Regulation of the Metaverse

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The metaverse – a term that is associated with many associations in both positive and negative ways, although the *one* metaverse does not yet exist. Its exact design has therefore not yet been conclusively clarified. Mark Zuckerberg, founder and CEO of Meta, describes his vision of the metaverse as follows: "We will be able to do almost anything in the metaverse that is within our imagination: meetings [acquaintances] and family, working, learning, playing, shopping, creating content – and completely new things that we [...] not even imagine." (Facebook Connect, 2021) The aim is thus to create a link between the digital and real worlds. It is therefore clear that the metaverse is intended to represent a new type of internet (Europol, 2022) that will differ significantly from current internet use.

Such technological developments can have an impact on numerous areas of life, as the existing Internet has shown with the rise of platforms. A similar potential for change is attributed to the metaverse: Influences on the economy, especially trade, the real estate market and in the area of financial investments are conceivable, but also within social structures, primarily the world of work and leisure activities (Höfler & Krolle, 2023). These can have positive but also negative effects, such as social isolation, loss of reality or simulated abuse. In economic terms, significant effects are already evident. Within the virtual, blockchain-based platform "Decentralland", land sales are made that amount to the equivalent of several million euros (futurezone, 2021). In addition, according to empirical research by McKinsey & Company, approximately EUR 110 billion has already been invested in the development of the metaverse in 2022 (McKinsey & Company, 2022). The market volume of the metaverse is expected to be around EUR 507 billion by 2030 (statista, n.d). Therefore, from a legal point of view, the fundamental question arises as to whether and how the law should or can react to these technical, psychological, social and economic effects. Are

1 This paper represents a shorter translation and an update of the article Böck & Kettemann, Regulierung des Metaverse in Steege & Chibanguza, Metaverse Rechtshandbuch.

existing regulatory concepts sufficient or is a new strategy necessary? The article will provide an overview of these.

I. Definition in the Legal Sense

In order to present the legal implications of the metaverse, it is first necessary to define the term in more detail. The metaverse concept originates from science fiction literature: In his 1992 novel "Snow Crash", author *Neal Stephenson* created a world called the "Metaverse" for his characters, which was supposed to be a safe haven for them (Kaulartz et al., 2022, p. 521f.). The understanding of the term in the novel is thus very different from the technical metaverse that is to be created by Mark Zuckerberg and other digital companies, such as Animoca Brands from Hong Kong, as they dream of linking the real and digital worlds. From a technical point of view, the graphic online role-playing game "Habitat" by Lucasfilm Games from 1985 is considered the first metaverse (Bendel, 2021).

In the absence of an actual metaverse and the different ideas of the developers, no uniform definition can be found. The EU Commission and the EU Parliament have also developed their own definition: The metaverse is defined as "immersive and constant virtual 3D world where people interact through an avatar to enjoy entertainment, make purchases and carry out transactions with crypto-assets, or work without leaving their seat" (European Commission & Analysis and Research Team, Metaverse 2022, p. 3).

For further narrowing down, it makes sense to distinguish between the exact characteristics of the software, the hardware and the "content" (Park & Kim, 2022). In terms of hardware, the use, availability and development of virtual reality (VR), mixed reality and augmented reality (AR) devices will play an essential role (Kaulartz et al., 2022, p. 521f.), as these (glasses) provide the connection to the virtual world. The exact technical implementation of the software can be narrowed down in two directions: On the one hand, work is being done on platform solutions. Other companies, such as Animoca Brands, rely on solutions that offer an open, interoperable and decentralized infrastructure (Bendel, 2021). Within the third category of "content", it will depend on how the metaverse will be designed. Fantasy worlds as well as worlds that represent a reflection of the "real" world are conceivable here (Park & Kim, 2022).

II. Regulation of the Metaverse

Following the establishment of a definition, the question of which rules the metaverse follows from a legal point of view can be considered. It becomes clear that there is no such thing as a metaverse as such. Despite Facebook's rebranding as "Meta Platforms," which appears to suggest an ambition to create a unified metaverse, the actuality is divergent. As already mentioned, various companies are developing numerous metaverses that have individual similar features (Ball, 2020) but are nevertheless substantially different from each other. Therefore, the question now arises as to which rules apply to metaverses and whether government regulation exists for them. It is evident that the rules as well as state regulation depend on how the metaverses are specifically designed and which life circumstances are concretely realized (Kaulartz et al., 2022; Müller, 2022, 281).

