

**PRIVACY IN A PROGRAMMED PLATFORM: HOW THE  
GENERAL DATA PROTECTION REGULATION APPLIES TO  
THE METAVERSE**

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I. INTRODUCTION

Though the General Data Protection Regulation (“GDPR”),<sup>1</sup> the European Union’s data protection and privacy regulation, was once heralded as “the toughest privacy and security law in the world,”<sup>2</sup> the

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1. See Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data, and Repealing Directive 95/46/EC (General Data Protection Regulation), 2016 O.J. (L 119) 1 [hereinafter GDPR].

2. Ben Wolford, *What Is GDPR, the EU’s New Data Protection Law?*, GDPR.EU, <https://gdpr.eu/what-is-gdpr> [<https://perma.cc/6WUB-Z8YN>]. But see Kim Zetter, *California Now Has the Nation’s Best Digital Privacy Law*, WIRED (Oct. 8, 2015, 9:58 PM), <https://www.wired.com/2015/10/california-now-nations-best-digital-privacy-law> [<https://perma.cc/9HTJ-3MZ2>] (describing the passage of the California Electronic Communications

metaverse may soon expose the shortcomings of this “gold standard” of privacy regulation.<sup>3</sup> Hoping to enhance individuals’ control and rights over their personal data and to simplify the regulatory environment for international business,<sup>4</sup> the European Parliament approved the GDPR in April 2016, and it went into effect on May 25, 2018.<sup>5</sup> Mass adoption of the new privacy standards by international companies has been cited as an example of the “Brussels effect,” a phenomenon wherein laws and regulations by the European Union (“EU”) are used as a baseline due to their unilateral power to regulate global markets.<sup>6</sup>

In theory, the GDPR only applies to EU citizens’ data, but the ubiquity of the Internet — housing around 5 million terabytes of data<sup>7</sup> — means that nearly every online service is affected by the regulation. The next iteration of the Internet lies in the metaverse, an integration of reality and a virtual world, “a ‘place’ parallel to the physical world.”<sup>8</sup> Although “[t]here is no single owner of the whole [metaverse],”<sup>9</sup> this Note focuses on Facebook, renamed Meta, because the technology behemoth with about three billion users has said that it wants to be seen

Privacy Act (“CalECPA”), “a sweeping law protecting digital privacy rights”); *id.* (“We hope [CalECPA] is a model for the rest of the nation in protecting our digital privacy rights.” (quoting Nicole Ozer, Technology and Civil Liberties Policy Director, ACLU of California)).

3. See, e.g., Margaret Taylor, *Data Protection: Threat to GDPR’s Status as ‘Gold Standard’*, INT’L BAR ASS’N (Aug. 25, 2020), <https://www.ibanet.org/article/A2AA6532-B5C0-4CCE-86F7-1EAA679ED532> [<https://perma.cc/8P97-E5NY>] (“Implemented in May 2018, the European Union’s General Data Protection Regulation (“GDPR”) was hailed as the gold standard for the protection of consumer information because it ushered in the world’s toughest-ever privacy regime.”).

4. *Proposal for a Regulation of the European Parliament and of the Council on the protection of individuals with regard to the processing of personal data and on the free movement of such data (General Data Protection Regulation)*, COD (2015) 9565 final (June 11, 2015), <https://data.consilium.europa.eu/doc/document/ST-9565-2015-INIT/en/pdf> [<https://perma.cc/W8DK-FA5J>].

5. Wolford, *supra* note 2.

6. There are “over 100 countries today with data privacy rules modeled on the GDPR.” *What Is the Brussels Effect, and What Does It Mean for Global Regulation?*, MICROSOFT CORP. BLOGS (Oct. 26, 2020), <https://blogs.microsoft.com/eupolicy/2020/10/26/what-is-the-brussels-effect-and-what-does-it-mean-for-global-regulation> [<https://perma.cc/J4KF-CXAD>]. For example, Brazil’s *Lei Geral de Proteção de Dados* was strongly influenced by the GDPR and bears several notable similarities. Richie Koch, *What Is the LGPD? Brazil’s Version of the GDPR*, GDPR.EU, <https://gdpr.eu/gdpr-vs-lgpd> [<https://perma.cc/2SMY-P7WC>].

7. Brendan McGuigan, *How Big Is the Internet?*, EASYTECHJUNKIE (Jan. 19, 2023), <https://www.easytechjunkie.com/how-big-is-the-internet.htm> [<https://perma.cc/L8BQ-V9NK>] (estimating the size of the Internet at roughly 5 million terabytes of data, which is over 5 billion gigabytes of data, or 5 trillion megabytes).

8. Peter Allen Clark, *The Metaverse Has Already Arrived. Here’s What That Actually Means*, TIME (Nov. 15, 2021, 12:00 PM), <https://time.com/6116826/what-is-the-metaverse> [<https://perma.cc/Y98U-JQ9K>].

9. John Herrman & Kellen Browning, *Are We in the Metaverse Yet?*, N.Y. TIMES (Oct. 29, 2021), <https://www.nytimes.com/2021/07/10/style/metaverse-virtual-worlds.html> [<https://perma.cc/A4DL-CJUY>].

as a metaverse company rather than a social media one.<sup>10</sup> Because Facebook decided to focus its metaverse development in Europe, the GDPR will have a central role in regulating the metaverse.<sup>11</sup>

Just as social media platforms have eroded privacy, the metaverse will spur thorny issues as it gains widespread user traction. In 2020, each Internet user created 1.7 megabytes of data every second he or she was online.<sup>12</sup> The metaverse is projected to increase data usage of each Internet user by twenty times in the next ten years.<sup>13</sup> The GDPR is currently not equipped to protect metaverse users from data misuse. Therefore, amendments taking account of consent, transfers, and technology (particularly artificial intelligence, blockchain, and cybersecurity) are imperative before the metaverse is more widely implemented. Applying the GDPR framework to the metaverse's data practices provides a stress test as to the efficacy of a privacy-conscious programmed platform.

The discussion about regulating cyberspace is, of course, not a novel one. Also known as “virtual reality,” cyberspace refers to the online world as a world apart, as distinct from everyday reality.<sup>14</sup> In a 1996 law review article, Judge Frank H. Easterbrook suggested that distinguishing cyberspace as a separate regulatory environment was like focusing on the abstract “law of the horse” rather than applying traditional doctrines to laws affecting horses.<sup>15</sup> Three years later, Professor Lawrence Lessig of Harvard Law School argued that existing laws are also open to interpretation, resulting in “latent ambiguities” that arise when trying to apply them to new situations.<sup>16</sup> Essentially, he categorizes cyberspace as “exceptional” enough — deviating from traditional legal standards — to warrant its own specific rules.

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10. Kyle Chayka, *Facebook Wants Us to Live in the Metaverse*, NEW YORKER (Aug. 5, 2021), <https://www.newyorker.com/culture/infinite-scroll/facebook-wants-us-to-live-in-the-metaverse> [https://perma.cc/9FHN-GEEJ].

11. See Nick Clegg & Javier Oliván, *Investing in European Talent to Help Build the Metaverse*, META NEWSROOM (Oct. 17, 2021), <https://about.fb.com/news/2021/10/creating-jobs-europe-metaverse> [https://perma.cc/J3YX-9Z89] (announcing a plan to create 10,000 new high-skilled jobs within the European Union over the next five years).

12. *Data Takes a Quantum Leap*, BUS. FIRST MAG. 70, [https://quantum.com/wp-content/uploads/2016/08/BFM\\_Quantium.pdf](https://quantum.com/wp-content/uploads/2016/08/BFM_Quantium.pdf) [https://perma.cc/3AJB-4HQG].

13. *Metaverse to Push Data Usage by 20 Times in Next 10 Years*, ECON. TIMES (Feb. 18, 2022, 11:45 AM), <https://economictimes.indiatimes.com/tech/technology/metaverse-to-push-data-usage-by-20-times-in-next-10-years-report/articleshow/89657820.cms?from=mdr> [https://perma.cc/9VLR-XZP4].

14. James E. Lalonde, *Cyberspace a 'Virtual Reality,'* CHI. TRIB. (June 24, 1990, 12:00 AM), <https://www.chicagotribune.com/news/ct-xpm-1990-06-24-9002210020-story.html> [https://perma.cc/5R5B-6TWJ] (“Also known as ‘virtual reality,’ cyberspace is the ‘space’ that exists only as data inside a computer.”).

15. Frank H. Easterbrook, *Cyberspace and the Law of the Horse*, 1996 U. CHI. LEGAL F. 207, 207–08.

16. See Lawrence Lessig, *The Law of the Horse: What Cyberlaw Might Teach*, 113 HARV. L. REV. 501, 513 (1999) (“The point [of law] is not binary; the law does not pick one strategy over another. Instead, there is always a mix of direct and indirect strategies.”).

Through an “exceptionalism analysis,”<sup>17</sup> this Note will explore whether the GDPR’s extraterritorial privacy protections could extend to the metaverse. Part II provides background on the GDPR with a particular focus on the goals of the legislation.<sup>18</sup> Part III explains current and prospective metaverse development with a brief explanation of the technology that raises privacy concerns. Marrying the first two parts, Part IV applies the GDPR to the metaverse. Part IV determines that the metaverse undermines the goals of the GDPR and, thus, suggests potential changes to the law to better accommodate this next evolution of the Internet. Ultimately, this Note argues that the metaverse is exceptional in relation to traditional social media platforms, and that regulations should evolve accordingly to address new developments in cyberspace.<sup>19</sup>

## II. GDPR: GENERAL, OR GLOBAL, DATA PROTECTION REGULATION?

Understanding the evolution of the EU’s privacy landscape contextualizes the GDPR in the data protection efforts around the globe and

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17. “A technology is exceptional if it invites a systemic change to laws or legal institutions in order to preserve or rebalance established values.” Ryan Calo, *Robotics and the Lessons of Cyberlaw*, 103 CALIF. L. REV. 513, 553 (2015). While other Internet-based systems — most notably, traditional social media platforms — fall under the GDPR’s purview, the metaverse may be exceptional and, thus, require a different regulatory framework.

