

Merger and Acquisition Agreements for Neurotechnologies: Building Governance into Technology

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Introduction

Novel neurotechnologies, such as brain-computer interfaces (BCIs), are beginning to garner significant attention from governments, regulators, international organizations, non-government organizations (NGOs), and media, among others (Nuffield Council, 2013). The role of artificial intelligence (AI) in making these innovations possible has only added to the growing hype and concern surrounding these technologies. We will discuss BCIs specifically, given their prominent place in discussions around neurotechnology governance as well as the substantial increases in research, investment, and development around these types of products (UNESCO, 2023). Importantly, BCIs may offer the potential for groundbreaking medical therapeutics for neurological diseases, speech disorders, and mental health conditions. Non-invasive BCIs are also being developed for wellness needs such as sleep and mental focus, as well as more esoteric uses like thought-to-text typing. For all their promise, the advent of such novel devices has also increased global attention toward notions of legal lag, neuroethics, and national security concerns, spurring a proliferation of guidance documents to aid stakeholders.¹

Against this backdrop, “soft law” is often suggested as one of several legal and regulatory tools for managing new and fast-changing technologies, and as one way to implement responsible innovation. We use soft law here to refer to instruments with normative prescriptions that are generally not directly enforceable by state-based administrative agencies but may still have other legal or nonlegal enforcement mechanisms. Unfortunately, insufficient scholarly or policy work has been done to identify the most effective and legitimate soft law mechanisms that may help guide responsible BCI development. Soft law can empower industry to have a direct “seat at the governance table,” where they have many potential opportunities to build responsibility into innovation as early as the design and development phase. This empowerment allows industry to build fundamental norms into foundational technology, contributing another layer of (self-) regulation to the overall governance system.

We suggest one such mechanism that could be used, which arises from the merger and acquisition (M&A) process. A significant number of BCI companies are small startups, oftentimes run and operated by mission- and vision-driven founders, that will likely merge or be acquired by larger firms in response to political economic pressures, such as to scale up to meet

¹ Matthew O’Shaughnessy, Walter G. Johnson, Lucille Tournas, Christopher J. Rozell, and Karen S. Rommelfanger, *Neuroethics Guidance Documents: Principles, Analysis, and Implementation Strategies*, Journal of Law & the Biosciences (forthcoming).

potential market needs (UNESCO, 2023). In acquisitions specifically, a smaller company may look to sell to increase market power for its products or services, allowing the company to develop new products, or if founders lack the skillset or resources to scale further. The buying company may benefit from diversification of new products, better foundational technologies, and decreased likelihood of future competition. During these negotiations, however, there is room for founders to ensure at least parts of their mission and vision are protected. In a very few instances, such as when Alphabet acquired DeepMind, startup management has succeeded in inserting the requirement of an ethics board into the terms of sale.

In this article, we explore how creative M&A strategy could potentially play an important soft law role in managing the responsible innovation of neurotechnologies. This is a timely topic, as significant acquisitions in the neurotechnology sector have already begun, as with Meta's purchase of CTRL Labs for their wristband BCI or Snap's acquisition of NextMind for their BCI headband.² These M&A soft law tools will have their own restraints – including the generally opaque nature of these processes and power differentials between private firms – but also have potential power to make the norms, best practices, and mission and vision of founders more durable while still operating within the current state of global markets (Sell, 2022). In the following section, we will first offer a brief background on BCI technologies as well as ethical and regulatory concerns around their development and use. We then explore the potential role of M&A as a process for crystallizing soft law norms, including not only technical standards, but also privacy and ethical commitments. Using the case of Alphabet's acquisition of DeepMind, we consider both the opportunities and outstanding challenges of calling on M&A in the governance of neurotechnologies such as BCIs. Lastly, we will offer final recommendations for stakeholders, including policymakers, legal practitioners, and industry actors.