It should be pointed out here that a separation of the term "rules" (norms) must be made from the term "regulation". In legal terminology, the term regulation means legal acts of state influence or lawmaking. Rules do not necessarily arise from state actors, but rather arise from social rules, such as moral and religious commands and prohibitions, conventions or customs or customs (Rüthers et al., 2022; Vesting, 2015). The necessity of distinguishing between terms arises as they have different legal effects.[2] This is important for the present case, as the metaverse is dependent on rules as well as regulation.

1. What Rules Apply?

a) Regulatory Approaches

As of May 2025, neither the national nor the Union legislators have developed a regulatory concept for the emerging metaverses. A concrete state, supranational or international one is therefore missing. Nevertheless, the individual characteristics of the metaverse are subject to existing national as well as european regulations, at least to some extent.

In relation to the design of the hardware, specifically the VR glasses or analogous connection objects, digital companies or manufacturers are bound by the prevailing regulations concerning product safety. The

2 Vesting, Rechtstheorie, § 2 marginal no. 33.

present-day placement of products on the market is primarily shaped by Union law, meaning that manufacturers – at least within the EU – are subject to specific regulations (Weber, 2022). To illustrate this point, one may consider the existence of general and specific legal acts, a phenomenon that is especially evident within the domain of electrical appliances (Langner et al., 2023). To the extent that the connection devices can still be classified as electrical devices, these regulations apply to this feature of the metaverse. In the meantime, broad catalogues of obligations for operators of online marketplaces have also been established (Kapoor & Klindt, 2022), so that these product liability regulations could also apply to operators in the metaverse. However, this depends on the software on which the metaverse is based, i.e. the question of whether platform solutions will prevail in the competition. This will already ensure that the hardware does not pose any significant risks to end users.

In addition, the characteristic of "content", i.e. the concrete design and use of the metaverse, is also bound to certain norms. These include, in particular, criminal law provisions. Testing the beta version of the Meta Horizons metaverse has revealed the first cases of potentially criminal acts (Der Standard, 2021). From a German point of view, the basic prerequisite for the prosecution of potentially criminal acts in the metaverse is therefore the applicability of the German Criminal Code. Due to the territorial principle, sovereign punitive power is limited to crimes on one's own territory (Mills, 2006; Schmalenbach & Bast, 2017). When determining the place of criminal offences on the internet, it is recognised that at least those offences are subject to German criminal law that were committed against or by a German citizen (Schönke & Schröder, 2019). In principle, this can be transferred to the metaverse if there will be the possibility of assigning the avatar of the metaverse to a specific real person (Kaulartz et al., 2022). From a German point of view, the prosecution of criminal offences is only possible to a very limited extent and excludes some cases (Beukelmann, 2012).

Finally, the question arises as to the extent to which the Digital Services Act (DSA) and the Digital Markets Act (DMA) already enable the regulation of the metaverse. DSA and DMA are two pieces of legislation adopted by the EU as part of its digital strategy (EU Commission, n.d). The DSA focuses on the fundamental rights of users by preventing much-discussed phenomena such as "hate speech" and "fake news". The addressees of the provision, namely the large digital companies, are subject to duties of care

and other duties of action aimed at content control within the platforms (Kettemann et al., 2021, p. 138). These include deletion obligations under Art. 9 (1) DSA if a state authority orders actions against illegal or unlawful content. These are to be complied with by threatening the addressees with fines, some of which are large (Kühling, 2021, p. 461). In addition, the DMA standardises competition law regulations for so-called gatekeepers who offer central platform services and hold a dominant position in the market (Gielen & Uphues, 2021, p. 627). According to Art. 2 No. 2 DSA, gatekeepers include online search engines such as Google and social media, such as Facebook and Instagram.[3] According to Art. 3 para. 1 DMA, the central characteristics of the gatekeeper are a significant influence on the internal market, the provision of a central platform service that serves as an important gateway to end users for business users, and a consolidated and lasting position of its business activity exists or it is foreseeable that it will achieve one.

The metaverses could fall under the scope of these two legislative acts and thus be classified as part of platform regulation (Kalbhenn, 2021; Paal, 2022 p. 194). However, this depends largely on the design of the software. The scope of application is only opened up to providers of metaverses that are also to be classified as intermediary services within the meaning of the DSA or as gatekeepers within the meaning of the DMA (Kaulartz et al., 2022, p. 521 ff.). This could be relevant to the emerging metaverses. The extent to which metaverse providers will prevail in the market with platform-based solutions remains to be ascertained. From the perspective of the EU legislator, it would be prudent to analyse the further development process and consider the extent to which the target group within existing legal acts can be adapted to encompass other types of metaverses, if necessary. This appears to be a desirable course of action, as it would enable the effective protection of users' rights against unlawful and illegal content, while also demonstrating the limits of competition law.

b) Rule-Making by Digital Companies

It turns out that the existing regulations only marginally regulate the essential features of the metaverse, namely the hardware, software and "content"

3 The EU Commission classified six gatekeeps in September 2023 - Alphabet, Amazon, Apple, ByteDance, Meta, Microsoft, cf. Art. 3 para. 6 DMA.

and are strongly dependent on which metaverses will prevail on the market and how they are specifically designed. Instead, the key players in shaping the metaverse are the digital companies previously mentioned, given their ability to determine the precise evolution of their metaverse without strong legal regulation.