18. On March 24, 2022, the European Union reached political agreement on its landmark Digital Markets Act (“DMA”). See European Parliament Press Release, Deal on Digital Markets Act: EU Rules to Ensure Fair Competition and More Choice for Users (Mar. 24, 2022), <https://www.europarl.europa.eu/news/en/press-room/20220315IPR25504/deal-on-digital-markets-act-ensuring-fair-competition-and-more-choice-for-users> [<https://perma.cc/8BCL-6WSA>]. The legislation will impose a broad set of obligations on “gatekeepers” operating in the EU whose products are determined to be an important gateway for businesses to reach consumers (notably social media platforms and search engines). See *id.* Among other provisions, EU lawmakers agreed that the largest messaging services (such as WhatsApp and Facebook Messenger) will have to interoperate with smaller messaging platforms, if they so request. See *id.* Co-legislators agreed that interoperability provisions for social media platforms will be assessed in the future. See *id.* Additionally, combining personal data for targeted advertising will only be allowed with explicit consent to the gatekeeper. See *id.* Because the DMA has not been formally accepted, has not yet entered into force, and suspends certain details for a later date, this Note focuses on the GDPR. See *id.*

19. See *id.*; see also David R. Johnson & David Post, *Law and Borders—The Rise of Law in Cyberspace*, 48 STAN. L. REV. 1367, 1367, 1379 (1996) (asserting that cyberspace “requires a system of rules quite distinct from the laws that regulate physical, geographically-defined territories” and that cyberspace should be allowed to “develop its own effective legal institutions”). But see HAROLD J. BERMAN, *LAW AND REVOLUTION* 39 (1983) (“The law is becoming more fragmented, more subjective, geared more to expediency and less to morality, concerned more with immediate consequences and less with consistency or continuity.”). Some scholars argue that “[a]s Web companies and government agencies analyze ever more information about [personal] lives, it’s tempting to respond by passing new privacy laws . . . [i]nstead, [society] need[s] a civic solution.” Evgeny Morozov, *The Real Privacy Problem*, MIT TECH. REV. (Oct. 22, 2013), <https://www.technologyreview.com/2013/10/22/112778/the-real-privacy-problem> [<https://perma.cc/2CN8-JYGU>].

explains the changes the GDPR requires of the existing European framework.

*A. History of Europe’s Privacy Landscape That Led to the General Data Protection Regulation*

The GDPR is a complex document consisting of 11 chapters, 99 articles, and 173 recitals.<sup>20</sup> It is the encapsulation of a decades-long effort to codify a right to privacy. In 1950, the newly-formed Council of Europe articulated that every person has the “right to respect for his private and family life, his home and his correspondence” in Article 8 of the Convention for the Protection of Human Rights and Fundamental Freedoms.<sup>21</sup> Although the court established by the Convention, the European Court of Human Rights, has interpreted Article 8 broadly,<sup>22</sup> the right has not been applied in the data transfer context.<sup>23</sup>

Instead, in 1980, the Organisation for Economic Co-operation and Development (“OECD”), comprised of 38 member countries<sup>24</sup> (including 22 EU member states),<sup>25</sup> published “Guidelines Governing the Protection of Privacy and Transborder Data Flows of Personal Data.” The document established several important principles of data protection and privacy that are reflected in the GDPR.<sup>26</sup> Referred to as a think tank or a monitoring group, the OECD aims “to shape policies that foster prosperity, equality, opportunity and well-being for all”;<sup>27</sup> thus, the guidelines are a non-binding and voluntary framework. Particularly as European nations sought to develop implementation measures to actualize the guidelines, several individual — and at times conflicting — privacy laws were passed by OECD member states.<sup>28</sup>

20. See GDPR, *supra* note 1.

21. European Convention on Human Rights art. 8, ¶ 1, Nov. 4, 1950, C.E.T.S. No. 213.

22. See, e.g., *Oliari v. Italy*, App. Nos. 18766/11 & 36030/11 (July 21, 2015) <https://hudoc.echr.coe.int/eng#%7B%22itemid%22:%5B%22001-156265%22%5D%7D> [<https://perma.cc/BCA3-G6K8>] (establishing a positive obligation upon Italy and other member states to provide legal recognition for same-sex couples under Article 8 of the European Convention on Human Rights).

23. See *Privacy and Data Protection Explanatory Memorandum*, COUNCIL OF EUR., <https://www.coe.int/en/web/freedom-expression/privacy-and-data-protection-explanatory-memo> [<https://perma.cc/HHC5-ZRLG>].

24. For a comprehensive list of member countries, see Press Release, OECD, OECD Welcomes Costa Rica as Its 38th Member (May 25, 2021), <https://www.oecd.org/newsroom/oecd-welcomes-costa-rica-as-its-38th-member.htm> [<https://perma.cc/E2AX-9WJX>].

25. Of the twenty-seven EU member states, only Bulgaria, Croatia, Cyprus, Romania, and Malta are not also members of the OECD. See *id.*

26. OECD, *Recommendation of the Council Concerning Guidelines Governing the Protection of Privacy and Transborder Flows of Personal Data*, OECD/LEGAL/0188 (Sept. 22, 1980), <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0188> [<https://perma.cc/2D6J-9XTW>].

27. *About*, OECD, <https://www.oecd.org/about> [<https://perma.cc/AA2G-A5QU>].

28. *Compare* Protection of Privacy Law, 5741–1981 (Isr.) (requiring public agencies, financial institutions, and companies maintaining five or more databases that require

As a result, in 1995, the European Commission (“the Commission”), the executive branch of the EU, attempted to solve some of the problems caused by the mosaic of European privacy laws resulting from the OECD framework. Data Protection Directive 95/46/EC required each EU member state to adopt privacy laws “equivalent” to one another.<sup>29</sup> However, “equivalent” did not necessitate “identical.”<sup>30</sup> Moreover, EU directives are addressed to the member states and are legally binding on individuals only insofar as each member state transposes a directive into internal law.<sup>31</sup> In turn, data privacy laws would change depending on an individual’s location within Europe.

Almost two decades later, the Commission updated the 1995 directive to reflect “a comprehensive approach on personal data protection.”<sup>32</sup> In 2011, debates surrounding how to update the 1995 directive culminated in the GDPR. Unlike directives, which articulate certain goals, regulations have binding legal force throughout every member state.<sup>33</sup> In addition to harmonization, the law aimed to strengthen individuals’ fundamental rights and facilitate the cross-border movement of personal data.<sup>34</sup> And yet, the GDPR is described as “the most contested law in the EU’s history, the product of years of intense negotiation and thousands of proposed amendments”<sup>35</sup> — a reflection of the divergent interests at stake. For example, corporations, governments, and academic institutions all process personal data, but they use it for different purposes.

Europe’s challenges risk undermining efforts elsewhere in the world to create tougher privacy rules. On a macro scale, another reason

registration under section 8 to appoint a data protection officer or risk criminal sanctions, including administrative fines), with *Privacy Act 1988* (Cth) (Austl.) (not requiring organizations to appoint a data protection officer).

29. Data Protection Directive 95/46, 1995 O.J. (L 281) (EC).

30. See European Commission Press Release IP/15/6321, Agreement on Commission’s EU Data Protection Reform Will Boost Digital Single Market (Dec. 15, 2015), [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_15\\_6321](https://ec.europa.eu/commission/presscorner/detail/en/IP_15_6321) [<https://perma.cc/TZ9T-LUFQ>] (“[Lawmakers are] unifying Europe’s rules on data protection . . . . The [GDPR] will establish one single set of rules . . .”).

31. *Types of Legislation*, EUR. UNION, [https://european-union.europa.eu/institutions-law-budget/law/types-legislation\\_en](https://european-union.europa.eu/institutions-law-budget/law/types-legislation_en) [<https://perma.cc/GZB5-QLFH>].

32. *Opinion of the European Data Protection Supervisor on the Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions — ‘A comprehensive approach on personal data protection in the European Union’*, 2011 O.J. (C 181) 1.

33. See *Difference Between a Regulation, Directive, and Decision*, U.S. MISSION TO THE EUR. UNION (Apr. 13, 2022), <https://www.usda-eu.org/eu-basics-questions/difference-between-a-regulation-directive-and-decision/> [<https://perma.cc/QL66-F9FK>].

34. See *Data Protection in the EU*, EUR. COMM’N, [https://ec.europa.eu/info/law/law-topic/data-protection/data-protection-eu\\_en](https://ec.europa.eu/info/law/law-topic/data-protection/data-protection-eu_en) [<https://perma.cc/Y6JC-CVAS>].

35. Julia Powles, *The G.D.P.R., Europe’s New Privacy Law, and the Future of the Global Data Economy*, NEW YORKER (May 25, 2018), <https://www.newyorker.com/tech/annals-of-technology/the-gdpr-europes-new-privacy-law-and-the-future-of-the-global-data-economy> [<https://perma.cc/4TAS-885X>].

for the regulation’s complexity and ambiguity is that EU member states “have different historical experiences and contemporary attitudes about data collection.”<sup>36</sup> Despite the convoluted principles — for example, the GDPR “promises to ease restrictions on data flows while allowing citizens to control their personal data”<sup>37</sup> — the regulation has seemingly served as a prototype for comprehensive data protection legislation in other countries. For instance, commentators have described China’s Personal Information Security Specification, which defines technical standards related to the collection, storage, use, sharing, transfer, and disclosure of personal information, as modeled on the GDPR.<sup>38</sup> Others have warned that the GDPR is likely to result in unintended negative consequences.<sup>39</sup>

### *B. Goals of the General Data Protection Regulation*

The objective of the GDPR is to safeguard the right to personal data protection, while ensuring that data moves freely within the EU.<sup>40</sup> In 2011, several high-profile incidents of personal data loss across Europe “prompted wide discussion on the level of security given to personal information shared, processed, stored, and transmitted electronically.”<sup>41</sup> It also marked the first year that more than half of the United States (“U.S.”) population had a social media profile.<sup>42</sup> The ubiquity of social media<sup>43</sup> — coupled with the acknowledgment that data can reveal intimate details about a person, such as “insights about

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36. Alison Cool, *Europe’s Data Protection Law Is a Big, Confusing Mess*, N.Y. TIMES (May 15, 2018), <https://www.nytimes.com/2018/05/15/opinion/gdpr-europe-data-protection.html> [<https://perma.cc/AC8E-U6XC>]. As of January 31, 2020, there are twenty-seven EU member states, as the United Kingdom left the EU. *Questions and Answers on the United Kingdom’s Withdrawal from the European Union on 31 January 2020*, EUR. COUNCIL (Jan. 24, 2020), [https://ec.europa.eu/commission/presscorner/detail/en/qanda\\_20\\_104](https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_104) [<https://perma.cc/TK5F-HX2L>].

37. *Id.*

38. See Samm Sacks, *China’s Emerging Data Privacy System and GPDR*, CTR. FOR STRATEGIC AND INT’L STUD. (Mar. 9, 2018), <https://www.csis.org/analysis/chinas-emerging-data-privacy-system-and-gdpr> [<https://perma.cc/WD7X-GDDE>].

39. See, e.g., Niam Yaraghi, *A Case Against the General Data Protection Regulation*, BROOKINGS INST. (June 11, 2018), <https://www.brookings.edu/blog/techtank/2018/06/11/a-case-against-the-general-data-protection-regulation> [<https://perma.cc/W38G-8WVT>] (asserting that the “GDPR could increase the cost of the services that consumers are so used to receiving free of charge” and could “lower quality of services and products”).

