privacy while also encouraging communication and collaboration within our metaverse environment.

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4.7. KEY GUIDELINE #7: ENVIRONMENT
ACTIVELY PURSUE ENVIRONMENTAL GOALS

Guideline description

In terms of environmental sustainability, there are benefits and challenges when it comes the metaverse. On the one hand, the metaverse needs energy-intensive technologies such as artificial intelligence. Therefore, it is essential here to promote and optimize the use of energy-efficient technologies and programs.

On the other, the metaverse offers a wealth of opportunities for minimizing emissions in both the private and professional sphere. In the private sphere, for example, sightseeing experiences with digital twins can reduce the need for physical travel. The use of digital twins also allows consumers to examine products more closely before buying them, which could help reduce returns. In the professional sphere, the metaverse offers countless advantages for industries, for example by using digital twins in production processes. Virtual collaboration can also help reduce business travel.

As the metaverse evolves, it is crucial that we recognize its environmental potential and promote sustainable practices to strike a balance between technological progress and environmental protection.

Potential approach

As Deutsche Telekom, we would strive to drive environmental protection and not just technological progress in our metaverse. With this in mind, we at Deutsche Telekom have set sustainability targets for our technologies and are attempting to hit these targets by taking various strategic approaches.

On the one hand, we would promote the development of energy-efficient technologies in the metaverse and, on the other, we would seize the opportunity to support sustainable consumption in the metaverse.

We would also focus on sustainable business practices by supporting virtual business meetings and collaborations to reduce business travel and consequently reduce CO_2 emissions.

We would also focus on transparency and responsibility by publishing environmental reports for our metaverse-related activities. Through active communication with the community, we would promote dialog on environmental impacts and work together to find sustainable solutions.

4.8. KEY GUIDELINE #8: DIVERSITY
PROMOTE DIVERSITY IN THE METAVERSE

Guideline description

Diversity is elemental to the creation of inclusive and equitable environments where all individuals feel valued and represented. We want to ensure that the metaverse is a place where users can participate and engage in an inviting and inclusive virtual space, regardless of origin, age group, gender, religion, ability, and sexual orientation.

The metaverse can play a positive role in boosting the inclusion and acceptance of minorities, but it also faces a number of challenges. Its technologies and equipment can help more people with disabilities to participate. The metaverse can also help to increase the representation of minorities and to protect them from discrimination using technology. The metaverse can also help to enhance cultural participation and diversity because cultural events can be attended from any location for instance. Virtual possessions also help when it comes to promoting cultural diversity as they allow users to express their identity and origin through avatars, clothing, and accessories.

Potential approach

As Deutsche Telekom, we would actively work to ensure that our presence in the metaverse respects the users' needs, rights, and expectations. By working to protect human rights in the virtual world, we would actively tackle all forms of discrimination and cyberbullying and, as a result, shape the future of the metaverse as a place of inclusion, acceptance and diversity – while also valuing the right to freedom of expression provided it is appropriate.

A key aspect of our efforts could be to ensure that technological progress gives users with disabilities the chance to get more involved in the metaverse. Integrating special assistive technologies and devices could help to increase accessibility and create an inclusive virtual environment.

4.9. KEY GUIDELINE #9: FREE AND BOUNDARYLESS
BE COMMITTED TO A FREE, BOUNDARYLESS METAVERSE

Guideline description

Users have access to a range of platforms offering infinite opportunities to explore and interact in virtual worlds.

The ability to navigate and switch between different platforms without constraints offers a wide range of experiences and encourages creative expression. This openness creates a dynamic and inclusive environment where individual preferences and needs can be accommodated.

The freedom to cross borders and use different platforms enhances the experience and opens up new horizons.

We call upon companies and developers to collaborate and create a shared, interoperable metaverse.

Potential approach

As Deutsche Telekom, we promote a metaverse experience that fully supports the freedom and interoperability of avatars and purchased items. In order to realize this vision, we would intensively cooperate with various companies, developers, and partners. Working together would allow standards to be established that ensure the interoperability of avatars and purchased items.

The basic principles for a free and boundaryless metaverse should also be defined. Collaborating closely with other associations, policymakers, and partners would allow us to create a broad alliance to promote freedom and diversity in the metaverse.

This effort would not only drive the technology forward; it would also help with social developments aimed at achieving openness, freedom, and interoperability in the virtual world.

5. CONCLUSION

The metaverse is an increasingly important topic, despite still being in an early phase of development. The ambitious vision of transforming our human interactions into a more immersive and interactive experience is spectacular. This vision has become a hotly debated topic among supporters and detractors alike. Despite recent progress, experts cannot agree how close we are to actually achieving the ultimate metaverse vision (if indeed it can be achieved at all).

Nevertheless, commercialization of the first metaverse-centric services and solutions, such as XR devices and virtual worlds, is already underway. After many years of research, the metaverse grows increasingly relevant and tangible as it becomes more accessible to the end-user market. Metaverse technologies are rapidly evolving, while the ethical debate on their use struggles to keep pace.

As with any newly developed technology, there will invariably be unforeseen consequences of the metaverse that force us to pause and question our future plans. That is why it is so crucial to establish a fundamental code of conduct in the metaverse so that everyone on the planet can make a long-term, meaningful contribution to our shared future. When it comes to the success of the metaverse, transparency, trust, partnership, and inclusion are paramount. Ensuring that technology serves people and not the other way round helps us to develop products and services with the potential to improve the lives of billions of people.

As a society, we must implement our ethical guidelines for the metaverse in a way that users can trust. Users must feel comfortable and safe using metaverse-centric services. In a best-case scenario, the metaverse will thus fulfill its original function and deliver an ecosystem that supports human beings.

It is for this reason that Deutsche Telekom has prepared the key position paper for ethical guidelines in the metaverse. It is important that these ethical guidelines become the gold standard when interacting in the metaverse, otherwise moral concerns might prevent people using metaverse-based services.

Whatever format the metaverse evolves into, be it a fully closed and controlled system, a partially controlled, or a fully open ecosystem, we all face an exciting future as technology constantly advances.

6. PUBLICATION DETAILS

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