This phenomenon has already been demonstrated with the platform economy (Mast, 2023, p. 287f.). Platform companies offer services in almost every area of life and play a key role in this – also because of their technical sovereignty (Spindler & Seidel 2022, p. 2733f.). Over time, so-called private orders have developed through the digital companies (and due to a certain legal and social pressure), which specify rules of conduct on the platforms. The term is the opposite of "public order" and describes independent sets of rules on subsystems and orders of a society that are independent of the state.

These private orders on digital platforms, such as social media, are nowadays subject to technical settings but also to the guidelines that the digital company itself has developed (Quintais et al., 2023). These rules are often called "community guidelines" and describe the user relationships to each other, but also the relationship between the user and the platform. Overall, these rules are structured and very extensive. They don't just set up a few superficial rules.

The question arises as to how these private regulations can be legally classified and what validity they have vis-à-vis the users. The principle of the rule of law posits that private entities, by virtue of their own authority, cannot legislate in a binding manner without the explicit consent of the individuals concerned (Rennert, 2009, p. 976 (p. 982ff.)). In this respect, the platform guidelines established cannot constitute a law in the classic sense. Rather, they are to be assigned to civil law and have a concrete effect on the basis of a legal relationship under private law. The admissibility of such regulations can in turn be derived from the Basic Law, specifically the fundamental rights and orders within the legal requirements (Teubner, 2012; Mast et al., 2024). This also applies to platform companies.

It follows from what has just been said that users must agree to the respective regulations in order for them to have legal effect vis-à-vis them in the first place. Nowadays, the use of a platform is only possible after prior agreement to the terms of use, which contain the Community Guidelines (so-called opt-in procedure) (Bräutigam & Rücker, 2017). This typically results in a so-called platform usage contract (Friehe, 2020, p. 1697; OLG München 2018, p. 3115f.; BGH 2021, p. 953 (957f.)). According to German

law, the terms of use themselves are regularly included in the contract as general terms and conditions in accordance with Section 305 (1) of the German Civil Code (BGB) and do not constitute the main contract (Spindler, 2019, p. 238 (240); Friehe, 2020, p. 1697; OLG München, 2018, 3115 (3116)). The individual clauses must stand up to judicial review by the general terms and conditions on their own.

These types of terms of service can also play a significant role within the metaverse, as long as they are used for the metaverse (Heet & Kalbhenn, 2021). This appears to be a probable outcome in view of a planned "mass business" with a large number of users, especially since the virtual worlds are also being developed by digital companies. Something else may result from the fact that other metaverse companies do not want to offer a platform solution, but want to create a decentralized virtual world. However, it is questionable how access to these metaverses will be structured differently and to what extent the operating companies will not still have a key position, as is the case in the context of operating a platform. If this exists, there is a likelihood that some legal responsibility will be attributed to the companies. In addition, it is also in the interest of these companies to generate a positive external perception through set standards.

2. Preliminary Conclusion

The findings show that developing companies play a central role in shaping the metaverse and most likely they are the same companies that developed the (social) platforms. If one looks at the existing legislation, especially at the level of EU law with regard to platforms with the DSA and the DMA, as well as the AI Act (Paal 2022, p. 194ff.), it becomes clear that these can at least partially apply to metaverses, but do not fully regulate them. Rather, they should be seen as a starting point that should be used to help determine the regulation of the metaverse as it emerges (Heet & Kalbhenn, 2021). While digital companies are instrumental in "regulating" the metaverse, lawmakers can exert indirect influence through legal acts and judicial control, as described earlier.

III. Regulation in the Metaverse

It is not only the question of whether and what regulation underlies the development of metaverses. Rather, from a legal point of view, the question

arises as to which rules and regulatory concepts apply *within* the metaverse(s). In this context, the question of the validity of existing legal areas in the metaverse is also raised. In the event of the implementation of the aforementioned platform solutions, the terms of use of the platform operators will be applicable, provided that they are incorporated correctly and demonstrate resilience to content control. In each individual case, it will be necessary to clarify the relationship between these terms and the legal requirements from various areas of law, including but not limited to civil law, regulatory principles, criminal law, domiciliary rights, the protection of minors and data protection. It is important to note that there are several additional points of contact. For reasons of space, an example will be discussed below to illustrate how diverse the questions are that arise within the metaverse.