40. See GDPR, *supra* note 1.

41. EUR. NETWORK & INFO. SEC. AGENCY, DATA BREACH NOTIFICATIONS IN THE EU 4 (2011).

42. When Pew Research Center began tracking social media adoption in 2005, just 5% of American adults used at least one of these platforms; by 2011 that share had risen to half of all Americans, and today 72% of the public uses some type of social media. *Social Media Fact Sheet*, PEW RSCH. CTR. (Apr. 7, 2021), <https://www.pewresearch.org/internet/fact-sheet/social-media> [<https://perma.cc/9D92-V6KR>].

43. *Id.* (reporting that, in 2011, “23 percent of Facebook’s users check their account five or more times every day”).

your personality, your political leanings, how you spend your free time, your opinions on all manner of topics, what your priorities are, how you feel about yourself, and even where you physically are at any given moment”<sup>44</sup> — catalyzed discussions of a new data protection regime in the EU.

After more than four years of negotiation and roughly four thousand amendments,<sup>45</sup> the GDPR emerged, in part, to “let people reduce the trail of information left when browsing social media.”<sup>46</sup> However, “[w]hat are often framed as legal and technical questions are also questions of values.”<sup>47</sup> The ninety-nine articles enshrined by the GDPR represent a series of compromises between the twenty-seven member states, all of which have different histories that inform their perspective on privacy and data protections.<sup>48</sup> For example, “Germans, recalling the Nazis’ deadly efficient use of information, are suspicious of government or corporate collection of personal data; people in Nordic countries, on the other hand, link the collection and organization of data to the functioning of strong social welfare systems.”<sup>49</sup> In an effort to cohere the divergent positions in the EU on the appropriate extent of data collection, the regulation promises to both stimulate European economic growth and protect the right to privacy,<sup>50</sup> while remaining technologically neutral.<sup>51</sup>

The GDPR takes a prescriptive and process-oriented approach, detailing how companies must manage privacy. The regulation builds upon the 1995 Data Protection Directive,<sup>52</sup> which predates email, smart phones, and social media, by introducing new safeguards accounting for technological advancements. The year before the regulation was implemented, the Information Commissioner summarized the aim:

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44. Shayne Rodriguez Thompson, *Your Social Media Posts Could Be Revealing Way Too Much*, MAMÁS LATINAS (June 7, 2020), <https://mamaslatinas.com/life-inspiration/154655-what-social-media-says-about-you> [<https://perma.cc/A2BW-STKF>].

45. *General Data Protection Regulation*, PRICEWATERHOUSECOOPERS, (Jan. 25, 2012), <https://www.pwc.com/cy/en/publications/assets/general-data-protection-regulation-why-how-when-january-2017.pdf> [<https://perma.cc/M88J-5SRE>].

46. Adam Satariano, *G.D.P.R., a New Privacy Law, Makes Europe World’s Leading Tech Watchdog*, N.Y. TIMES (May 24, 2018), <https://www.nytimes.com/2018/05/24/technology/europe-gdpr-privacy.html> [<https://perma.cc/UMM8-BWUD>].

47. Cool, *supra* note 36.

48. *Id.*

49. *Id.*

50. *Id.*

51. See GDPR, *supra* note 1, recital 15.

52. See Data Protection Directive 95/46, 1995 O.J. (L 281) (EC); see also Nate Lord, *What Is the Data Protection Directive? The Predecessor to the GDPR*, DIGIT. GUARDIAN (Sept. 12, 2018), <https://digitalguardian.com/blog/what-data-protection-directive-predecessor-gdpr> [<https://perma.cc/2KTB-4VR6>] (“The GDPR builds on the key tenets of the [Data Protection Directive] with more specific data protection requirements, a global scope, and stiffer enforcement as well as non-compliance penalties.”).

The new legislation creates an onus on companies to understand the risks that they create for others, and to mitigate those risks. It's about moving away from seeing the law as a box ticking exercise, and instead to work on a framework that can be used to build a culture of privacy that pervades an entire organisation.<sup>53</sup>

The GDPR intends to simplify the regulatory environment for companies, hoping that the less complicated the law is, the more control citizens can exercise over their data. As a European Commission press release explained, “[c]itizens and businesses will profit from clear rules that are fit for the digital age.”<sup>54</sup> “With solid common standards for data protection, people can be sure they are in control of their personal information.”<sup>55</sup>

### III. THE METAVERSE, A MICROCOSM BUILT ON DATA

A term with its origins in science fiction literature, the metaverse is not a new concept. Neal Stephenson's 1992 novel *Snow Crash* first introduced the concept, and Ernest Cline's 2011 novel *Ready Player One* reimagined it as the “Oasis.”<sup>56</sup> Recently, however, there has been a renewed interest in the metaverse, epitomized by Facebook's rebranding as Meta.<sup>57</sup> The metaverse is like the Internet in the sense that it is a platform beyond the physical world; however, it differs because it is immersive. As venture capitalist Matthew Ball explains, the metaverse is “about being within the computer rather than accessing the computer. It's about being always online rather than always having access to an online world.”<sup>58</sup> And it is not only Facebook creating an online world:

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53. *Information Commissioner Talks GDPR and Accountability in Latest Speech*, WIRE (Jan. 18, 2017, 2:27 PM), <https://www.wired-gov.net/wg/news.nsf/articles/Information+Commissioner+talks+GDPR+and+accountability+in+latest+speech+18012017152000?open> [<https://perma.cc/EQ32-HFG2>].

54. European Commission Press Release IP/15/6321, *supra* note 30.

55. *Id.*

56. Andrew Morse & Scott Stein, *The Metaverse Is on the Way: Here's What You Need to Know*, CNET (Mar. 27, 2022, 7:16 AM), <https://www.cnet.com/tech/services-and-software/the-metaverse-is-everywhere-heres-what-you-need-to-know> [<https://perma.cc/A89M-JLP9>].

57. *Id.*; cf. Siobhan Fagan, *Why Web3 and Web 3.0 Are Not the Same*, REWORKED (Mar. 24, 2022), <https://www.reworked.co/information-management/why-web3-and-web-30-are-not-the-same> [<https://perma.cc/S2WC-G85S>] (explaining that the “evolution of Web 3.0” was “driven by the future decentralized web by focusing on blockchain technology, encryption and cryptocurrencies”).

58. Brian X. Chen, *What's All the Hype About the Metaverse?*, N.Y. TIMES (Jan. 18, 2022), <https://www.nytimes.com/2022/01/18/technology/personaltech/metaverse-gaming-definition.html> [<https://perma.cc/C8T3-GJP5>].

Businesses in all sectors — from law firms<sup>59</sup> to retail corporations<sup>60</sup> — are integrating into the metaverse.

According to Ball, the metaverse “is a massively scaled and inoperable network of real-time rendered [three-dimensional] virtual worlds which can be experienced synchronously by an effectively unlimited number of users with an individual sense of presence, and with continuity of data, such as identity, history, entitlements, objects, communications, and payments.”<sup>61</sup> In the non-fiction realm, the metaverse is already apparent in the terrestrial and digital worlds. For example, during the COVID-19 pandemic, companies were able to adapt to remote work with virtual reality and augmented reality technologies.<sup>62</sup> Additionally, virtual art galleries and meeting spaces are becoming more popular.<sup>63</sup> Furthermore, the definition of the metaverse is so broad that one can argue video game developers whose games allowed players to gather in two-dimensional environments in fact created the first digital worlds.<sup>64</sup>

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59. In February 2022, Arent Fox was the first major law firm to open in the metaverse. Debra Cassens Weiss, *Major Law Firm Buys Property in the Metaverse and Opens Virtual Office*, A.B.A. J. (Feb. 17, 2022, 9:38 AM), <https://www.abajournal.com/news/article/major-law-firm-buys-property-in-the-metaverse-and-opens-virtual-office> [<https://perma.cc/LP5Z-TY57>] (“[Arent Fox’s metaverse office] is not only symbolic. We are attempting to find the solution and actually operating in the space. We don’t know what the metaverse will be in five years, but we’re not waiting five years to find out. We’re going to help iterate that future.” (quoting Anthony Lupo, Arent Fox Chairman)).

60. Recent trademark applications indicate Walmart is “looking to establish its own NFTs and cryptocurrency.” Emma Roth, *Walmart Is Getting Serious About the Metaverse*, VERGE (Jan. 16, 2022, 6:07 PM), <https://www.theverge.com/2022/1/16/22887011/walmart-metaverse-nft-cryptocurrency> [<https://perma.cc/KR9B-RXX2>].

61. Matthew Ball, *Framework for the Metaverse*, MATTHEWBALL.VC (June 29, 2021), <http://www.matthewball.vc/all/forwardtothemetaverseprimer> [<https://perma.cc/H3LF-YF7Y>].

62. One article noted that “global spending on [augmented reality] and [virtual reality] headsets, software and services, including purchases by consumers, rose in 2020 to \$12 billion, up 50 [percent] from 2019.” Sergei Vardomatski, *Augmented and Virtual Reality After Covid-19*, FORBES (Sept. 14, 2021, 9:30 AM), <https://www.forbes.com/sites/forbestechcouncil/2021/09/14/augmented-and-virtual-reality-after-covid-19> [<https://perma.cc/83TC-AR4M>].

63. For example, Sensorium (virtual music), Illust Space (virtual art gallery), and Oculus and Horizon World (virtual meeting spaces) show that the metaverse is also impacting cultural experiences. See SENSORIUM GALAXY, <https://sensoriumgalaxy.com> [<https://perma.cc/E5MP-U3JF>] (explaining that “Sensorium Galaxy brings real-life experiences into a digital metaverse,” allowing participants to “[d]iscover music in fantastical sites well outside the confines of everyday existence”); Noah Newfield, *Planting the Seeds of the Metaverse*, ILLUSTRATION (Oct. 25, 2021), <https://www.illustration.space/planting-the-seeds-of-the-metaverse> [<https://perma.cc/6SW2-S7ER>] (describing Illust Space as “an open augmented reality metaverse layered on top of our physical world”); *Meta Horizon Worlds: Learn to Create*, META QUEST, <https://www.oculus.com/horizon-worlds/learn> [<https://perma.cc/V9XK-ZNH2>] (“In Horizon Worlds, you and your friends can collaborate and bring your wildest ideas to life without ever leaving [virtual reality].”).