BCI Technology and Industry

Brain-computer interfaces (BCIs) are devices that offer a communication pathway which enables direct or indirect connection between the human nervous system and an external device. Depending on intended use and target population, these devices can be either be surgically implanted (invasive) or wearable (non-invasive). BCIs are often aimed at creating novel medical therapeutics such as augmenting or repairing neuromotor deficits, such as paralysis or cerebral palsy, to offer speech for those with locked-in syndrome, as well as opportunities in new management for mental health diseases such as schizophrenia. In practical terms, BCI devices can read signals from the brain, interpret them, and translate them into commands that can be used to control objects in the digital or physical world.

² Alex Heath, Snap Buys Brain-Computer Interface Startup For Future AR Glasses, Verge (Mar. 24, 2022), <https://www.theverge.com/2022/3/23/22991667/snap-buys-nextmind-brain-computer-interface-spectacles-ar-glasses>; Lucas Matney, Facebook Buys Startup Building Neural Monitoring Armband, TechCrunch (Sept. 24, 2019), <https://techcrunch.com/2019/09/23/facebook-buys-startup-building-neural-monitoring-armband/>.

BCIs have traditionally been invasive devices, meaning they are implanted within the brain and would require some form of surgery. Implantation within the brain provides higher resolution signaling than non-invasive devices, giving clearer and deeper access into the brain. As such, these devices are being developed for those users with severe neuromuscular diseases. There are risks associated with invasive BCIs including scar tissue build-up, which can cause the signal to become weaker or even lost entirely. There is also risk of infection from surgery, as well as risk of rejection from users. Additionally, there are complex ethical concerns over personhood, algorithmic control, neural data privacy, and security.

More recently, non-invasive BCIs are also being developed as wearable devices for wellness usages. These are being marketed for aiding meditation and focus, as well as in gaming to produce more immersive experiences. Various techniques for directly or indirectly recording neural activity are available for these non-invasive devices, such as electroencephalography (EEG) or functional near-infrared spectroscopy (fNIRS), but each has its own technical strengths and limitations for different applications.

The excitement around neurotechnology has caused research and development to move ahead expeditiously. In fact, according to a July 2023 UNESCO report, since 2013, government investments in neurotechnology have exceeded \$6 billion (USD)³ and private investments have also seen a 22-fold increase from 2010 to 2020, reaching \$7.3 billion, totaling \$33.2 billion over that decade. Overall, the report projects the neurodevice market to reach \$24.2 billion by 2027. The U.S. leads the globe on publications on neurotechnology (40%) as well as number of patent applications (47%).⁴ This accelerated publication and patent applications create concern that these devices are coming to market faster than traditional legal and regulatory schemes can manage.

Governance of Neurotechnologies

As the most recent UNESCO report outlines, neurotechnologies will have considerable societal and economic impact. Their unique potential to enter the human brain directly or affect it indirectly may alter human physical or mental experiences with consequences on values or rights such as autonomy and privacy.⁵ Additionally, there are ethical and social concerns over issues such as the potential for human enhancement, the exploitation of cognitive bias, and the lack of guidelines over human-robot interactions generally.

³ U.N. Educ. Sci. & Cultural Org., *Unveiling the Neurotechnology Landscape: Scientific Advancements Innovations and Major Trends* (2023), <https://unesdoc.unesco.org/ark:/48223/pf0000386137>.

⁴ *Ibid.*

⁵ International Bioethics Commission, *Report of the International Bioethics Committee of UNESCO (IBC) On The Ethical Issues Of Neurotechnology* (Dec. 15, 2021), <https://unesdoc.unesco.org/ark:/48223/pf0000378724>; Nuffield Council, *supra* above. UNESCO report

Unfortunately, developing comprehensive governance strategies for such technologies is often complex and challenging. On one hand, these devices offer phenomenal promise for users and should benefit from policies that foster innovation and fast and safe market application. On the other hand, like many digital technologies, they may have significant dual use risks, including privacy concerns, risk of algorithmic and data manipulation, and national security vulnerabilities. While much discussion has focused on these benefits and risks, substantial focus has been placed on the need for hard device regulation, the need for data privacy legislation, or even constitutional amendments or multilateral treaty development for novel human rights (often termed “neurorights” by those in the field).⁶ ⁷Successfully implementing these guidelines comes with significant political hurdles, and without sufficient flexibility built into them, hard law norms may become outdated as technology continues to develop rapidly. Additionally, increasing US judicial scrutiny of administrative agencies creating novel regulatory programs with their existing statutory authority may pose notable challenges (Johnson & Tournas, 2023). New privacy or liberty rights, especially if crafted as negative rights, would still need to be interpreted by courts and could be insufficient to challenge the practices of private companies.