For instance, data protection issues arise within the metaverse. Given the opportunities that the metaverses will offer, it is evident that even enabling access to the metaverse requires significant data provision. But the use of the metaverse will also produce a significant amount of sensitive data, such as movement data, physical and psychological reaction data, as well as visual and biometric data, collected by the VR or AG glasses (Paal, 2022, p. 191; Bender-Paukens & Werry, 2023, p. 127 (128)). The data collected by the hardware is so precise that it can permanently record and store breath, pulse and changes in the eye (Bender-Paukens & Werry, 2023, p. 127f.).

In principle, it can be assumed that the GDPR is applicable within the metaverses. However, individual transmission difficulties are evident in the further application of the GDPR. This can be seen, for example, in the fundamental question of responsibility under Art. 4 (7) GDPR, which is of particular importance in the assignment of the further catalogue of obligations of the GDPR. Due to the large number of metaverses that will emerge as well as the possibility of decentralized infrastructures and interoperability, it is not possible to clearly determine a controller within the meaning of the GDPR. The GDPR does not currently allow for a clear interpretation, as it is not tailored to the possible specifics of the metaverse.

IV. Need for Regulation

Within the development of the metaverse, it can be seen that metaverses that are comparable to the existing social platforms are being sought by the majority. Nevertheless, some developers are trying to offer metaverses

that work in a decentralized way. Regardless of which metaverses will prevail and how exactly interoperability between different metaverses will be designed, the operators behind them will play a major role in the design and thus the coexistence in the metaverses. The regulation or rules of the metaverses are therefore particularly dependent on private actors. In principle, state regulation plays a subordinate role in the structuring of private law relationships that is relevant here (Krönke, 2020, p. 195), especially since, as described above, the private actors themselves are obliged to set rules which gives them a strong role of power.

The need for regulation is therefore evident. The timing is just as favorable. Unlike platform regulation by the EU, which only took place after the platform operators had already achieved a dominant position in the market and the platforms were already used by billions of people, timely regulation, ready, could have a lasting impact on the development of metaverses. This allows legislative limits and values to be implemented more effectively (Kaulartz et al., 2022, p. 521 (531); Paal, 2022, p. 191). Law can thus be given the necessary ordering and shaping character, which is particularly necessary in situations of power asymmetry.

V. Summary and a Look into the Future

The metaverse(s) are still in the making. The exact extent and the main players cannot yet be predicted with certainty. Even a uniform definition cannot yet be determined from a legal point of view. For further narrowing down, it makes sense to divide the development and potential regulation into three areas: the software, the hardware and the content. Although there will be differences between the individual metaverses, all types will be due to these three areas. Such a division is therefore of particular importance for a potential regulation of the metaverse in order to create specific norms. Although the main players cannot be specifically named, a development as well as the later operation of the metaverses by the large digital companies seems likely. As part of the above-mentioned digital strategy, the EU wants to put a stop to the negative phenomena associated with social platforms. The same is desirable for the metaverse. From the point of view of the EU legislator, but also of the national legislators, it is important to clarify whether and to what extent the existing provisions of the legal acts can be applied to the current development of metaverses and at what point a modification is necessary.

Against the background of the explanations made here, central challenges of regulating the metaverse as a virtual, immersive and interactive spatial concept created by the fusion of the physical and digital worlds are:

- Data protection and privacy: The metaverse collects and processes large amounts of personal data of its users. It is important to ensure adequate data protection and develop privacy mechanisms to prevent the misuse of data.
- Security: The metaverse opens up new opportunities for cybercrime, fraud, and identity theft. It is crucial to implement security measures to protect users and their digital identities.
- Content regulation: The metaverse will include a variety of content created by users, but under the terms of the platform owners. It is a challenge to develop adequate regulatory mechanisms to identify and combat illegal or harmful content without restricting freedom of information and expression. It will be interesting to see to what extent the experience of algorithmic *content moderation at scale* can be made fruitful by the more classic digital communication services.
- Interoperability and open standards: The metaverse will consist of different platforms and applications. It is important to promote open standards to enable interoperability between platforms and prevent monopoly formation. The EU has already taken action in other areas, such as the interoperability of messenger services.
- Economic aspects: The metaverse will create new economic models and business opportunities. It is necessary to create appropriate framework conditions to ensure fair competition, consumer protection and the protection of intellectual property.
- Digital moats: The metaverse requires a reliable internet connection and access to tech devices. A key challenge is to ensure that the benefits of the metaverse are accessible to all populations and that existing digital divides are not deepened.

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