64. For example, video games Second Life, Sandbox, Fortnite, Roblox, and Pokémon Go all integrate aspects of the metaverse, such as virtual avatars and augmented reality, into their games. See The Sandbox, *What Is The Sandbox?*, MEDIUM (June 30, 2020), <https://medium.com/sandbox-game/what-is-the-sandbox-850de68d893e> [<https://perma.cc/62ZC-QM2N>] (“The Sandbox is a virtual world where players can build, own, and monetize their gaming experiences in the Ethereum blockchain.”); *Living a Second Life*, THE ECONOMIST

The metaverse is not a unitary concept; no single company or platform could operate the metaverse. Rather, it must be administered by many entities in a decentralized manner. In a 2021 press release entitled “Building the Metaverse Responsibly,” Facebook admitted “[t]he metaverse isn’t a single product one company can build alone. Just like the internet, the metaverse exists whether Facebook is there or not.”<sup>65</sup> Others, however, expect there to be multiple metaverses — multiple worlds through which users will move, “like [they] do now with streaming services.”<sup>66</sup> Venture capitalist Bradley Tusk predicts a swath of government-owned metaverses, such as a metaverse of air traffic:

[A]n immersive environment that shows everything in the sky — aircraft, helicopters, drones, flying cars — including detailed schematic of airports, flight plans, traffic rules (including no-fly zones), and other data that allow all kinds of aircraft to interact with one another rather than relying on each vehicle’s own internal routing.<sup>67</sup>

Facebook boasts 77.28% of market share in the social media sector of the EU, with Instagram and Twitter following at 7.61% and 6.05%, respectively.<sup>68</sup> The company recorded 427 million monthly active EU

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(Sept. 28, 2006), <https://www.economist.com/special-report/2006/09/28/living-a-second-life> [<https://perma.cc/4QKR-CGLZ>] (describing how the game Second Life operates as a “metaverse”); Alex Perry, *The ‘Real’ Metaverse Already Exists and It’s Called ‘Fortnite,’* MASHABLE (Sept. 2, 2022), <https://mashable.com/article/fortnite-is-the-real-metaverse> [<https://perma.cc/Z5YQ-YDDN>] (“Fortnite isn’t really a video game. It’s a . . . virtual hangout space with a video game happening around it”); Jordan McDonald, *Roblox’s Metaverse Is Already Here, and It’s Wildly Popular*, EMERGING TECH BREW (Dec. 10, 2021), <https://www.emergingtechbrew.com/stories/2021/12/10/roblox-s-metaverse-is-already-here-and-it-s-wildly-popular> [<https://perma.cc/N662-DZ9K>] (“One of the most successful players in the metaverse world is Roblox. Founded in 2004, the platform now has 47 million daily active users globally and 9.5 million developers who build out ‘experiences,’ aka user-created worlds and games.”).

65. Andrew Bosworth & Nick Clegg, *Building the Metaverse Responsibly*, META (Sept. 27, 2021), <https://about.fb.com/news/2021/09/building-the-metaverse-responsibly> [<https://perma.cc/8JUC-DXYQ>].

66. Bradley Tusk, *Regulating the Metaverse(s)*, MIRROR (Jan. 31, 2022), [https://mirror.xyz/0x81dB200eD62Ce664B911C211b55F836a208Df868/n-8osyXE18Dzv\\_qnrBR11CdxF55zdIMLP6OI3yU9igY](https://mirror.xyz/0x81dB200eD62Ce664B911C211b55F836a208Df868/n-8osyXE18Dzv_qnrBR11CdxF55zdIMLP6OI3yU9igY) [<https://perma.cc/KNZ9-Z2VL>].

67. *Id.*

68. *Social Media Stats Europe*, STATCOUNTER, <https://gs.statcounter.com/social-media-stats/all/europe> [<https://perma.cc/VJA5-NLXX>]; see also Nicola Mendelsohn, *New Report Shows Impact of Facebook Apps on the European Economy*, META (Jan. 20, 2020), <https://about.fb.com/news/2020/01/european-economic-impact-report> [<https://perma.cc/5LP8-SUZB>] (studying “the critical role social media plays in driving sales for businesses across Europe”).

Facebook users in the fourth quarter of 2021.<sup>69</sup> However, Facebook, now Meta, is not the only company venturing into the virtual space: Microsoft<sup>70</sup> and Nvidia,<sup>71</sup> among others, have also announced plans for the metaverse, albeit in different spaces.

The metaverse will collect a vast amount of personal data on anyone using any part of these spaces. Commentator David Hoppe explained that “[t]he interconnected universe can be expected to collect, store, and rely on more personal data than ever before by unifying currently disparate personalized digital experiences that range from shopping to virtual travel, to entertainment, and information gathering.”<sup>72</sup> Tusk explained that, despite the lack of a definitive timeline for the development of the metaverse,

[w]e know it’s going to be a place where people will interact with each other, where they will buy and sell goods, services, information and access. It’s also a place where communities will form around education, culture, entertainment and faith, and where the traditional boundaries of personal data, property, and privacy will be thrown wide open.<sup>73</sup>

The metaverse represents a place where our physical world blends with a virtual one, meaning that the demand for sharing and exposing data with technology corporations and other third parties will also transcend borders.

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69. S. Dixon, *Facebook: Monthly Active Users in Europe 2012–2022*, STATISTA (July 28, 2022), <https://www.statista.com/statistics/745400/facebook-europe-mau-by-quarter> [<https://perma.cc/V4AN-VHUX>].

70. Microsoft described the \$75 billion acquisition of “videogame giant” Activision Blizzard “as a pathway to the metaverse.” Sarah E. Needleman, *What the Metaverse Has to Do With Microsoft’s Deal for Activision Blizzard*, WALL ST. J. (Jan. 20, 2022, 5:33 AM), <https://www.wsj.com/articles/what-the-metaverse-has-to-do-with-microsofts-deal-for-activision-11642674603> [<https://perma.cc/6YJS-4HFA>].

71. In 2022, Nvidia said that “it would give away software for free to artists and other creators building virtual worlds for the metaverse and that it has made technology deals with several marketplaces where artists sell the three-dimensional content they create.” Stephen Nellis, *Nvidia Embraces the Metaverse with New Software, Marketplace Deals*, REUTERS (Jan. 4, 2022, 12:09 PM), <https://www.reuters.com/technology/nvidia-embraces-metaverse-with-new-software-marketplace-deals-2022-01-04> [<https://perma.cc/E3WT-WPUR>].

72. David Hoppe, *Heavy Meta: Privacy and Cybersecurity in the Metaverse*, GAMMA L. (Jan. 10, 2022), [https://gammalaw.com/heavy-meta-privacy-and-cybersecurity-in-the-metaverse/?utm\\_source=Mondaq&utm\\_medium=syndication&utm\\_campaign=LinkedIn-integration](https://gammalaw.com/heavy-meta-privacy-and-cybersecurity-in-the-metaverse/?utm_source=Mondaq&utm_medium=syndication&utm_campaign=LinkedIn-integration) [<https://perma.cc/RP8J-VSY2>].

73. Tusk, *supra* note 66.

*A. Facebook Patents for the Metaverse*

Facebook patents offer a glimpse into the infrastructure of the metaverse from which to extrapolate privacy concerns. At the beginning of 2022, *Business Insider* reviewed “hundreds of applications to the [U.S.] Patent and Trademark Office,” revealing that Facebook is developing technologies “that wield users’ biometric data in order to help power what the user sees and ensure their digital avatars are animated realistically.”<sup>74</sup> Facebook first introduced three-dimensional digital avatars in 2021 in its virtual reality headset, Oculus.<sup>75</sup> As of January 2022, the existing avatar-creation tools are available across the company’s other platforms, including Facebook, Messenger, and Instagram.<sup>76</sup>

One patent is designed to create “‘avatar fidelity and personalization,’ which suggests that avatars in the metaverse could closely resemble their real-life counterparts.”<sup>77</sup> Artificial intelligence (“AI”) can create three-dimensional avatars based on a user’s experience, allowing users to wear “clothes that actually wrinkle as [they] move[.]”<sup>78</sup> In addition, there is a “‘wearable magnetic sensor system’ to be placed around the torso for ‘body pose tracking.’”<sup>79</sup> The result of aggregating such granular data is hyper-realistic digital replicas of humans, causing one legal reformer to liken the technology to a “human-cloning programme,” explaining that “[Facebook] aims to be able to simulate you down to every skin pore, every strand of hair, every micromovement.”<sup>80</sup>

The patents also signify that Facebook’s head of global affairs, Nick Clegg, was right when he said that “the business model in the metaverse is commerce-led.”<sup>81</sup> Facebook currently tailors user content based on demographics, such as age and gender, and users’ “likes” and

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74. Hannah Murphy, *Facebook Patents Reveal How It Intends to Cash in on Metaverse*, FIN. TIMES (Jan. 18, 2022), <http://www.ft.com/content/76d40aac-034e-4e0b-95eb-c5d34146f647> [<https://perma.cc/Z53F-VDZY>].

75. Scott Stein, *Facebook Adds New Avatars to Oculus VR: Here’s How to Get One*, CNET (Apr. 23, 2021, 8:57 AM), <https://www.cnet.com/tech/gaming/facebook-adds-new-avatars-to-oculus-vr-heres-how-to-get-one> [<https://perma.cc/V2G8-34L5>].

76. Scott Stein, *Facebook’s Latest Metaverse Move: Dropping Avatars into Instagram*, CNET (Jan. 31, 2022, 10:38 AM), <https://www.cnet.com/tech/computing/facebook-latest-metaverse-move-dropping-avatars-into-instagram> [<https://perma.cc/8B25-JG9J>].

77. Gabrielle Bienasz, *4 Innovations that Give a Sneak Peek into the Metaverse*, INC. (Jan. 13, 2022), <https://www.inc.com/gabrielle-bienasz/facebook-metaverse-meta-patent-review.html> [<https://perma.cc/XM7U-CGYZ>].

78. *Id.* Users can also have more than one avatar, so a person could create “a more realistic persona for [virtual reality] meetings and a more fantastical one for . . . social media profiles.” Jon Fingas, *Meta’s Upgraded 3D Avatars Work Across Facebook, Instagram and VR*, ENGADGET (Jan. 31, 2022, 1:00 PM), <https://www.engadget.com/facebook-instagram-3d-avatars-upgrade-180051176.html> [<https://perma.cc/J7VG-SJ2X>].

79. Murphy, *supra* note 74.

80. *Id.*

81. *Id.*

comments.<sup>82</sup> The patents mention adapting content based on users' biological responses through "eye and face tracking technology" that enables companies to individualize users' metaverse experiences.<sup>83</sup> For example, one patent encompasses technology that allows users' eye movements to steer them around the virtual world, allowing them to "be shown brighter graphics where their gaze falls,"<sup>84</sup> while another would allow "spectator images," by which users could invite others to share their view of something without either party having to be present.<sup>85</sup> For example, Cryptic Entertainments, an infotainment music label and production house, organized India's first metaverse concert on Somnium Space, a virtual world, with Sparsh Dangwal, a twenty-two-year-old pop artist from India,<sup>86</sup> performing a concert attended by twenty-five to thirty people.<sup>87</sup> Such virtual concerts allow attendees to share their real-time view of the stage with people not physically present at the concert through metaverse channels.<sup>88</sup>

Another patent referenced a "'virtual store' where users can buy digital goods, or items that correspond with real-world goods that have been sponsored by brands."<sup>89</sup> Like the metaverse, cryptocurrency is untethered in value and form from tangible fiat currencies, making it a convenient transactional mode in the virtual world. With blockchain serving as the underlying technology of many cryptocurrencies, "[e]xperts agree that it is impossible to realize the idea of a fully-fledged virtual ecosystem without blockchain technology."<sup>90</sup> Because

82. Facebook's "Facebook Audience Insights" tool allows marketers to "learn more about their target audiences, including aggregate information about geography, demographics, purchase behavior and more." *Learn More About the People that Matter to Your Business with Facebook Audience Insights*, META (May 1, 2020), <https://www.facebook.com/business/news/audience-insights> [<https://perma.cc/9HM3-CNLH>].