Global governors, policymakers, and even firms such as Meta⁸ have suggested “responsible innovation” (RI) as an approach for moving forward within these types of challenges, which provides a framework for promoting innovation that will be aligned with social goals and public interest and calling for more direct action from innovators (see Stilgoe et al., 2013). For instance, the Organization for Economic Co-operation and Development’s (OECD) 2019 Recommendation on Responsible Innovation in Neurotechnologies imagines that private actors, alongside states and civil society, should take affirmative and socially responsive action to behave “responsibly” in this space (OECD, 2019; see also [Pfothenhauer et al., 2021](#)). However, what such responsible innovation would look like in practice remains unknown, will likely be contested and culturally contingent, and will involve continuous (re)interpretation by a diversity of actors (see Black, 2002 – Regulatory Conversations).

Conceptually, conversations about RI generally emphasize at least four aspects that aim to build in socio-technology and interdisciplinary perspectives: (1) anticipation, (2), inclusion (3), reflexivity and (4) responsiveness (Stilgoe et al 2013). These dimensions of RI aim to build a more inclusive, transparent, and adaptive regulatory environment for scientific research and development for emerging technologies, especially by calling for greater inclusion of and action by both technology developers themselves and civil society entities. Soft law has become a common type of policy intervention here, as it enables multiple types of stakeholders to rapidly set norms that have greater agility and less rigidity than notice-and-comment-style rulemaking by public entities. Here, we suggest in this nascent field of neurotechnologies, the terms of M&A

⁶ Yuste, Rafael, Jared Genser, and Stephanie Herrmann. "It's time for neuro-rights." *Horizons* 18 (2021): 154-164.

⁷ Lighthart, Sjors, Christoph Bublitz, and Susie Alegre. "Neurotechnology: we need new laws, not new rights." *Nature* 620.7976 (2023): 950-950.

⁸ Meta, Responsible Innovation, accessed at <https://about.meta.com/metaverse/responsible-innovation/>

agreements could offer a potentially useful and understudied soft law tool in building responsible, yet nimble governance systems.

Mergers and Acquisitions Law in the Technology Sector

Generally, the legal regulations governing M&A in the United States have been developed to protect each party in transactions to buy or sell all or part of a firm, as well as promote larger public policy goals such as facilitating competition and protecting consumers. While private M&A transactions are largely regulated by state law, public transactions are regulated by the U.S. Securities and Exchange Commission (SEC).⁹ These rules generally require parties to follow guidelines and make disclosures of relevant information to promote transparency for shareholders and investors, protect the interests of all stakeholders, ensure market stability, and prevent anti-competitive practices ([SEC Regulations](#)).¹⁰ For example, companies involved in M&A activities must adhere to strict filing requirements, such as Form S-4, which includes details about the transaction, financial statements, and potential risks. The SEC also regulates tender offers, proxy solicitations, and insider trading related to M&A deals to safeguard against fraudulent practices and protect the interests of shareholders. These procedures assist in promoting a clear and predictable legal environment for market transactions.

Substantively, agreements for M&A deals can take different forms and may involve firms that are or are not direct competitors, suppliers, or customers of one another ([§ 28:45. Types of mergers, 2 Advising Small Businesses § 28:45 \(2023\)](#)). All types of agreement structures typically require parties to include standard terms such as purchase price, representations and warranties, covenants, closing conditions, indemnification provisions, and confidentiality agreements.¹¹ Terms within an M&A transaction that may hinder competition or fail to protect stakeholders will likely be treated by courts as unlawful or unenforceable under the Clayton Act and related law, a merger or acquisition can be blocked where “the effect of such an acquisition may be substantially to lessen competition, or to tend to create a monopoly.” (15 U.S.C. § 18; *see e.g., Int'l Ass'n of Machinists & Aerospace Workers, AFL-CIO, Loc. Lodge No. 1821 v. Verso Paper Corp.*, 80 F. Supp. 3d 247, 279 (D. Me. [2015](#))). Lastly, unfair or abusive practices and discriminatory terms are generally found unlawful or unenforceable for exploiting parties or discriminating based on protected characteristics.