83. Murphy, *supra* note 74. Yet another patent "lays out a system for tracking a user's facial expressions through a headset that will then 'adapt media content' based on those responses." *Id.*

84. *Id.*

85. Kali Hays, *Facebook's Vision for a Hyperrealistic Metaverse Includes 'Body Pose Tracking,' 'Pupil Steering,' Clothing that Wrinkles with Movement, and a 'Magnetic Sensor System' Worn Around the Torso, According to Recent Patent Filings.*, BUS. INSIDER (Jan. 11, 2022, 5:00 AM), <https://www.businessinsider.com/facebook-meta-patents-show-vision-for-hyperrealistic-metaverse-2022-1> [<https://perma.cc/8Z6G-NMGR>].

86. See Sparsh Dangwal, SUBMITHUB, <https://www.submithub.com/artist/sparsh-dangwal> [<https://perma.cc/B49K-FZNH>].

87. Anuj Bhatia, *What India's First Metaverse Concert Tells Us About the Future of Virtual Music Events*, INDIAN EXPRESS (Jan. 5, 2022, 12:21 PM), <https://indianexpress.com/article/technology/tech-news-technology/indias-first-metaverse-music-concert-virtual-reality-7706446> [<https://perma.cc/JZH7-KP6Y>].

88. See *id.*

89. Murphy, *supra* note 74.

90. *Decentralized Economy — the Role of Blockchain in the Metaverse*, PIXELPLEX (Feb. 9, 2022), <https://pixelplex.io/blog/importance-of-blockchain-in-metaverse> [<https://perma.cc/J8J8-B842>].

it “enables users to protect their digital assets in virtual reality,” blockchain is an “integral part of the metaverse.”<sup>91</sup>

Facebook claims that “[t]o increase user interaction with the virtual world, objects and locations presented in the virtual world may be customized for individual users of the online system.”<sup>92</sup> On its web-based platform, Facebook recently replaced its “Relevance Score” with “Ad Relevance Diagnostics,” which “consider[s] how relevant each ad is to a person before delivering an ad to that person.”<sup>93</sup> The former method used a relevance score of one to ten points for expected engagement with an ad.<sup>94</sup> The new formula includes the additional metrics of quality ranking, engagement rate ranking, and conversion rate ranking.<sup>95</sup> Basically, instead of a single one-to-ten rating, the advertiser now has more comprehensive guidance for personalizing their ad results.<sup>96</sup> As the label “Ad Relevance Diagnostics” suggests, Facebook’s advertisement-delivery strategy is becoming increasingly tailored to each user. Similarly, according to Facebook:

[The metaverse] generates a score for an organic appearance of the object based on characteristics associated with the user (e.g., information in a user profile of the user, actions associated with the user profile of the user). In one embodiment, a score for the organic appearance represents an affinity of the user to the organic appearance, which provides an indication of the user’s likelihood of interacting with the object when presented using the organic appearance.<sup>97</sup>

In addition to actions outside the metaverse, such as joining a particular Facebook group or providing a review on a recently purchased product, actions inside the metaverse or even within a user’s line of sight may influence what advertisements they see and even what objects look like once injected into immersive worlds.<sup>98</sup>

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91. *Id.*

92. U.S. Patent No. 10,192,403 (filed Jan. 29, 2019).

93. *About Ad Relevance Diagnostics*, META BUS. HELP CTR., <https://www.facebook.com/business/help/403110480493160?id=561906377587030> [<https://perma.cc/L87E-HJHS>].

94. *Showing Relevance Scores for Ads on Facebook*, META, <https://www.facebook.com/business/news/relevance-score> [<https://perma.cc/VV6V-2HLP>].

95. *About Ad Relevance Diagnostics*, *supra* note 93.

96. *See id.*

97. U.S. Patent No. 10,192,403, *supra* note 92.

98. *See* Louis Rosenberg, *Marketing in the Metaverse: A Fundamental Shift*, FUTURE OF MKTG. INST. (Apr. 15, 2022), <https://futureofmarketinginstitute.com/marketing-in-the-metaverse-a-fundamental-shift> [<https://perma.cc/7XQJ-4LG9>] (describing a “Virtual Product Placement (VPP) [as] a simulated product, service, or activity . . . [that] appears to the user as an integrated element of the ambient environment,” and a “Virtual Spokesperson (VSP) [as] a simulated human or other animated character . . . that verbally conveys promotional content on behalf of a paying sponsor, often engaging the target user in interactive promotional

#### IV. THE META-TERRITORIAL REACH OF THE GENERAL DATA PROTECTION REGULATION

Applying the GDPR's provisions to the metaverse's technologies may reveal the extent of the regulation's extraterritoriality. First, I highlight some of the privacy concerns that the GDPR may not currently cover. Then, I suggest amendments to the regulation to better protect metaverse users.

##### *A. Privacy Concerns in the Metaverse*

Ultimately, the metaverse could provide organizations with an exponentially more powerful tool for oversight and surveillance. To contextualize the degree of monitoring, consider two German cases that resulted in fines for data protection violations. In the first case, on October 5, 2020, the Data Protection Authority of Hamburg, Germany, fined clothing retailer Hennes & Mauritz Aktiebolag ("H&M") for €35,258,707.95<sup>99</sup> — the highest GDPR penalty ever imposed at the time.<sup>100</sup> H&M's GDPR violations involved the "monitoring of several hundred employees."<sup>101</sup> After employees took vacation or sick leave, they were asked to attend a return-to-work meeting.<sup>102</sup> Some of these meetings were recorded and partially accessible to over fifty H&M managers.<sup>103</sup> Senior H&M staff gained "a broad knowledge of their employees' private lives . . . ranging from rather harmless details to family issues and religious beliefs."<sup>104</sup> These "detailed profile[s]" were used to help evaluate employees' performance and make decisions about their employment.<sup>105</sup> In a similar case on January 8, 2021, the

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conversation"). To illustrate a VPP, a user might be profiled as a sports fan of a particular age and income level and then see someone walking past him or her down the street (virtual or augmented) wearing a jersey that promotes a high-end sports bar two blocks ahead of the user. *Id.* Because this VPP would be targeted, other people around the user would not see the same content; instead, they would encounter different promotional artifacts customized to their profiles. *Id.* By comparison, a user encountering a VSP might overhear a simulated couple discussing a new car they purchased, touting the features and benefits; that user might perceive those comments as authentic views of genuine purchasers and not as targeted promotional content. *Id.*

99. *Hamburg Commissioner Fines H&M 35.3 Million Euro for Data Protection Violations in Service Centre*, EUR. DATA PROT. BD. (Oct. 2, 2020), [https://edpb.europa.eu/news/national-news/2020/hamburg-commissioner-fines-hm-353-million-euro-data-protection-violations\\_en](https://edpb.europa.eu/news/national-news/2020/hamburg-commissioner-fines-hm-353-million-euro-data-protection-violations_en) [<https://perma.cc/CZA2-UWE6>] [hereinafter *Hamburg Commissioner Fines H&M*].

100. Carly Page, *H&M Hit with Record-Breaking GDPR Fine over Illegal Employee Surveillance*, FORBES (Oct. 2, 2020, 7:20 AM), <https://www.forbes.com/sites/carlypage/2020/10/02/hm-hit-with-record-breaking-gdpr-fine-over-illegal-employee-surveillance> [<https://perma.cc/D69Y-AQ3Y>].

101. *Hamburg Commissioner Fines H&M*, *supra* note 99.

102. *Id.*

103. *Id.*

104. *Id.*

105. *Id.*

German electronics retailer notebooksbilliger.de (“NBB”) used video surveillance to monitor its employees and customers.<sup>106</sup> The surveillance ran for at least two years, and NBB reportedly kept recordings for up to sixty days.<sup>107</sup> NBB said it needed to record its staff and customers to prevent theft.<sup>108</sup> The State Commissioner for Data Protection in Lower Saxony, however, said that the monitoring was an intrusion on NBB’s employees’ and customers’ privacy and issued a €10.4 million fine.<sup>109</sup>

The major violations discussed took place outside of the metaverse, and the metaverse promises a much greater degree of surveillance. One can imagine a metaverse state in which all individual behaviors, transactions, and social interactions are tracked, labeled, and used to personalize future metaverse experiences. The metaverse will constantly — not just for two years — have access to “detailed profile[s]”<sup>110</sup> of billions of users.

Facebook claims it is looking into how it can minimize “the amount of data that’s used, build technology to enable privacy-protective data uses and give people transparency and control over their data.”<sup>111</sup> However, in the hundreds of patents reviewed by *Business Insider*, “[n]one mention [consumer] privacy or safety.”<sup>112</sup> Facebook generates over four petabytes of data per day,<sup>113</sup> or two trillion pages of standard printed text.<sup>114</sup> On its web-based platform, Facebook collects data through users’ actions on its social networks — Instagram, WhatsApp, and Facebook — such as “[l]iking posts and clicking on ads.”<sup>115</sup> Additionally, “Facebook allows businesses to upload lists of people they want to reach directly with contact information.”<sup>116</sup> As the Electronic

106. *State Commissioner for Data Protection in Lower Saxony Imposes € 10.4 Million Fine Against notebooksbilliger.de*, EUR. DATA PROT. BD. (Jan. 26, 2021), <https://edpb.europa.eu/news/national-news/2021/state-commissioner-data-protection-lower-saxony-imposes-eu-104-million-fine> [https://perma.cc/7553-S9MR].

107. *Id.*

108. *Id.*

109. *Id.*

110. *Hamburg Commissioner Fines H&M*, *supra* note 99.

111. Kate O’Flaherty, *Why Facebook’s Metaverse Is a Privacy Nightmare*, FORBES (Nov. 13, 2021, 6:30 AM), <https://www.forbes.com/sites/kateoflahertyuk/2021/11/13/why-facebooks-metaverse-is-a-privacy-nightmare/?sh=7dcf0066db85> [https://perma.cc/ZS82-97MB].

112. Hays, *supra* note 85 (categorizing the patents reviewed by *Business Insider*).

113. Ankush Sinha Roy, *How Does Facebook Handle the 4+ Petabyte of Data Generated per Day? Cambridge Analytica - Facebook Data Scandal*, MEDIUM (Sept. 15, 2020), <https://medium.com/@srank2000/how-facebook-handles-the-4-petabyte-of-data-generated-per-day-ab86877956f4> [https://perma.cc/5REU-B3VR].

114. *See What Is a Petabyte?*, TERADATA, <https://www.teradata.com/Glossary/What-is-a-Petabyte> [https://perma.cc/S659-GACV].

115. Bennett Cyphers, *A Guided Tour of the Data Facebook Uses to Target Ads*, ELEC. FRONTIER FOUND. (Jan. 24, 2019), <https://www.eff.org/deeplinks/2019/01/guided-tour-data-facebook-uses-target-ads> [https://perma.cc/X7MM-Q4CB].

116. *Id.*

Frontier Foundation explains, “[t]hanks to tech like pixel tracking and Facebook’s third-party ad network, Facebook can track a great deal of [users’] activity on other websites and in different apps on [users’] phone[s].”<sup>117</sup> Moreover, “Facebook can collect location data through its apps (including Instagram and Messenger), by asking to ‘know your location’ in [users’] browser[s], and by logging where [users] connect to the Internet.”<sup>118</sup>

The metaverse will require users to share even more personal data than traditional platforms do. Legislation tailored to the current social media landscape, such as the GDPR, falls short when confronting these increasingly pervasive technologies that gather more invasive forms of data. In addition to tracking how users interact with other websites with access to data across all devices and headsets, the metaverse could record how much blood is flowing to particular regions in users’ brains.<sup>119</sup> Although Facebook announced it was temporarily pausing its “project to build a ‘silent speech’ interface using optical technology to read thoughts — instead focus[ing] on an experimental wrist controller for virtual reality that reads muscle signals in the arm” — other companies are continuing to pursue “consumer brain-reading” efforts.<sup>120</sup> For example, Neuralink Corporation is a neurotechnology company that develops implantable brain-machine interfaces to “connect humans and computers” in the metaverse.<sup>121</sup> A disk-shaped device, about the size of a U.S. quarter coin, is placed into a hole drilled into the skull.<sup>122</sup> Each

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117. *Id.*; see also Natasha Singer, *What You Don't Know About How Facebook Uses Your Data*, N.Y. TIMES (Apr. 11, 2018), <https://www.nytimes.com/2018/04/11/technology/facebook-privacy-hearings.html> [<https://perma.cc/28AE-LH45>] (explaining how “Facebook tracks both its users and nonusers on other sites and apps”). Pixel tracking uses snippets of code to accumulate information about visitors to a platform. See *What Is a Tracking Pixel—Explained in 800 Words or Less*, DIGITALMARKETER (Sept. 17, 2019), <https://www.digitalmarketer.com/blog/what-is-tracking-pixel> [<https://perma.cc/RG9V-Y8G2>].

118. Cyphers, *supra* note 115.

119. See Louis Rosenberg, “Playing God”: *How the Metaverse Will Challenge Our Very Notion of Free Will*, BIGTHINK (Oct. 25, 2022), <https://bigthink.com/the-future/playing-god-metaverse-mind-control-free-will> [<https://perma.cc/U3L3-32SZ>] (“Other technologies exist to detect emotions from the blood-flow patterns on your face and the vital signs detected from sensors in your earbuds.”).

120. Antonio Regalado, *Facebook Is Ditching Plans to Make an Interface that Reads the Brain*, MIT TECH. REV. (July 14, 2021), <https://www.technologyreview.com/2021/07/14/1028447/facebook-brain-reading-interface-stops-funding> [<https://perma.cc/8XBC-NXV9>] (describing Facebook’s long-term plans to develop “head-mounted optical [brain-computer interface] technologies” for “consumer brain-reading”).

121. See *Breakthrough Technology for the Brain*, NEURALINK, <https://neuralink.com/> [<https://perma.cc/5S4X-3YMV>]; see also Falkris Lowlife, *Elon Musk’s Neuralink Metaverse: What It Would Look Like*, METAROIDS (Aug. 16, 2022), <https://metaroids.com/learn/elon-musk-neuralink-metaverse> [<https://perma.cc/J8XZ-R68A>] (exploring the prospect of a “Neuralink Metaverse”).

122. Jeremy Kahn & Jonathan Vanian, *Inside Neuralink, Elon Musk’s Mysterious Brain Chip Startup: A Culture of Blame, Impossible Deadlines, and a Missing CEO*, FORTUNE (Jan. 28, 2022), <https://fortune.com/longform/neuralink-brain-computer-interface-chip-implant-elon-musk/> [<https://perma.cc/FP48-JDJD>].

disk, referred to as a “Link,” has 64 threads with 16 electrodes on each thread, which are embedded in the brain.<sup>123</sup> Links wirelessly transmit information from 1,024 channels.<sup>124</sup> The metaverse accesses users’ biometric responses, such as neural pathway identification and pupil dilation, to curate users’ personal metaverse experience.<sup>125</sup> Moreover, research shows that eye-tracking data like gaze direction and pupil reactivity may implicitly contain information about a user’s “biometric identity, gender, age, ethnicity, body weight, personality traits, drug consumption habits, emotional state, skills and abilities, fears, interests, and sexual preferences.”<sup>126</sup> Therefore, eye movement data could be used to create a user profile that details subconscious states, mental conditions, or health issues.

With no information on how the metaverse plans to use sensitive data outside of the immersive experience, data sharing and stealing presents many possible risks to users. Facebook already makes a significant portion of its revenue by selling users’ data to data collection companies, who then sell it to other third parties,<sup>127</sup> such as advertising firms<sup>128</sup> and insurance companies.<sup>129</sup> The metaverse presents data-driven companies with more intimate data points, including biometrics, enabling far more invasive forms of user targeting. For example,

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123. *Id.*

124. *Id.*

125. See Aisling Ní Chúláin, *‘Reading Your Mind’: How Eyes, Pupils and Heart Rate Could Be Used to Target Ads in the Metaverse*, EURONEWS (Mar. 12, 2021), <https://www.euronews.com/next/2021/12/03/reading-your-mind-how-eyes-pupils-and-heart-rate-could-be-used-to-target-ads-in-the-metave> [<https://perma.cc/GD8H-GDX3>] (explaining that users’ biometric data could be used to structure their metaverse experience, particularly targeted advertisements).

126. Jacob Kröger, Otto Hans-Martin Lutz & Florian Müller, *What Does Your Gaze Reveal About You? On the Privacy Implications of Eye Tracking*, 14TH IFIP INT’L SUMMER SCH. ON PRIV. AND IDENTITY MGMT. 226, 226–41 (2019), <https://hal.inria.fr/hal-03378980> [<https://perma.cc/W9X8-KE3H>] (further noting that “[c]ertain eye tracking measures may even reveal specific cognitive processes and can be used to diagnose various physical and mental health conditions”).

127. See Jim Martin, *This is How Much Money Facebook Earns from Your Data Each Year*, TECH ADVISOR (Jan. 28, 2022, 1:30 AM), <https://www.techadvisor.com/article/745709/this-is-how-much-money-facebook-earns-from-your-data-each-year.html> [<https://perma.cc/J4XG-8TNY>] (reporting Facebook earns up to \$900 per year per user by selling each user’s personal information to other companies).

128. See Oliver Rist, *Social Media Advertisers Are Grabbing Huge Amounts of Your Data*, PC MAG. (Nov. 30, 2021), <https://www.pcmag.com/news/social-media-advertisers-are-grabbing-huge-amounts-of-your-data> [<https://perma.cc/87Q8-TTM9>]. Advertisement spending on social media is projected to reach over \$173 billion in 2022. Claire Beveridge, *56 Important Social Media Advertising Statistics for 2022*, HOOTSUITE (Feb. 24, 2022), <https://blog.hootsuite.com/social-media-advertising-stats> [<https://perma.cc/QNF2-HMJZ>].

129. See Anurag Shah, *3 Emerging Trends in Insurance, Social Media and Predictive Models*, AUREUS ANALYTICS (Nov. 14, 2019, 3:11 AM), <https://blog.aureusanalytics.com/blog/3-emerging-trends-in-insurance-social-media-and-predictive-models> [<https://perma.cc/6QLN-5PH8>]; see also Elizabeth Rivelli, *Your Social Media Could Affect Your Insurance Rates*, COVERAGE (Aug. 18, 2020), <https://www.coverage.com/insurance/status-update-your-social-media-activity-could-affect-your-insurance-rates> [<https://perma.cc/8357-NFPH>].

biometric data enables advertisers to tailor marketing techniques to users at such a granular level that the metaverse risks creating “virtual enslavement, where our devices are controlling what we see and implicitly controlling what we do, [so] we lose our freedom of thought.”<sup>130</sup> Overlaying existing targeted datasets with biometric inputs like heart rate could be comparable to mind-reading.<sup>131</sup> Insurance companies can also stand to benefit from more comprehensive and specific data. If the new technologies detect and divulge certain health issues, companies could leverage users’ metaverse information to justify increasing their insurance premiums.<sup>132</sup> Data compromise — the unauthorized access, disclosure, or modification of data — presents a serious threat to users.<sup>133</sup> The highly valuable, sensitive nature of the information renders it particularly vulnerable to security breaches. In the healthcare industry alone, 45 million individuals were affected by data attacks in 2021, up from 34 million in 2020.<sup>134</sup>

The invasive technology of the metaverse not only creates new privacy concerns but also exacerbates existing ones. Even without the metaverse, 15 million Americans become victims of identity theft annually.<sup>135</sup> The metaverse will provide cybercriminals with yet another

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130. John Koetsier, *The Metaverse Is the Internet*, FORBES (Oct. 25, 2021, 12:32 PM), <https://www.forbes.com/sites/johnkoetsier/2021/10/25/the-metaverse-is-the-internet/?sh=53ce0ce57b19> [<https://perma.cc/C2HR-SBAU>].

131. Chúláin, *supra* note 125.

132. See Ramnath Balasubramanian, Ari Chester & Nick Milinkovich, *Rewriting the Rules: Digital and AI-powered Underwriting in Life Insurance*, MCKINSEY & Co. (July 31, 2020), <https://www.mckinsey.com/industries/financial-services/our-insights/rewriting-the-rules-digital-and-ai-powered-underwriting-in-life-insurance> [<https://perma.cc/S56K-VGZ2>] (“In addition to using new sources of data, insurers have an opportunity to reinvent the paradigm that underlies today’s underwriting process. The current process translates information about age, gender, and tobacco use into a relatively narrow set of rating categories — standard, standard plus, preferred, and preferred plus. For applicants with more acute risk factors, insurers make table-rating adjustments to these categories, which can increase premiums by 300 percent or more.”). “The metaverse removes many of the geographic boundaries that can restrict the provision of healthcare services in daily life, and different countries vary immensely in their legal structure, especially with respect to their health laws.” Allison Fulton, Phil Kim & Julia K. Kadish, *Digital Health in the Metaverse: Three Legal Considerations*, NAT’L L. REV. (May 31, 2022), <https://www.natlawreview.com/article/digital-health-metaverse-three-legal-considerations> [<https://perma.cc/DXE5-FNE8>]. Importantly, “[w]hich regulations are implicated will depend upon how those services are rendered, as well as how those services are funded and paid.” *Id.* Relatedly, biometrics laws are defined by protecting an individual’s identity (measurements related to a person’s unique physical characteristics), not protecting his or her thoughts or impulses. Chúláin, *supra* note 125.