⁹ *See generally* Adam O Emmerich, Mark A Stagliano & Anna M D’Ginto, *United States*, in *The Mergers & Acquisitions Review* (Mark Zerdin ed., 16th ed.).

¹⁰ While there is a robust literature on the anti-trust regulation of M&A dealings, especially through administrative agencies such as the Federal Trade Commission, this topic remains largely outside the scope of this paper.

¹¹ *See generally*, e.g., Ronald J. Gilson, Value Creation by Business Lawyers: Legal Skills and Asset Pricing, 94 *Yale L.J.* 239, 257–62 (1984); Cathy Hwang, Unbundled Bargains: Multi-Agreement Dealmaking in Complex Mergers and Acquisitions, 164 *U. Penn. L. Rev.* 1403, 1411–16 (2016).

The process of negotiating and eventually executing a merger or acquisition involves key procedural steps and limits. In general, parties engage in due diligence prior to negotiating the terms, price, and structure of the deal. This due diligence process allows parties involved to identify risks and hurdles before initiating negotiation. These steps also promote transparency and fairness between parties. To start, parties may draft confidentiality agreements or letters of intent to protect the negotiation process. Depending on the transaction, some of the procedural steps may include regulatory approvals, shareholder and employee consultations and compliance with antitrust laws. Additionally, accurate disclosures and adherence to any fiduciary duties are essential steps to the procedure of a merger or acquisition. With the increasing role of data and digital technologies in firms across sectors of the economy, parties should be aware of their specific responsibilities as controllers or processors of personal data, especially when transnational transactions involve data protection regulations from multiple (supra)national jurisdictions ([GlobalDataReview](#)).

Once an M&A agreement has been entered and executed, parties can then enforce the terms of that agreement through judicial channels. The agreement itself may provide procedural requirements for enforcement, which may include closing conditions, effectuating ownership transfers, disbursing consideration, adhering to post-closing obligations, and ensuring regulatory compliance at relevant levels of government.

The substantive provisions of M&A agreements typically outline relatively routine obligations around the transfer and division (if appropriate) of assets involved in the transition. Yet, there is no legal reason why substantive terms obligating the acquiring firm to abide by norms of responsible innovation cannot also be included in these M&A negotiations and agreements. In this section, we review perhaps the highest-profile recent example of this phenomenon in the technology sector by presenting the case of Google's (now Alphabet) acquisition of the machine learning startup DeepMind in 2014. However, before proceeding, it is worth acknowledging that most acquisitions in the technology sector happen privately, and as such are often unreported, unannounced, and out of the public view – complicating efforts to find and discuss cases relevant to governing the neurotechnology sector in particular. The DeepMind case nonetheless demonstrates the unique bargaining power a highly sought-after technology startup can have to protect the ethical integrity of their invention by calling on tools from M&A law in the acquisition process.

Case Study: DeepMind

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DeepMind began in 2010 as a London-based AI company researching and developing machine learning techniques for various applications with potential commercial relevance (Gibbs, 2014). After only a few years, several actors had apparently become interested in acquiring DeepMind – including large firms such as Facebook – and, most significantly, the intellectual property backing its applications. In 2014, Google ultimately acquired DeepMind for a significant sum; likely at least \$500 million USD (Guardian, 2014; The Information, 2014).