133. See *data compromise*, CYBERWIRE, <https://theycyberwire.com/glossary/data-compromise> [<https://perma.cc/ERB9-6X8H>] (defining “data compromise” as “the loss or exposure of information meant to be secure, private, or otherwise restricted”).

134. Heather Landi, *Healthcare Data Breaches Hit All-Time High in 2021, Impacting 45M People*, FIERCE HEALTHCARE (Feb. 1, 2022, 5:00 PM), <https://www.fiercehealthcare.com/health-tech/healthcare-data-breaches-hit-all-time-high-2021-impacting-45m-people> [<https://perma.cc/497N-GACN>].

135. Julija A., *20 Worrying Identity Theft Statistics for 2022*, FORTUNLY (Aug. 8, 2022), <https://fortunly.com/statistics/identity-theft-statistics> [<https://perma.cc/5CG4-SV34>].

attack vendor that collects data extensively. Individual identification and physical location, including the appearance of users' homes<sup>136</sup> and belongings, will be easier to deduce through "data generated by video of our homes and logs of our movements"<sup>137</sup> in the metaverse, with the potential to facilitate cyberstalking and cyberbullying. Financial records provide another avenue to potential misuse of information. Blockchains — decentralized, distributed databases secured by encryption — are the foundation of cryptocurrencies, the digital currencies of the metaverse.<sup>138</sup> Blockchain makes it possible for transactions to be recorded and distributed, but not edited, deleted, or destroyed.<sup>139</sup> Because of blockchain's distributed nature, each complete record necessarily has access to the blockchain transaction data itself, such that a cryptocurrency blockchain is publicly available and, for cryptocurrencies like Bitcoin, every transaction is traceable to an initial genesis block.<sup>140</sup> Bitcoin is considered "pseudonymous," meaning data points are not directly associated with a specific individual, but multiple appearances of an individual can be linked together.<sup>141</sup> However, a recent study by *The New York Times* described how enough pseudonymous location data can make identification of the individual trivial.<sup>142</sup>

Among the underlying technologies of the metaverse, AI has shown the power of processing personal data "to enhance immersive experiences and enable human-like intelligence of virtual agents."<sup>143</sup> Facebook's AI research spans diverse areas like content analysis, self-supervised speech processing, robotic interactions, computer vision,

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136. "Real estate sales on the four major metaverse platforms reached \$501 million in 2021." Robert Frank, *Metaverse Real Estate Sales Top \$500 Million, and Are Projected to Double This Year*, CNBC (Feb. 1, 2022, 6:42 PM), <https://www.cnbc.com/2022/02/01/metaverse-real-estate-sales-top-500-million-metametric-solutions-says.html> [<https://perma.cc/MG6G-2DDX>].

137. Tatum Hunter, *Surveillance Will Follow Us into 'the Metaverse,' and Our Bodies Could Be Its New Data Source*, WASH. POST (Jan. 13, 2022, 8:00 AM), <https://www.washingtonpost.com/technology/2022/01/13/privacy-vr-metaverse/> [<https://perma.cc/6ZC3-4ST9>].

138. Adam Hayes, *Blockchain Facts: What Is It, How It Works, and How It Can Be Used*, INVESTOPEDIA (Sept. 27, 2022), <https://www.investopedia.com/terms/b/blockchain.asp> [<https://perma.cc/QM3N-VUMZ>].

139. *See id.*

140. Steve Snyder, *The Privacy Questions Raised by Blockchain*, LAW360 (Jan. 14, 2019, 3:13 PM), <https://www.law360.com/banking/articles/1115579/the-privacy-questions-raised-by-blockchain> [<https://perma.cc/RYSK-DG2W>].

141. *See id.*

142. *See* Jennifer Valentino-Devries, Natasha Singer, Michael H. Keller & Aaron Krolik, *Your Apps Know Where You Were Last Night, and They're Not Keeping It Secret*, N.Y. TIMES (Dec. 10, 2018), <https://www.nytimes.com/interactive/2018/12/10/business/location-data-privacy-apps.html> [<https://perma.cc/2W5V-VS1W>] ("At least 75 companies receive anonymous, precise location data from apps whose users enable location services to get local news and weather or other information . . .").

143. Thien Huynh-The, Quoc-Viet Pham, Xuan-Quy Pham, Thanh Thi Nguyen, Zhu Han & Dong-Seong Kim, *Artificial Intelligence for the Metaverse: A Survey*, ARXIV (Feb. 15, 2022), <https://arxiv.org/pdf/2202.10336.pdf> [<https://perma.cc/Y442-975W>].

whole-body pose estimation, and much more.<sup>144</sup> Given the scope of AI, how will users know they are interacting with AI and not with other humans? As one augmented and virtual realities pioneer warned, with the power of an AI-enabled metaverse — which is ten times more powerful than the Internet — “we’re going to be confused [sic] and we’re going to be pulled out of reality.”<sup>145</sup>

*B. Suggested Amendments to the General Data Protection Regulation to Better Protect Metaverse Users*

In the metaverse, advanced technologies — from wearable magnetic sensor systems to pupil steering — will siphon data at an increasingly granular level. The variety and sheer volume of the data, including a person’s gait, eye movements, emotions, and more, will make it more difficult to safeguard.<sup>146</sup> As the amount of data created and stored continues to grow at unprecedented rates, the importance of data protection only increases. Yet “[o]ne of the potential problems with virtual reality is that we still haven’t answered many of the privacy problems we encounter in normal reality.”<sup>147</sup> As the metaverse “exists to breach the borders of reality and distance, connecting people from all over the globe,”<sup>148</sup> the GDPR would likely apply given the scope of data processing and the nature of the platform. Per Article 3, even a foreign, non-European entity must abide by the GDPR if it offers virtual goods and services to users or monitors the behavior of users located in the EU.<sup>149</sup> Based on Recital 23 of the GDPR, which provides supporting context for Article 3 on the material scope of the regulation, foreign companies are only required to comply with the GDPR if they target EU residents with their marketing.<sup>150</sup>

Assuming the GDPR’s extraterritorial reach extends to the metaverse, the regulation’s present lack of control over how private information is conveyed, developed, and disseminated in an immersive world would undermine the goals of the regulation. Considering many of the data practices the GDPR targeted at its inception “emerged in the mobile and desktop worlds in ways that might or might not directly

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144. See generally META AI, <https://ai.facebook.com/> [<https://perma.cc/5DPZ-ZE5F>].

145. Koetsier, *supra* note 130 (quoting Avi Bar-zeev, founder of Keyhole).

146. See David Uberti, *Come the Metaverse, Can Privacy Exist?*, WALL ST. J. (Jan. 4, 2022, 5:30 AM), <https://www.wsj.com/articles/come-the-metaverse-can-privacy-exist-11641292206> [<https://perma.cc/NS4M-5NBY>].

147. Tatum Hunter, *supra* note 137 (quoting Jon Callas, Director of Technology Projects at the Electronic Frontier Foundation).

148. Monica J. White, *What Is the Metaverse? A Deep Dive into the ‘Future of the Internet,’* DIGITALTRENDS (Nov. 23, 2021), <https://www.digitaltrends.com/computing/what-is-the-metaverse-the-future-of-the-internet-explained> [<https://perma.cc/WX62-QEMH>].

149. See GDPR, *supra* note 1, art. 3.

150. *Id.* recital 23.

translate into [Augmented Reality],”<sup>151</sup> the European Commission should update guidance on the GDPR before a metaverse-shaped data economy comes into focus. If the GDPR is to keep pace with disruptive technology and protect metaverse users, it must adapt to novel privacy concerns.

The first category of privacy concerns emerges in the context of consent and company relationships with users, both directly and through interactions with their virtual avatars. Given the revolutionary nature of the metaverse, to ensure that users’ rights are protected, the processes governing informed consent around data processing should be recalibrated to account for virtual personas.<sup>152</sup> Hyper-realistic avatars being developed by Facebook could allow users to hide their identity or enable children to pose as adults. Sophisticated age verification techniques and measures to dissuade children from providing their personal data are necessary to ensure data protection compliance in the metaverse.<sup>153</sup> Additionally, the GDPR requires companies to gain explicit consent in order to use an individual’s personal data for advertising purposes.<sup>154</sup> Therefore, advertising companies should not be able to target advertisements based on a user’s appearance in the metaverse. In other words, an avatar should not denote explicit consent. The same consent requirements should apply to using data for AI model training; consent should not apply to AI and human service providers indiscriminately.

The second category of privacy concerns arises with company-to-company relationships and the handling of metaverse user data. The GDPR restricts transfers of personal data outside the protection of the GDPR, unless the rights of the individuals with respect to their personal data are protected in another way, or one of a limited number of

151. Uberti, *supra* note 146, (quoting John Verti, Senior Vice President of Policy at the Future of Privacy Forum).

152. In most circumstances, companies, governments, and other organizations must now obtain “freely given, specific, informed and unambiguous,” consent that cannot be a condition of access to the service before they can collect, use, or share a person’s personal data. GDPR, *supra* note 1, art. 9. For some categories of data — categories that are particularly applicable to social media — including “sensitive” or “special category” data, consent is the only lawful basis for processing information. *Id.* Sensitive data, or special category data, is any data that reveals a subject’s information; the processing of data that reveals a consumer’s race, ethnicity, sexual orientation, health status, religious or political affiliation, as well as similarly potentially discriminatory data, is strictly prohibited without explicit consent from the data subject. *Id.* Additional safeguards are also granted to children’s data under the GDPR. If a child is under the age of sixteen, the child’s legal guardian must consent. *See id.* art. 8.

153. *See* Lauren A. Matecki, *Update: COPPA is Ineffective Legislation! Next Steps for Protecting Youth Privacy Rights in the Social Networking Era*, 5 NW. J.L. & POL’Y 368, 368–402 (2010). *But see* Jackie Snow, *Why Age Verification Is So Difficult for Websites*, WALL ST. J. (Feb. 27, 2022, 8:00 AM), [https://www.wsj.com/articles/why-age-verification-is-difficult-for-websites-11645829728?mod=ig\\_technologyreport](https://www.wsj.com/articles/why-age-verification-is-difficult-for-websites-11645829728?mod=ig_technologyreport) [<https://perma.cc/DZF8-N8Y2>] (arguing that most methods of verifying age create privacy problems of their own, such as susceptibility to data hacking and lack of web-browsing anonymity).