Notably, journalists widely reported that a part of the acquisition deal placed an obligation on Google to create and maintain an (at least partially) independent ethics board to govern DeepMind’s ongoing activities within Google. The terms of the deal have unfortunately never been released to the public, so it is impossible to analyze the exact language or structure of the ethics board and its powers, or to reflect comprehensively on its regulatory implications. What little information has been distributed to the public has come from investigative journalism, including a report from the Economist suggesting that a major purpose of the board was to govern artificial general intelligence (AGI) – a speculative, advanced form of AI – were it ever developed at DeepMind.¹² The reporting also indicates that an “Ethics and Safety Review Agreement” was concluded as a part of the 2014 acquisition and “would prevent Google from unilaterally taking control of the company’s intellectual property,” at least around AGI.¹³

Following the acquisition, Google did apparently establish this ethics board for DeepMind consistent with the reporting around the contents of the acquisition agreement. However, the firm has carefully guarded information about when the ethics board began, who its members are, how often it meets, and what powers or functions the board holds.¹⁴ As of 2017, Google had cited

¹² Hal Hodson, DeepMind and Google: The Battle to Control Artificial Intelligence, *Economist* (Mar. 1, 2019), <https://www.economist.com/1843/2019/03/01/deepmind-and-google-the-battle-to-control-artificial-intelligence>

¹³ *Id.*; see generally Hwang, *supra* above.

¹⁴ Alex Hern, Whatever Happened to the DeepMind AI Ethics Board Google Promised?, *Guardian* (Jan. 27, 2017), <https://www.theguardian.com/technology/2017/jan/26/google-deepmind-ai-ethics-board>. At least one journalistic report has indicated that a “source close to both DeepMind and Google says that all three of DeepMind’s founders sit on the board,” yet this is difficult to confirm. See Hodson *supra* above.

confidentiality concerns to disclosing more information to at least one journalist at the Guardian. The DeepMind website has a section on “Ethics & Safety,” but it is difficult to confirm with publicly available information the full details of these activities or if it is contiguous with the ethics board established from the 2014 acquisitions agreement.¹⁵ Further, internal politics and reorganizations within Google appear to have affected the functioning of DeepMind – and potentially its ethical governance – including Alphabet leadership balking at granting DeepMind more independence within their corporate structure in 2021.¹⁶

This case offers a potentially illustrative example for the neurotechnology sector. A prominent AI startup succeeded in using the acquisition process to obligate the larger, acquiring firm to establish an ethics board – a provision with potential to promote responsible innovation and self-regulation within the sector. Despite the lack of transparency and potentially troubling internal treatment of Deepmind, their use of bargaining power during the M&A process to protect their vision of their technology through deeper governance agreements at least confirms this as one potential mechanism for conserving ethical arrangements developed by technology startups. Yet, the opacity and difficulty implementing the ethics board also speak to potential issues with this approach.

Discussion

Despite the sums of money invested into BCIs, many of the top companies in this space are still private and relatively small.¹⁷ At the same time, acquisitions have become a significant strategy for big tech companies.¹⁸ The “Big Four” (Apple, Amazon, Alphabet, and Meta) have collectively acquired hundreds of tech companies over decades to increase market-share and dominate the tech sector. For example, since its inception in 2005, Meta has acquired 28 companies aligned with their original business (social media) and 77 companies in new sectors, including virtual reality, AI, and security.¹⁹ A Facebook executive suggested the company would spend 10-15% of its market value every few years to “shore up” its acquisition strategy.²⁰ It is therefore likely that many of the successful BCI companies will be acquired by larger tech companies to scale faster, meet market need, expand market base, and increase resources.

¹⁵ DeepMind, Safety and Ethics, <https://www.deepmind.com/safety-and-ethics> (accessed Sept. 1, 2023).

¹⁶ Parmy Olson, Google Unit DeepMind Tried—and Failed—to Win AI Autonomy From Parent, Wall Street Journal (May 21, 2021), <https://www.wsj.com/articles/google-unit-deepmind-triedand-failedto-win-ai-autonomy-from-parent-11621592951>; see also Hodson, *supra* above.

¹⁷ <https://www.ventureradar.com/keyword/brain-computer%20interface>

¹⁸ See Emmerich, Stagliano & D’Ginto, *supra*, at 428–31.

¹⁹ <https://www.washingtonpost.com/technology/interactive/2021/amazon-apple-facebook-google-acquisitions/>

²⁰ <https://www.washingtonpost.com/technology/interactive/2021/amazon-apple-facebook-google-acquisitions/>

Indeed, Meta and Snap have already made notable acquisitions in the neurotechnology space, with CTRL-Labs²¹ and NextMind respectively.²²

This likelihood of acquisition is significant as academic and policy conversations around responsible innovation in neurotechnologies proceed. Discourse around RI calls for private actors to engage in meaningful, socially responsive self-regulation through a variety of different activities and working with partners in the public and civil sectors.²³ Neurotechnology startups can seek to build core governance principles into their products through efforts such as establishing ethics boards, codes of conduct or best practices around topics like data privacy, or policies for transparency. For example, the BCI company Blackrock Neurotech has apparently created an ethics board, although details on its functions are currently sparse.²⁴ Unfortunately, RI scholarship may tend to under-engage with the actual economic realities faced by technology developers, as well as other factors such as cross-cultural dimensions.²⁵

Small and medium enterprises (SMEs) face multiple market pressures which heavily incentivizes startups in the technology sectors to seek acquisition by a larger firm. These pressures arise from multiple sets of factors, including pressures to create as much value as possible for investors, the relatively higher value of intellectual property rights (IPRs) and data over tangible products, and new friction points introduced by digital platform infrastructure (Cohen, 2019; Sell, 2022; Pagano, 2014). Pragmatically, startups seeking to scale up their development and (eventually) production – such that they can reward investors and expand their business – often results in a culture that measures startup success by the price at which it is sold to a larger firm, where intangibles such as IPRs and data often drive valuation.

The likely push towards acquisition of neurotechnology startups may threaten any work that startups have done to develop ethical self-governance systems – as well as the core vision or mission of startup founders – if the acquiring firm does not conserve or prioritize these initiatives. Beyond challenging the durability of ethics work done by individual startups, moving towards a phase of acquisition could diminish the RI work done collectively by the neurotechnology industry and its partners, without thoughtfully engaging in ways to make RI

²¹ <https://www.theverge.com/2019/9/23/20881032/facebook-ctrl-labs-acquisition-neural-interface-armband-ar-vr-deal>

²²

<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiRuv6etNOCAxVghu4BHRO-B04QFnoECBQQAQ&url=https%3A%2F%2Fwww.iotworldtoday.com%2Fiot%2Fsnap-acquires-neurotech-firm-nextmind-to-bolster-hardware-offerings&usg=AOvVaw24ssqW2PWHLbYDwqRVsb8z&opi=89978449>

²³ Auld, G., Casovan, A., Clarke, A., & Faveri, B. (2022). Governing AI through ethical standards: Learning from the experiences of other private governance initiatives. *Journal of European Public Policy*, 29(11), 1822–1844. <https://doi.org/10.1080/13501763.2022.2099449>

²⁴ Analytics Insight, Exclusive Interview with Marcus Gerhardt, CEO of Blackrock Neurotech (Feb. 1, 2022), <https://www.analyticsinsight.net/exclusive-interview-with-marcus-gerhardt-ceo-of-blackrock-neurotech/>

²⁵ See generally Philip Macnaghten et al., *Responsible Innovation Across Borders: Tensions, Paradoxes and Possibilities*, 1 J. Responsible Innovation 191 (2014).

work more durable as these products approach the market. The increased calls for the private sector to participate and drive RI around neurotechnology²⁶ may benefit from more engagement with the coming challenges of preserving those self-regulatory efforts.

In this context, M&A agreements offer one potential path forward to preserve neurotechnology startup's efforts at ethical self-governance using soft legal tools. The case of DeepMind's acquisition illustrates the possibility of selling firms using what bargaining power is available to them to negotiate contract provisions that can build or preserve ethical capacity to govern their technology, despite acquisition by a larger firm with potentially conflicting interests.

Neurotechnology firms and partners in the public and civil society spaces can take the DeepMind case as a precedent for aiming to negotiate for substantive, neuroethical norms or governance structures to be included in acquisition agreements. Doing so might involve preserving internal ethical capacity by requiring an ethics board or ongoing compliance with an internal code of conduct, or it could call on external soft law by requiring the acquiring firm to comply with or participate in third-party technical standards, principles, or certification programs. In the ideal, the acquisition of a neurodevice startup by a larger firm may actually become an *opportunity* to enrich or entrench ethical governance of these emerging technologies. Yet, negotiating these provisions will likely be challenging and will no doubt depend on the relative bargaining power of parties in the transactions.