154. *See* GDPR, *supra* note 1, art. 9.

exceptions applies.<sup>155</sup> A transfer of personal data to a third country, a country or territory that is either not a member of the EU or whose citizens do not enjoy the EU right to free movement,<sup>156</sup> or an international organization can occur if the European Commission has decided that country or organization can ensure an adequate level of protection.<sup>157</sup> On the other hand, if the Commission has decided that such country or organization cannot ensure an adequate level of protection, a controller or processor can transfer the personal data to a third country or an international organization if it provides appropriate safeguards.<sup>158</sup> If there is neither an adequacy decision nor appropriate safeguards, a transfer of personal data to a third country or organization is only legal if it meets one of seven conditions, including explicit consent from the data subject.<sup>159</sup> The “no-boundaries” nature of the metaverse warrants clarification of the clauses dealing with transfer and processing of data outside the EU. The metaverse should be an exception to data transfer rules in order to facilitate functionality and interoperability in the programmed platform.

The extent to which an organization is subject to obligations under the data protection law depends on whether they are classified as a data controller, the entity (person, organization, etc.) that determines the “why” and the “how” for processing personal data,<sup>160</sup> or a data processor, the entity that actually performs the data processing on the controller’s behalf.<sup>161</sup> Both entities must present data subjects with a privacy policy, but controllers are most responsible for protecting the privacy of — and rights to — the data.<sup>162</sup> Abolishing the delineation between data controllers and processors will avoid a convoluted metaverse

155. *See id.* art. 45.

156. Regulation (EU) 2016/399 of the European Parliament and of the Council of 9 March 2016 on a Union Code on the Rules Governing the Movement of Persons Across Borders (Schengen Borders Code), 2016 O.J. (L 77) art. 2(6).

157. *See* GDPR, *supra* note 1, art. 45(1). In the U.S. context (relevant given that the United States hosts many of the major social media platforms, including Facebook), the EU declared invalid the legal adequacy of the U.S.-EU Safe Harbor Framework and EU-U.S. Privacy Shield Framework. *See Privacy Shield Program Overview*, INT’L TRADE ADMIN., <https://www.privacyshield.gov/program-overview> [<https://perma.cc/8SSG-YRJY>]. Both frameworks facilitated the legal transfer of personal data between the EU and the United States in the absence of a comprehensive adequacy decision for the United States. *See id.*

158. *See* GDPR, *supra* note 1, art. 46(1).

159. *Id.* art. 49.

160. *See id.* art. 4(7). If more than one organization shares the responsibility for the processing of personal information, there may be a case for joint controllers; respective responsibilities would have to be clearly defined, and processors would serve as the main point of contact. *See id.* art. 26(1) (“Where two or more controllers jointly determine the purposes and means of processing, they shall be joint controllers.”).

161. *See id.* art. 4(8).

162. *See* Monpi Neog Lobo, *Controller, Processor & Data Protection Responsibilities*, WSIWORLD (Dec. 3, 2020), <https://www.wsiworld.com/blog/responsibilities-of-a-controller-processor-and-data-protection-officer-according-to-gdpr> [<https://perma.cc/CML2-4SS5>] (categorizing the data controller as “the principal party for data collection responsibilities”).

privacy policy. In a cautionary tale, the Spanish Data Protection Authority, Agencia Española de Protección de Datos (“AEPD”), fined financial services company Banco Bilbao Vizcaya Argentaria (“BBVA”) €2 million in December 2020 because the financial institution failed to properly explain how the bank collected and used its customers’ personal data.<sup>163</sup> In the absence of labels for processors and controllers in the metaverse, companies will have to work together to avoid similar fines.

The third category of privacy concerns relates to the underlying technology of the metaverse. As detailed in Article 2, the GDPR applies to the processing of “personal data,” which is broadly defined to include “any information relating to an identified or identifiable natural person.”<sup>164</sup> Thus, the law covers even data that does not directly identify a named person if it could still help identify the “data subject.” With all the sensors and trackers required by the metaverse, Article 2 should subsume targeted advertising based on our biological reactions. Without protection, the “nightmare scenario is that targeted advertising based on our involuntary biological reactions to stimuli is going to start showing up in the metaverse . . . [and] most people don’t realise how valuable that could be. Right now [sic] there are no legal constraints on that.”<sup>165</sup> Because biological data can expose health issues, among other forms of personal information, the GDPR should explicitly extend protections to the use of aggregated data to make inferences. Another important technological building block for the metaverse is blockchain. Blockchain’s immutable record renders moot the “right to be forgotten” in Article 17, which gives individuals the right to ask organizations to delete their personal data,<sup>166</sup> so the GDPR needs to include specific parameters on how to reconcile the technology with the right.

One technology absent from patents and popular news sources alike is a cybersecurity framework. Beyond pseudonymization<sup>167</sup> and encryption of personal data,<sup>168</sup> the GDPR should require additional

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163. See *Spain: AEPD Fines BBVA €5M for GDPR Information and Consent Failures*, ONETRUST DATAGUIDANCE (Dec. 14, 2020), <https://www.dataguidance.com/news/spain-aepd-fines-bbva-%E2%82%AC5m-gdpr-information-and-consent> [<https://perma.cc/2CWK-QBCE>].

164. See GDPR, *supra* note 1, art. 4(1).

165. Murphy, *supra* note 74 (quoting Brittan Heller, a technology lawyer at Foley Hoag).

166. See GDPR, *supra* note 1, art. 17.

167. Pseudonymization is a security technique for replacing sensitive data with realistic fictional data that cannot be attributed to a specific individual without additional information, which, according to GDPR Article 4(5), is to be “kept separately and subject to technical and organisation measures to ensure non-attribution to an identified or identifiable person” and should “[m]aintain[] referential integrity and statistical accuracy, thereby enabling business processes, development and testing systems, training programs, and analysis to operate normally.” *Pseudonymization*, IMPERVA, <https://www.imperva.com/learn/data-security/pseudonymization> [<https://perma.cc/8AHR-M8QV>].

168. Another key component of the GDPR is that data is processed by means of “appropriate technical and organizational measures.” See GDPR, *supra* note 1, art. 32. Data security

security measures, rather than give companies deference with respect to other technical and organizational measures. For example, Encapsulating Security Payload (“ESP”), which is the Internet Protocol Security used to encrypt data for confidentiality, should be utilized.<sup>169</sup> It can operate in tunnel mode, for gateway-to-gateway protection, or in transport mode, for end-to-end protection.<sup>170</sup> As a result, ESP provides data confidentiality, origin authentication, integrity checking, and replay protection,<sup>171</sup> which adds information to limit a blockchain transaction’s compatibility to a particular ledger.<sup>172</sup> In the metaverse, various and large amounts of secondary and tertiary data are generated by the activities of many users; therefore, it is imperative to protect the data of users and the integrity of the metaverse.

## V. CONCLUSION

The deterritorialization of technology has given rise to acute jurisdictional questions regarding who may regulate online activities. The EU’s 2018 GDPR has proven paramount as “the most forward-thinking and extensive legal provision for the protection of personal data.”<sup>173</sup> If the GDPR’s extraterritorial reach transcends platforms, the European Commission should amend the regulation to ensure the metaverse does not gather large swaths of personal information with impunity. The GDPR was passed to update privacy standards to address modern

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measures should, at a minimum, allow pseudonymizing or encrypting personal data; maintaining ongoing confidentiality, integrity, availability, access, and resilience of processing systems and services; restoring the availability of and access to personal data, in the event of a physical or technical security breach; and testing and evaluating the effectiveness of technical and organization measures. *See id.* In 2020, the Information Commissioner’s Office (“ICO”) fined British Airways €26 million for a 2018 breach affecting 40,000 customers that the ICO alleged was preventable, but British Airways did not have adequate security measures in place to protect the data. The Information Commissioner noted, “[w]hen organisations take poor decisions around people’s personal data, that can have a real impact on people’s lives. The law now gives us the tools to encourage businesses to make better decisions about data, including investing in up-to-date security.” *ICO Fines British Airways £20m for Data Breach Affecting More than 400,000 Customers*, INFO. COMM’RS OFF. (Oct. 16, 2020), <https://ico.org.uk/about-the-ico/news-and-events/news-and-blogs/2020/10/ico-fines-british-airways-20m-for-data-breach-affecting-more-than-400-000-customers> [<https://perma.cc/3GBF-ZZJT>].

169. Ishitha, *What Is Encapsulation Security Payload (ESP)?*, EDUCATIVE, <https://www.educative.io/edpresso/what-is-encapsulation-security-payload-esp> [<https://perma.cc/LDK2-WS2M>].

170. Damaso Sanoja, *IPsec Tunnel Mode vs. Transport Mode*, TWINGATE (Aug. 18, 2021), <https://www.twingate.com/blog/ipsec-tunnel-mode> [<https://perma.cc/V4R5-M9SR>].

171. *Encapsulating Security Payload*, IBM (Sept. 8, 2021), <https://www.ibm.com/docs/en/i/7.4?topic=protocols-encapsulating-security-payload> [<https://perma.cc/M5FG-BJ9J>].

172. Daniel McGlynn, *What Is Replay Protection?*, ABRA (Dec. 3, 2018), <https://www.abra.com/blog/replay-protection> [<https://perma.cc/4PDU-U5JF>].

173. *Beyond GDPR: Data Protection Around the World*, THALES (May 10, 2021), <https://www.thalesgroup.com/en/markets/digital-identity-and-security/government/magazine/beyond-gdpr-data-protection-around-world> [<https://perma.cc/L8LU-XJF2>].

technology, while also remaining general enough to protect the fundamental rights of individuals throughout future waves of innovation. The metaverse, the three-dimensional model of the Internet supported by virtual reality, augmented reality, artificial intelligence, and blockchain, is the next wave of innovation to test the efficacy of the GDPR.

Facebook has already filed hundreds of patents designing a commercialized metaverse that collects users' biometric information, like body poses and pupil movements, through sensors and cameras, largely in order to target advertisements. The vision illustrated in the patents includes an immersive virtual environment filled with human-like avatars created from patented technologies, like a photo analyzer that can recreate skin textures and a "wearable magnetic sensor system" to track human counterparts' body movements.<sup>174</sup> The vast amount of personal data required to enter the metaverse warrants adequate protection. The depth of information from monitoring individuals at a biological level allows companies — and potentially cybercriminals — to more deeply understand the personality, behavior, and thoughts of users. Compared to traditional social media platforms, the metaverse enables tracking of individuals in a much more intimate manner. If the metaverse is the "successor to the mobile internet," as Facebook founder Mark Zuckerberg claims,<sup>175</sup> then it is only fitting that the GDPR adapt alongside it.

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174. Murphy, *supra* note 74.

175. Shirin Ghaffary, *Why You Should Care About Facebook's Big Push into the Metaverse*, VOX (Nov. 24, 2021, 3:15 PM), <https://www.vox.com/recode/22799665/facebook-metaverse-meta-zuckerberg-oculus-vr-ar> [<https://perma.cc/H2A2-GBP>].