However, significant potential limitations of the M&A soft legal approach can be distilled from the DeepMind case as well. The private, confidential nature of the agreement leaves little transparency to analyze specific language and how it has been interpreted by Alphabet, to look at the actual implementation of the board, as well as establish any metrics for practical application and success. Further, while financial clauses are straight forward to litigate, successfully enforcing substantive ethical norms in M&A agreements through judicial channels may present notable interpretive or political challenges. Monitoring a purchasing company's behaviors for compliance with terms can be costly and pragmatically difficult without sufficient transparency requirements, and bringing legal challenges under an M&A agreement requires significant resources that founders or other stakeholders with standing may not have or be willing to dedicate to such efforts.²⁷ Using nonlegal channels for enforcement may be possible (see Gunningham & Grabosky, 1998), as with the negative media attention that Alphabet has garnered through its opaque dealings with the acquired DeepMind and its ethics board and questions around whether its originally envisioned powers have been provided.²⁸ Of course, such media pressures do not yet appear sufficient to influence Alphabet's behavior here, again illustrating the greater economic power potentially wielded by larger acquiring firms.

²⁶ E.g., OECD Recommendation (2019); UNESCO IBC Report (2021); Sebastian M. Pfotenhauer et al., *Mobilizing the Private Sector for Responsible Innovation in Neurotechnology*, 39 *Nature Biotechnology* 661 (2021).

²⁷ The authors are grateful to Walker Bowman for making this point. See generally, e.g., Albert Choi & George Triantis, *Strategic Vagueness in Contract Design: The Case of Corporate Acquisitions*, 119 *Yale L.J.* 848 (2010).

²⁸ See Olson, *supra* above.

To overcome the inherent economic conditions and power imbalances, various stakeholders should consider taking the following action. First, start-up firms and founders should consider pursuing special provisions when negotiating M&A agreements, understanding the long term social and individual risk. Second, large firms acquiring neurotech start-ups should keep in mind that these types of agreements might increase their market reputation by signaling their commitment to RI. Strong self-governance could also lessen calls for hard government regulation. Third, public investors including the National Institutes of Health (NIH) and Department of Defense (DOD) could consider embedding conditions or incentives in grant funding directed at commercializing neurotech that would encourage special M&A provisions when acquisition is being discussed. Fourth, both private investors, such as venture capitalists, as well as groups promoting responsible neurotech innovation, such as the Institute for Neuroethics (IoNx) and BrainMind, can promote a commitment to neuroethics in their investments by encouraging and supporting their start-ups in pursuing special M&A terms, even if it means a small drop in return on investment (ROI). Further, they can understand the long-term financial gain from maintaining market trust, not triggering hard regulation, and increasing their reputation and legacy. Fifth, state legislatures should consider updating M&A statutory law to facilitate, incentivize, or require M&A agreements around emerging technologies to consider special terms on neuroethics. Sixth, non-governmental organizations (NGOs) can serve as powerful watchdogs over M&A agreements, alerting the public over concerns in real time. Lastly, State judiciaries should consider when requiring/permitting special M&A terms for neurotech would be consistent with broader public policy goals of M&A law.

Conclusion

M&A agreements are one potential soft law vehicle for making governance more durable and enforceable in the neurotechnology sector over time, accounting for realistic expectations of acquisitions as the market matures. Conscientious negotiation and enforcement of acquisition agreement provisions may allow for governance tools to be built into the technology regardless of its corporate owners, allowing founders and other stakeholders new mechanisms for preserving and promoting the socially responsive and beneficial goals commonly stated in the neurotechnology field at present. While the effective use of M&A as a soft law tool depends on several economic conditions and power imbalances between firms and third-party actors in the public and civil spheres, stakeholders and policymakers have opportunities to build more incentives and infrastructure to help facilitate the use of these tools to make ethical self-governance and private-led RI more durable for neurotechnologies.

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